The historiography of landscape research on Crete

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Introduction

The island of Crete has been the focus of extensive landscape explorations aiming to uncover its archaeological past since the time of the Travellers in the 19th century, even though the roots of such an interest can be discerned much earlier. Explorations increased in time, particularly encouraged by the extraordinary archaeological discoveries of the Minoan civilisation. Undeniably, archaeological landscape research is immensely important for an understanding of the history of human societies, as much because it discovers the spatial context of human activity over time, as because it allows the study of such activity and its relationship with the physical environment from a variety of perspectives. Indeed, archaeological landscape research on the island has contributed a great deal to the building of a puzzle of human history, whose extents however, are unknown. Moreover, the information gathered does not necessarily constitute neighbouring pieces in the puzzle; it may be the result of different research orientations, questions and desires, subject to historical and epistemological contingencies. The partial picture of the puzzle is also hazy, as the interpretations of such information constitute suggestions that not only can be debated, but are most often unclear. So what have we ultimately gained from hard archaeological work of over a century? To what extent and in which ways can we profit from archaeological landscape explorations that have produced and continue producing information and knowledge at multiple levels? The understanding of archaeological knowledge from landscape research and the assessment of its potential seems to me a necessary step in the effort to put the puzzle pieces together in a meaningful way. I strongly believe that archaeologists have a duty to propose explanations and offer suggestions about life in the past; however, it is very important that relationships between data and interpretations are exemplified and the reasons why specific explanations are preferred to others are clear. Research and knowledge are, no doubt, dependent on a high level of communication and understanding among researchers.

The aim of this thesis is to explore archaeological landscape research on the island of Crete from the time of the early Travellers in the 19th century till the present day. The ultimate purpose is to describe and understand knowledge production, and assess its potential and usability. Moreover, a methodology is proposed towards the study and integration of various strands of landscape research. The 'data' analysed are in fact the interpretations proposed and the research process itself. The approach followed sought to identify 'traditions' of landscape work, through the description of theory, methods and results, so as to understand interrelationships between different projects and be able to construct the historiography of archaeological landscape research on the island. Problem orientation, methods, definitions and interpretative framework have been studied and described, and relevant patterns have been grouped into 'traditions'. The term 'tradition' should, thus, be understood as a discourse exhibiting certain characteristics in the way the past is approached through landscape explorations and related writings. Traditions, however, do not follow each other in lineal temporal and quality relationships. They interrelate in multiple and complex ways, exhibiting rather fuzzy borderlines, and variable degrees of internal consistency. On the other hand, projects of archaeological landscape research do reveal common traits in theoretical and methodological frameworks, which illuminate a wider context within which they were realised.

Chapter one aims at providing a historiographical context of archaeological theory and method in landscape research worldwide, which illuminates perspectives of relevant work in Crete and allows us to study it in relation to wider developments. It discusses landscape concepts and the practice of landscape archaeology from the time of the early Travellers until the present day in a historical framework.

Chapter two describes the methodology followed to analyse landscape projects in Crete over time, which is based on two relational databases; these describe relevant work and allow us to identify common characteristics among projects that are used to describe the various traditions. Furthermore, they allow us to compare projects and traditions.

Appendix one consists of database reports for the thirty-five projects described in the 'surveys' database (both on cd). A wide variety of information is collected and presented, from aims and interpretative frameworks to methodologies and results. Detailed descriptions allow a better understanding of each project and constitute a useful guide to all relevant work. The fields used in the database tables are documented and described in appendix two, which should be consulted any time explanation of the terms used is needed. It should be noted that of the 35 projects analysed, most belong to the Landscape Tradition of intensive surveys, as these constitute the current paradigm of archaeological landscape research and promote a desire for integration and inter-regional studies. Even though the great majority of intensive survey projects have been studied, there are a few of minimal or of no publication that have not been included. The remainder of the projects discussed constitutes a representative sample of the various traditions. There are, of course, numerous reports of Travellers and Culture History archaeologists that could not be included in the present study due to time restrictions. Nonetheless, it is believed that these follow the same principles identified in the projects analysed.

Appendix three provides reports of the 'interpretations' database (on cd), describing possible relationships between data observed and site interpretations proposed, for a representative sample of site interpretations. All the fields and terms used in the database are exemplified in appendix four.

Chapter three consists of a text analysis for each of the thirty-five projects studied. It discusses problem orientation, methods, presentation and relocatability, site densities and site definition, interpretative framework and finally it provides a summary assessment. The discussion is based on the information collected in the 'surveys' database. The final section discusses the interpretative process of site definitions based on the 'interpretations' database and presented in appendix three.

Chapter four uses analytical tools to describe the five traditions identified, on the basis of qualitative and quantitative relationships that emerge from the 'surveys' database. Comparison is pursued at an inter- and intra-tradition level, resulting in a detailed presentation and explanation of the operational framework and the results we have for every tradition. It identifies similarities and differences among them and it provides an assessment of variability within traditions.

Chapter five discusses extensively the various traditions and provides a historical framework within which archaeological landscape research in Crete has been undertaken. It follows a set structure of the most important themes regarding landscape research, namely theoretical background, methodology, site definition and relocatability, results and interpretative framework. The chapter seeks to exemplify what is considered as proper discourse and how traditions interrelate and explores the disciplinary paradigms that have guided archaeological landscape projects on the island. An assessment of what we ultimately have as information and interpretations is also provided through the description of strengths and weaknesses for every tradition.

Chapter six is a case study that explores the potential of integrating research of different traditions within the same area. The acquired knowledge from landscape research undertaken in the eparchy of Siteia is combined to propose a history of human evolution, subject of course to the potential and limitations of the relevant projects. It demonstrates the variability of landscape research undertaken on the island and allows insights into the usability of results and ideas from different archaeological landscape projects.

Finally, chapter nine presents the conclusions, which focus on a proposal that defines all the necessary information we need in order to integrate results from different landscape projects. Emphasis is given on the importance of publication standards that can ensure a better communication of survey data and interpretations, so that research assessment and data integration may be immensely enhanced.

Overall, the present study is hoped to elucidate the history of archaeological landscape research in Crete and offer insights into world-wide developments. It stresses the importance of studying knowledge production and promotes ideas of evaluating this knowledge and using it to the best of its potential. A most important aim has been to encourage a meaningful communication of ideas and results and it is hoped that it will promote interesting discussions among archaeologists interested in landscape research.

1. The History of Landscape Archaeology: Major Traditions and Approaches

1.1 Introduction

This chapter aims at offering a wider context of the development of Landscape Archaeology within which the theoretical and methodological background of archaeological landscape research in the island of Crete can be viewed and understood. It should be noted that my focus lies on European archaeological landscape research and in particular Greece and Italy, due to the area's long tradition and vast number of works, but also because of my personal familiarity and experience. Taking into account that even though approaches and perspectives fall within identifiable trends in thought and practice over time, they should not be seen exclusively as parts of a strict evolutionary historical sequence, as they have always been at a constant interplay; thus, instead of adopting a historical, time-progressive viewpoint, I have preferred to approach landscape work by primarily looking at the differences in landscape perceptions and secondarily following these in time.

Even though landscape studies have always been inherent in most archaeological research from the beginning of the discipline, landscape archaeology has only recently formed a discrete sub-discipline and is now taught in universities as a separate course. In fact, the importance of studying the landscape systematically has been increasingly acknowledged since the early days of archaeology, and especially since the 60's. As a result, theoretical discussions in the Anglo-American academic tradition have led to a quite distinct border line between the practice of studying material culture in relation to measurable environmental factors and the development of a body of theory about landscape perception, even though region-specific archaeology is less involved in such discussions (e.g. Aegean archaeology). The term 'landscape' and its controversial perceptions over time have attracted intense discussion emphasising the deeply interwoven relationship between human societies and the environment, a realisation that makes the study of either of the two weak when performed as if existing in a vacuum. For some there is no clear distinction between the physical and social environment (Evans 2003), thus, the recognition of the relationship between human societies and the world around them makes the study of the two one and the same. Overall, landscapes may have different meanings for different people and so does sociality; some archaeological studies focus on economy linking it to the geometry of the landscape and its environmental properties, others focus on the personal and symbolic experience; some are interested in patterns of stability, others in patterns of change, some seek to identify systems, others might look for the divergences from patterns, while time and space may also be explored in totally different ways and in a variety of scales.

The latest trend that can be observed is an attempt to encompass almost all previous approaches in a more 'cohesive and complete' framework combining methodological correctness and interpretative complexity. However, in our effort to understand landscapes of the past and what these meant for the relative societies, I believe it is crucially important to understand what landscapes mean for the researchers who reveal past landscapes and under what theoretical and methodological trends landscape studies have evolved. In this context, I hereby discuss the main approaches to landscape and their related field practices, which I have divided into relevant traditions of archaeological landscape research. Landscape research has been used to answer questions of social and economic interest and explore relationships between people and environment. A historical retrospect of the questions asked by the relevant theoretical considerations in connection with the changing methodological and interpretative framework of surveys is of the outmost value if one wants to understand and assess its development. A brief summary of theoretical developments in archaeology can help illustrate the conceptual framework within which landscape explorations of an organised and energy-invested manner became an ever-growing popular archaeological tool operating in a diachronic level. I should state, however, that I do not provide a complete historical overview of archaeological landscape research; Such a theme is vast and very complex and one should take into account region and country specific circumstances as

well as world-wide trends, relative to the historical development of archaeology as a discipline and which has been influenced by developments in sister disciplines (history, anthropology, geography), but also in ideology and political history.

1.2 Landscape as Environment

1.2.1 Environment as Background of Human Activity

Studies that use environmental observations as background of human activity focus on what is visible and provide descriptions of varying detail and objectivity. Such descriptions of the physical environment form a basic context in which to view material culture and production. This approach may be noticed in all traditions over time, the following ones, however, are the most typical.

1.2.1. i Travellers

Travellers' accounts are numerous throughout the world, Greece being one of the most important destinations due to the specific socio-political circumstances in Europe the last centuries. The phenomenon of European Travellers has resulted to much secondary research (Simopoulos 1970-76 – important historical research including primary sources; Constantine 1984; Angelomati-Tsoungarakis 1990; Etienne, R and F. Etienne 1992; Bennet and Voutsaki 1991), sometimes focusing on specific areas (Gondica 1995; Warren 2000), in an effort to understand aims, perceptions and historical conjunctures of people who established a tradition of exploring both the physical and human worlds and nourished a deep desire for cultural knowledge in a wide spatial and temporal scale. The Travellers' tradition in reality starts in ancient times with Herodotus, Pliny, Strabo, Pausanias and others, who described cultures and monuments in their physical settings. 'Chorography' ('choros' = χώρος = space and γράφω = I write, describe) was a distinct discipline, which dealt with the description of space and everything cultural or natural that was included in it and could be observed by human eye. In particular Pausanias was one of the first who travelled through much of Greece in order to see and describe new places. His work can be seen as a guide and a source of information and entertainment. For Europe, he is the father of Travellers, but also topographers and antiquarians, showing a preference to the old over the new, the sacred over the profane. He followed a methodology of dividing space into geographical areas, moving about according to topography, and described it with a combination of 'logoi' (things to be said e.g. myths, traditions etc), and 'theoremata' (what is visible). His work is representative of an era when travelling in the lands of Greece and describing material culture had acquired a certain prestige; Greece in the 2nd century A.D. had already become a museum of housing the arts of a glorious past. Soon however, the decline of the Roman Empire, the instability caused by wars and the rise of Christianity put a halt to the interest in Greek monuments and art for a while. Although travelling throughout the Byzantium never actually ceased (Simopoulos 1970), Greece was not to be rediscovered by Europeans until the 15th century A.D. through Cristoforo Buondelmonti (1897 and 1983, edited by Alexiou and Aposkiti) and Ciriaco de Pizzicolli or Cyriacus of Ancona (Bodnar and Foss 2003). Influenced by the Italian humanism, they actually superseded interest in ancient texts and explored Greece from a much more diverse framework with a particular interest in geography and cartography, which were already at the route of revival with the maps of Claudius Ptolemaeus at the end of the 13th century (The manuscript of Geographike Hyphegesis with 10 maps of Europe is attributed to the monk and teacher at the Chora Monastery in Constantinople. It is contained in codex Urb. Gr. 82 of the Vatican Library - Zacharakis 2004). Cyriacus in particular was very interested in material culture and was the first to record it systematically appreciating its historical importance.

In the 16th century the European Humanism promoted a thirst for knowledge and nourished the desire for discoveries and adventures, evident in the explorations of Travellers who shared an interest in geography, sociology and natural sciences, botany and ancient history (e.g. Belon 1555). At the same time, travelling through Greece was also encouraged by pilgrimage to the sacred lands. The 17th century with the

establishment of the 'Grand Tour' was a time that travelling became an important component of the British education. Philology had established a long history of acquainting Europeans with the Hellenic past, but now texts are not considered adequate and for the first time 'hard data' or material remains are used in order to bridge the time-gap with ancient Greece. The collection of ancient Greek material culture was indicative of one's social and educational background The first to record ancient inscriptions in a consistent manner was Jacob Spon (1678), who together with George Wheler travelled through Greece in order to identify and describe ancient monuments. He also tried to compare his observations with those from ancient authors, a practice that was kept throughout the Travellers' epoch. Visits to Greece were continuously encouraged by a variety of historical circumstances; social (Enlightenment, American and French Revolutions based on ideas of the ancient Greek democracy), political (Napoleonian wars discouraged travelling through the mainland Europe), economic (British contacts with the Ottoman Empire), religious (pilgrimage to the sacred lands passed via Greece) and technological (publication of travelling accounts). By the 18th century Greece was a very popular destination, attracting many Travellers who were educated within the spirit of Enlightenment, influenced by aesthetics and philosophy of the ancient Greek world. An interest towards structured studies is developed, in particular in the realm of architecture and art. A leading figure of the time was Johann Joachim Winckelmann, who even though never actually managed to visit Greece, invented history of art and inspired the search for antiquities as a result of their artistic and aesthetic value. Architects, antiquarians and classicists, who explored Greece in a formal manner and often under the hospices of the philhellenic society of Dilettanti, established the roots for, and in many ways determined, the future of Greek archaeology. Overall, the period of European Enlightenment marked the beginning of extensive travelling in the newly discovered lands; there was a growing confidence in science and the objective study of the world and a desire to explore other cultures and lands in quest for knowledge. Travellers describe material culture and ideology as they perceive it at the time, whether English and French who travelled in the Mediterranean and the Middle East, or Spanish friars in Mexico, leaving accounts that formed the basis for the later development of archaeology.

Travels and travelling accounts followed a continuous development reaching their acme in the 19th century. Travellers may be merchants, ambassadors or adventurers, but they are usually polymaths, involved in many sciences of their time, often doctors, geographers, botanists. (Tolias and Koumarianou 1995). Depending on person and interests, some Travellers focused on environmental aspects of the land explored, others on cultural, some were more interested in the past, others in contemporary life. The polymathic spirit of the 18th century was followed by a new era of exploration and observation in the 19th, which produced detailed accounts on environment (Raulin 1869; Depping 1830), economics (Pashley 1837), folklore and ethnography (Sieber 1823), archaeology, agriculture and demography (Spratt 1865). There was a conscious effort to be 'scientific', which involved the acquisition of an as complete and precise set of observations as possible. Mapping had already quite a long history, but within the colonialist era cartography becomes an objective on its own and Travellers include in their aims the objective map representation of the places they visit (Spratt 1865: Production of Admiral Chart and geological map). At the same time, Travellers' accounts accompanied by picturesque drawings developed a romanticized interest in Greece, which inspired many Europeans to explore the newly rediscovered land and its ancient past.

Within this era of great developments in the natural and social sciences the dynamic idea of European identity found its roots in classical Greece and formulated the idea of Hellenism (Morris 2000:41-48). In the 19th century scholars still operated in the ancient Greek framework of a 'polymath' or else multi-scholarship and apart from individuals who travelled, explored and recorded new lands and cultures, we observe a more organised expression of the same phenomenon through missions such as the Expedition Scientifique de Morée (Bory *et al.* 1831-38) or archaeological ones such as Schliemann's and his collaborators'. Although there is a strong focus on the environment, an important characteristic of the era is that there was not a very sharp break between culture and environment and Travellers described both physical and cultural worlds. Remains from the ancient past were integrated in the landscape observed and were not distanced from it. Travellers perceived the world based on 'what could be seen', the environment and nature 'containing' the cultures discussed. They

often give very detailed accounts of what they see, but also feel and think, thus they are valuable sources of information about how the landscape looked like during the time of their visit, but also about the social and economic life of people at the time. We obtain a good idea about how the landscape was experienced by them, who were visitors and explorers, but also by the locals and at the same time it is interesting to reflect on their interests and therefore the interests of the people they referred to back in their countries. In general, there prevails the idea of environmental stability through time and the notion that a full picture of humanity requires also the description and study of the physical world that contains it.

At the same time, however, the illegal export of antiquities became a norm. The 19th century was the time of the founding of the great European museums – the time of the plunderers. Unlike Roman emperors e.g. Augustus and Hadrian who both had reproductions of the caryads of the Erechtheion, North/Western European 'ambassadors' felt it was within their jurisdiction to extract and consequently destroy monuments at free will (a typical example with political implications still in our days has been the case of lord Elgin and the marbles of Parthenon). On the other hand, this is also the time of the revived Greek 'aesthema' or feeling for the resurrection of the Greek state. The young state supports the study of its antiquities and develops frameworks for the management of its cultural heritage. Towards the end of the century we have the organised practice of archaeology and the beginning of organised excavations with figures such as Schliemann and Evans but also Kalokairinos and Tsountas. A key situation that has structured archaeological work and academic production till now is that the ancient Greek past became a trade good in the hands of the new state, which sold its antiquities to the competing foreign excavators in exchange for money and privileges.

To sum up, Travellers' accounts have indeed, inspired much later archaeological work and have been a valuable source of information much acknowledged and used in later traditions. Their vivid descriptions of what they saw and heard treat time as a united entity whether combining natural landscape and ancient monuments in their existing settings or mixing stories from mythology and contemporary everyday life. The significance of their accounts is even greater than those of concurrent historians because they are personal documents expressing thoughts and feelings quite freely; in this way they serve as brilliant and vibrant primary sources for the present historian and archaeologist. On the other hand it has been noted that Travellers often viewed the landscape 'through the filter of their own experiences' (Bennet *et al.* 2000:344) and therefore, their accounts should not be treated as objective beyond doubt images of a specific area/time, but they should be studied in relation to other documentary, but also archaeological evidence.

1.2.1. ii Topographic Tradition

The term 'Topographic archaeology' has been used to denote non-systematic extensive landscape research prior to organised, extensive and mainly intensive archaeological survey. However, in the context of this work Topographic archaeology refers to studies that focus on topography and which started with an interest in the reconstruction of ancient landscapes based on descriptions of ancient writers. In this sense, I make a distinction between archaeological research that focused on the recording of spatial geometry, and extensive research that aimed at the enrichment of site indexes; the latter is included in what I call 'Culture-History' archaeology.

The history of archaeological landscape research starts with Antiquarians' descriptions of ancient monuments, which date since the 16th century, but also Travellers' accounts, which awakened an increasing interest for past civilisations, but it is through the Topographic Tradition already in the 19th century that archaeological landscapes acquired an organised form of enquiry. Its roots can of course be traced in Pausanias's work, whose accounts have indeed been an invaluable source of information for later Travellers, topographers, historians and archaeologists (Alcock *et al.* 2001; Elsner 1994). A turning point for the history of topographic research, especially in Greece, was W. M. Leake (1824, 1835, 1967), a military geographer, who tried to identify ancient sites in his current landscape and for whom Pausanias was the main source of ancient topography in Greece (Wagstaff 2001). Gell (1819, 1804) was also an important figure in the area, even though his work concentrated more on the detailed description of surface remains he encountered in his travels. It seems that the characteristics that shaped the Topographic Tradition and formed the basis of

Culture-History tradition as well, were the outcome of a military geographical interest and a time-division of space focusing on the mapping of important locations. Leake's work in particular, established the topographic approach in landscape exploration, and represents specific historical circumstances in a complex interplay between concepts of landscape and media used to produce archaeological knowledge (Witmore 2004). Topographic studies flourished around the turn of the 20th century, together with and usually as part of Culture History archaeology. At the time new discoveries are promoted and there is an awareness of the importance of ancient remains as the only witnesses of past cultures. Within a methodological framework of scientificity, topographical studies focus on the geometry of the landscape and the monuments. At the end of the 19th century, articles with themes on the 'topography of ancient sites and regions' appear in the main archaeological journals (e.g.Pickard 1891), which until then published only excavation reports and objects' descriptions.

Works of the Topographic Tradition study contemporary topography and compare it with topographic descriptions of ancient sources trying to visualise places and events described by ancient historians. Effort is made to sustain how information from ancient historians and previous researchers may be confirmed through the situation of present remains and the site's topography. It is believed that via the identification of topographical checkpoints and the study of the relationship between ancient and modern topography, the accuracy and objectivity, thus historicity, of ancient historians can be assessed (Pritchett 1965, 1992). Earth sciences were soon acknowledged to play an important role in past landscape reconstruction and multi-disciplinarity (the co-operation of archaeology with geography, history, topography and geology) was often encouraged. The reconstruction of ancient battlegrounds, routes and paths are most favourable topics of research (Pritchett 1969, 1980, 1982; also 1985, 1989, 1991, 1992). Toponyms and ancient descriptions are very important and descriptive accounts of what researchers saw and did, give emphasis on the location of remains in relation to one another and in relation to modern features (quoting time and orientation) so that they can be relocated. There is also some consideration of materials used and their origin, but focus is guided by a geometric perception of the environment and ancient remains, providing detailed measurements on thickness, distances, length and height of walls, stones and features and also detailed descriptions of the topography of sites. Geometry, appearance, materials and spatial relationships between architectural parts are believed to relate to cultural identity, and thus they receive great attention. The history of the site is related to the environment and the physicality of the landscape, e.g. weather, marshes, the sea, mountains and gullies as the topography is believed to have played an important role on the site's character and function. Topographic maps/City plans are made and provide a visual distribution of features in space, complementary to detailed descriptive texts. Archaeological atlases also make their appearance in the beginning of last century (Gsell 1911), a practice that has continued till now. The Topographic Tradition can be seen as a paradigmatic expression of an 'orderly' world representing the belief in scientific objectivity, which is acquired through observation, and it demonstrates strong links with cartography and geography.

Italy constitutes one of the best examples of a wide application of topographical studies from the end of the 19th century. The work undertaken in the beginning of the century from both foreign and Italian researchers took a structured form in the 50's with John Ward Perkins, director of the British School in Rome, who motivated by the sudden land reformations of the Italian countryside started a long effort to record the Etruscan sites that started disappearing fast under the plough. The survey of south Etruria (Potter 1979), which lasted some twenty years, started within the Topographic Tradition and was one of the first to have a rescue character long before rescue archaeology was established. However, the long experience and multitude of data (some 2000 sites over 1000km²) made it also one of the first projects with a problem orientation towards landscape changes over time through the identification of changing settlement patterns (see below). Within the same framework of recording the fast vanishing ancient landscape of Etruria, the Topographic Institute of the University of Rome promoted a series of surveys known as the Forma Italiae surveys taking place throughout the 60's and 70's (Terrenato 2000). They were concerned with listing and mapping architectural remains, much guided by a nationalistic initiative of the time, but since the 70's they incorporated the recording of artefact scatters (Quilici Gigli 1970), something that had been initiated mainly by the British researchers

much earlier and which in the 60's reached its peak under extensive landscape explorations within settlement archaeology. The German school with its strong focus on Classical Greek and Roman cultures, has also had a long history of studying ancient topography, from the early 19th century (Karl Otfried Muller 1797-1840: he introduced a standard of accuracy in cartography of ancient Greece) until the present times (Lohmann 1993). Reports offer detailed records, plans and maps of sites, monuments and regions containing them. Topographic archaeology has in fact developed through classical archaeology and has always promoted a 2-dimensional visualisation of the ancient world through period site maps, sketch maps and site plans. In many countries site recording is now under the auspices of CHRM national projects, often with a strong rescuing character, even though nationalistic interests may still play an important role (e.g. Mexico: sites are being recorded by the National Institute of Anthropology and History). Site recording has in some cases been standardized (Britain and SMR's) and such records form an invaluable source of information whether for purposes of research or heritage management.

The Topographic Tradition is in a way embedded in all archaeological landscape research, even in modern regional intensive surveys. Although the Anglo-American approach to intensive survey and quantitative studies of the landscape characterises fieldwork in particular in Europe and the New World, topographic studies and intra-site architectural recording remain an integral part of archaeological explorations. Topographic surveys are now often part of large-scale landscape projects especially when such projects are urban surveys or context surveys, initiated by interest in a specific site and its relationship with the regional pattern diachronically. A human-geography problem orientation may also encompass advanced studies of topography as a means to understand settlement location choice and movement (e.g. Nowicki 1987). Indeed, when topographic studies do not aim at a sterile geometric record of surface remains but at a wider landscape understanding and visualisation, they offer valuable contributions to the understanding of archaeological landscapes.

1.2.1. iii Culture History Tradition

Before endeavouring in a discussion about landscape perceptions within the Culture-History tradition, it should be made clear that the term 'Culture-History' in this text falls within Renfrew's 'Great Tradition' (1980) and is not used with the same meaning as discussed in American New Archaeology theory books. In the Americas the term signifies archaeological research that has used material culture to *create* cultural groups; for example, during the 30's and 40's American archaeologists classified material culture into cultures and cultural units all of which form the Mesoamericas. However, in Europe, and in particular in Greek and Roman archaeology, but also in Egypt and the Near East, Culture-History archaeology studies historically known civilisations through the observation and typological categorisation of objects, which are the material expression of cultures familiar to us through ancient texts. The aim has been to prove the texts right, identify in the archaeological record sites known from the written sources and increase the number of sites in site indexes of the relevant civilisations. Culture-History in Europe has in a way developed out of the combination between Prehistoric archaeology with its dating methods, and art history, which is studied mainly within the realm of classical archaeology. The last has been defined and discussed as '(1) the study of ancient Greek and Roman artefacts with the aim of (2) showing how Graeco-Roman culture was expressed in material terms, (3) focusing on the connections between Greek and Roman works of art (4) and Greek and Latin literary culture' (Morris 2004:8). The focus given on the artefact and its artistic value, but also the importance between material culture and text has been applied in pre-classical periods also, in areas with rich material culture (e.g. Bronze Age Greece) and this approach characterises what I call Culture-History in Europe. This tradition especially in Greece had a narrative already before archaeological explorations and was interested in illustrating and visualising what was mentioned in ancient texts and myths. To sum up, the term here is used to stress the emphasis given on objects, which has promoted classifications and site indexes. It should be noted that in fact, it is within the culture-historical paradigm that archaeology flourished, and even though it lacked a complex interpretative framework, meticulous recording and typological studies have actually served as the foundations of all later archaeology;

undeniably, (Renfrew 1980; Snodgrass 1987) the great achievements of archaeologists such as Beazley, Dorpfeld etc can certainly not be undermined.

Archaeology as a discipline and specialised field of enquiry was born at the end of the 19th century and in a way it was the continuation of the antiquarian interest in ancient monuments and material culture from the past. At that time, organised excavations brought to light ancient civilisations that till then existed only in myths and ancient texts (Schliemann, Tsountas, Evans, Khatzidakis etc). The new discipline specialised in the definition of ancient cultural identities through the description of material remains and the building of typologies and chronologies following the Three Age System adopted by the Danish C. J. Thomsen and his assistant J. J. A. Worsaae, who categorised objects of the National Museum of Denmark into Stone, Bronze and Iron Age (in Fitton 1996). Earth sciences at the time were used to establish the great antiquity of humankind and helped to build a chronology for prehistoric archaeology. Their importance however, in shaping archaeological landscape perception was not the same for prehistoric and classical archaeology, which followed a different trajectory ever since (Morris 2004). Still, the echo of the developments in geography and material sciences is seen in the archaeological research of the Culture-History tradition, as a basic description of the physical environment was often part of the first archaeologists' observations. However, in the beginnings of the 20th century such mentions appeared to be of minimal importance and archaeologists concentrated almost exclusively in the study of art and architecture of long-lost civilisations. Influenced by the long-established Topographic Tradition and the Travellers' explorations, archaeological perception of the landscape kept its main characteristics, namely the notion that the physical environment is the observable spatial container of cultural activity. However, the approach of most archaeologists at the time did not coincide with that of many of the Travellers and general scientists in earlier years who attached a greater importance to environmental studies; neither did it totally match the topographers' approach that focused on the detailed recording of the measurable characteristics of both the physical landscape and the monuments. Environmental descriptions, if included in a publication in a more systematic way than occasional mentions, are treated separately in the beginning of a report before the 'real' archaeology, which describes material culture, creating thus, a man/nature dichotomy. Human activity, revealed through excavation and classified as secular, burial or religious expression of a specific culture, is seen in its environmental settings most often in the form of passive topographical descriptions. Nevertheless, there are some influences from Geography and Historical Geography when discussing site-location although in a rather simplistic framework, in which case 'common sense' explanations are demonstrated, e.g. location by the sea implies seafaring etc. At times, environmental explanations have also been used on a rather deterministic perspective, where at its most dramatic form the fall of past civilisations has been attributed to environmental catastrophes (e.g. the Minoan civilisation vanished in the ashes of the Santorini volcanic eruption). In general, systematic geographical studies are not a consistent part of archaeological research, even though there is an interest in imagining ancient cultures in their geographical settings (Cary 1949).

Categorisations of cultures and time are in fact valid till the present day, even though research now gives great emphasis to regionalism and local differentiation. In every country Culture-History archaeology has been linked to a nationalistic stage, especially in its early steps, to the articulation of political tension worldwide and the effort of many states to establish the old age of their culture, which could legitimise their sovereignty (e.g. Greece) or even their dominance over other cultures (e.g. Mexico). The fact that Culture-History archaeology, in particular in Greece and Italy, focuses on specific periods which coincide with an artistic and cultural acme that produced innumerable artefacts, expresses a complex socio-political scene worldwide, which has determined the development of archaeology as a discipline (Morris 2000). A social evolutionary theoretical framework, that typifies Culture-History archaeology, is also typical of the 19th century colonialism, the era within which archaeology was born. A strong criticism to treating societies as living organisms in a linear evolutionary process of birth-maturity-peak-fall and from simple to complex has been unavoidable (post-modern paradigm). The Culture-History tradition usually gives emphasis to the recording of ancient remains of periods considered of great importance in social evolution. Archaeologists'

questions of 'what' and 'where' involve the landscape in its spatial dimension aiming at the location of sites which prove cultural spread and significance, as well as sites with a rich yield in artefacts such as settlements or cemeteries, which are suitable to excavate. Archaeologists are mostly concerned with typological and chronological questions rather than with relationships between people and landscape, or mode of living. On the other hand, the value of artefact typologies can not be undermined as they are the archaeologist's most basic tool in studying human activity over time and space, even though absolute dating techniques have actually made a huge impact in chronological refinement and accuracy. Moreover, extensive landscape reconnaissance and topographic work have been much encouraged within a Culture-History conceptual framework and the resulting gazetteers have been a valuable source of information for later landscape projects and archaeological management.

Landscape researches undertaken within a cultural-historical framework led to the enrichment of the settlement data record with new sites of the studied 'cultures' in various regions and in turn, settlement archaeology with the recognition of patterns in settlement location encouraged landscape explorations for the discovery of new sites. The extensive survey tradition was already established in the 30's (e.g. Pendlebury), but attested a peak towards the middle of the 20th century, in particular from the early 60's (e.g. Greece: Hope Simpson 1965; Hope Simpson and Dickinson 1979; Hood 1965, 1967. Hood *et al.* 1964). It should be noted that such work could be problem oriented and rather intensive (MacDonald and Hope Simpson 1961), even though not in the sense of regional intensive surveys (see below). The creation of site indexes and gazetteers with descriptions of known sites as well as newly discovered ones (mainly settlements), is of course an on-going practice (Gallis 1992; Spencer 1995). There are numerous examples of such work across the world often promoting research interest to a level that later led to intensive surface survey projects, which usually publish a concise bibliography of such extensive previous work in the respective region. Researchers are trained archaeologists, specializing in material culture of specific areas and periods. They explore the landscape in order to find sites, which belong to periods that have produced rich material culture and have been the centre of attention for Culture-History archaeology e.g. Classical, Etruscan, Minoan or Mycenaean, the underlying purpose usually being to locate sites worth of excavation. However, they usually also record broad periods other than their main interest, but often discarding sites of the last millennium and small sites with no obvious standing architecture. Focus, thus, is on the identification of significant material culture and its spatial spread and questions include the recognition of areas more densely inhabited and the character of sites in terms of size and location, allowing general statements about the culture of interest. They are influenced by the Topographic Tradition often giving quite detailed reports and measurements of monuments and architectural remains found, as well as the physical environment that surrounded them. The landscape is seen as a wider geographical area where human activity takes place, but sometimes they do not confine themselves to basic mention of the environment around the site in question, they also consider some possible relationships between people and environment from an ecological perspective without, however, studying these in an organised and structured way such as promoted by environmental and landscape archaeology. Thus, while sometimes landscape as physical environment appears only through basic mention in reports, in other cases physical resources are considered, as well as communication routes or subsistence potential. Archaeologists concentrating on typological classifications also study the location of settlements in relation to environmental characteristics of the landscape and with a geometric perception they focus almost exclusively on spatial relationships. The identification of new sites has usually been based upon environmentally deterministic judgments (e.g. hills are a good choice for settlement locations of a specific period). Extensive researches of this kind have often operated within a Sites and Monuments Record framework. A pioneering project that deserves special credit is Catling's Cyprus survey (Catling 1962; Cadogan 2004), which took place from 1955-1959. It aimed to record all ancient sites from the earliest times to 1700 and was in fact a great inspiration to all later landscape projects in the area.

Within this tradition we can partly include the development of British, Italian and French aerial photography studies. Aerial photography has a very long tradition linked originally with military purposes,

but its value for archaeology was soon recognised. The First World War produced pioneers such as O.G.S. Crawford and G.W.G. Allen who demonstrated how aerial photography could complement ground surveys since it could reveal subsurface monuments, which leave a distinct cropmark visible during early summer (in Strachan 1998; for a bibliography of early studies check Chevallier 1957). It has had an immense impact on landscape archaeology so much in locating sites as in interpreting them (e.g. Schmiedt. in the 50's and 60's demonstrates the use of aerial photography in topographic studies of ancient sites (e.g. Schmiedt 1964), while Soyer in the 70's (1976) studies the centuriation systems of Algeria). It was the first form of remote sensing and is still widely used in CRM but also within the Landscape Tradition in order to reconstruct and interpret past landscapes (Aston 2002). Nowadays, aerial photography and satellite imagery provide a wide spectrum of land visualisation and study.

1.2.2 Environment as Influence on Human Activity

Views that see the environment as influence in human activity stress the environmental attributes of the physical landscape and study cultural activity in relation to a specific environmental context. Archaeological research is not only interested in the location of human activity and in a general picture of the surrounding environment, but acknowledges the importance of studying societies in relation to geography and environment. Past societies are approached through an economic perspective and much attention is given to subsistence questions and man's adaptation strategies in specific environmental situations. Settlement location is explained on the basis of environmental factors and cultural behaviour is seen as a response to environmental stimuli. Concepts as to the degree of the environment's influential role vary from systemic to culture and region specific, to man-environment interactions.

1.2.2. i Historical and Human Geography

Interest in the relationship between history and geography is claimed to have started by Herodotus and passed on to later historians like Thucydides, Polybius and others. Ancient Greek historians were very concerned with the geographical background of the people and events they described in their works. The information we have from ancient writers on the geography and history of their time served as the primary sources for the late 19th –early 20th centuries' revived interest in Historical Geography as well as History and Geography. Already in the 18th century the French tradition in historical and geographical studies explores the landscape as the combination of time/space relationships (Frieseman 1789).

By the end of the 19th century, history, geography and topography were established disciplines, developing in close interaction. At that time, the German geographical thought promotes systemic alignments and describes the environment focusing on its determinant role over human activity, while history is involved almost exclusively in the description of political events. The French school however follows a different trajectory with the leading figure of Vidal de la Blache, who educated in history and even Greek archaeology, shaped the future of French geography. In the beginning of the 20th century he refutes German environmental determinism emphasising geography's identity in its interrelationship with human activity. He studies regions and modes of life seeking their unique associations and introduces the idea of 'Possibilism' to describe the variable dynamics of different geographical areas; these are proposed to be studied as spatial entities characterised by a particular environment whose variable influential potential on modes of life can be seen in the region's specific cultural expression. The concept of a region is thus established and Vidal de la Blache's book (Principles of Human Geography, 1926) marks an era of a new approach in Human Geography (Martin and James 1993). Vidal de la Blache influenced geographical thought even outside France's borders; British Herbert J. Fleure together with others promoted the concept of 'region' in British geography over the 20's and 30's. The associations between geographical region and cultural developments are a focal point in his work with Harold Peake (Peasants and Potters, 1927: in Hassan 2004), where they emphasised the importance of studying the relationships between people and environment.

Historical thought also receives a major boost with the founding of the Annales by Marc Bloch and Lucien Febvre in 1929. The Annales school combined geography, history and sociology and turned its attention from describing events to seeking explanations of the long-term historical structures (la longue durée), and mentalities of epochs that characterise the medium-term evolution of economy and social structures. A true offspring of Annales thought and the one who expanded its influence at international level is Fernard Braudel with his masterpiece *La Méditerranée et le monde méditerranéen à l'époque de Philippe II*, in 1949, which was translated into English and had a great impact in the rest of the world from 1973. Braudel focused on the long and medium term in order to understand societies and emphasises technology and exchange (Dosse, F. 1994; Revel and Hunt 1995). The importance of an Annalist approach in studying past societies embracing the concept of different temporal scales in the study of humankind (long-term, medium term and short term) has been much recognised and stressed by certain archaeologists (papers in Bintliff 1991 and Knapp 1992a; also Barker 1995), however, unfortunately, most current research seems to lack such a valuable framework.

The influence that developments in Human and Historical Geography had in archaeological research can be discerned in works throughout the century even if this specific theoretical framework was distinct from mainstream archaeological practice. In 1932 Cyril Fox publishes *the Personality of Britain,* combining concepts of French geography and the personality of regions, together with settlement and environmental studies. In general, towards the middle of the 20th century scholarship describes the geography of ancient civilisations and pays attention to the geographical influences in the evolution and character of cultures (Semple, E. 1932; Cary, M. 1949). Scholars describe climate, mineral and other resources, the coast and the role of the sea, physical topography, fauna and flora, landuse in relation to socio-economic aspects and settlement patterns. The importance of geography is stressed by Myres (1953), who instead of 'historical geography', he is concerned with 'geographical history'.

Towards the middle of the 20th century German human geographers developed the concept of the 'Siedlungsräume' or 'Chamber Theory' (Lehmann 1939, Philippson – with contributions by Lehmann and Kirsten 1950, 1956, 1959). They highlight the long-term relationships between man and geographical space and promote understanding of the role of geography and environment in patterns of human behaviour. This model is based on the idea that a resourceful landscape unit identified as self-sufficient, will have always supported a local community and even though the housing location of this community shifts over time, it still remains within the chamber (Bintliff 2000a). Natural boundaries not only define the ecological resources of such a landscape unit, but seem to also determine or at least influence cultural coherence. The aim of the landscape analyst (whether human geographer or archaeologist) is a diachronic analysis of settlement geography within the 'chamber' studying why settlements shift location, how they relate to their environment and what the socio-political circumstances over time may have been. An understanding of the changes in settlement locations is believed to also reveal the character of the societies under study by shedding light to those socio-political situations that caused such changes and the relevant man-environment relationships. The emphasis given to environment for the understanding of societies is indeed great, e.g. Kirsten (Kirsten *et al.*. 1956) identifies the phenomenon of the Greek city-state as the result of the ecological advantage some societies had to combine polyculture practice (olive/wine/cereal) with easy access to the sea and crop surpluses.

A typical example of the Siedlungsräume is Lehmann's study of Minoan settlements in Eastern Crete in 1939, where he notes that there are locations that have always been preferred whenever socio-political factors have allowed it, e.g. fertile areas. However, their importance for settlement location changes over time; settlement size, number and location are noted to change according to farming economy, defence needs and ethnographic traditions. For instance, during Early Minoan times (3rd millennium BC) eastern Crete is far richer in settlements although it doesn't offer large fertile areas such as in the centre of the island, which shows that at the time fertile areas were not the only or most important factor to determine choice of location. On the contrary it seems that proximity to the sea was the most important factor, and he notes that the coast is settled even by temporary or seasonal dwellings also at times of trouble when settlements withdraw to more

secure inland locations. Using several examples of discrete regions, he considers geography and environmental potential in relation to settlement location, explores socio-political situations and notices behavioural similarities over time. Influenced by a Siedlungsräume approach, Wroncka (1959) declares the need for a complete study of the geography and topography of the island of Crete so that human societies can be understood. She studies density of sites as well as the development of a palatial society and her interpretations are based on geographic remarks and correlations. Thus, Middle Minoan and Late Minoan (palatial times) settlements are usually linked to proximity with the sea and alluvial plains opening to the interior of the island. The combination of these two factors is regarded as the leading cause for the settlement development around Siteia in MM and LM; solely proximity to the sea or alluvial plains is not a strong enough feature at the time to determine locational preference. The Siedlungsräume approach can also be used in relation to intensive surface survey as demonstrated by Bintliff (2000a), who uses survey and historical data within a 'Chamber Theory' model in order to understand settlement patterns of early Byzantine through to later medieval times. He seeks settlement continuity and location shifts exploring the chamber's potential in combination with material culture and historical evidence. Thus, he arrives at his model of continuity and population merger for the little understood dark times of the Late Roman/Early Byzantine period.

Another interesting landscape approach within the Human Geography tradition is the extensive work of Polish researchers, who studied cultural and social behaviour in relation to geographical conditions and in a historical framework on the island of Crete (Nowicki 1987; 1999a; 1999b; 1999c; 2000; Rutkowski 1986). Topography and geography have been studied in great detail and they have been the leading tool for the understanding of specific site types and the reconstruction of regional settlement systems, guiding both fieldwork and interpretation. The study of past settlement organisation identified recurrent patterns in settlement location, a human choice that may reveal comparable socio-economic circumstances over time, for example defensible sites may be re-settled in times of trouble.

1.2.2. ii Evolutionary and Ecological Approaches

Darwin's book 'On the origin of species' (1859) has been amongst the most influential works over time and his ideas on 'evolution' and 'natural selection' have formed the basis of much later work till the present. However, the concept of cultural evolution is linked rather with the philosophical school of Herbert Spencer in the mid-19th century. It expresses a colonialist ideology, characteristic of the time, which has shaped Victorian archaeology. Based on the belief that Western European civilisation was at the top of the cultural chain, it considered cultural development as following stages of a linear progress from simple to complex or primitive to civilised (Dunnell 1980; Johnson 1999). In the 20th century evolutionary ideas thrive, and G. Childe (1928, 1951) talks about cultural 'revolutions' such as the 'Neolithic Revolution' or the 'Agricultural Revolution' based on the importance of environmental impact on human behaviour. According to his 'Oasis Theory' (Childe 1928) 'agricultural revolution was facilitated by climate, climatic change and the evolution of domesticable plant species'. In these terms, cultural evolution and progress is thought to be natural in favourable environmental conditions. Later on, L. White promotes the idea of culture evolving as a system (1959) and explains cultural 'development' upon adaptability to environmental stimuli. His statement 'Culture is man's extrasomatic means of adaptation', which emphasises a dominant role of the environment upon human behaviour, inspired a great number of anthropological researches, but also archaeological some years later. The conceptual framework of Cultural Evolution under the influence of Spencer's 'survival of the fittest', where individual and species survival laws are responsible for the genesis and structure of the natural world as it is, went hand in hand with the ecological approaches that had already appeared since the beginning of the 50's Barth (1950). The emergence of ecology had an important impact on archaeological direction in the next generations. Archaeologists borrowed concepts such as ecosystem, niche, optimal foraging, population etc in their study of cultural behaviour, mainly of course within the sphere of prehistoric archaeology. Cultures are now viewed as living organisms governed by the same ecological laws as other species. Steward in (1955) supported that cultural ecology is a means of studying change and progress in human culture. Within

a cultural ecological perspective a systemic approach is promoted and cultures are seen as the expression of man's response and adaptation strategies to a particular environment. Relevant studies figured widely in anthropological and archaeological research of the 60's and 70's. At that time New Archaeology makes a revolutionary appearance borrowing ideas of cultural, but also Darwinian biological evolution, such as adaptation and natural selection. Many landscape projects based on ethnoarchaeological work aim to study cultural adaptation using concepts such as optimisation, SCA, risk and seasonality. The movement of New Archaeology, promoted by Clarke (England) and Binford (USA) from the end of the 60's focused on change (perceived from an evolutionary perspective) and used ecology to approach socio-economic questions particularly encouraged in the years after the 2nd World War. Overall, the view that cultural evolution should be seen as the result of environmental influences is very strong albeit opposing views which stress internal cultural and social factors as the correct explanatory route for cultural change (Flannery 1972 in Dunnell 1980; Crumley 1994)

During the 70's the Cambridge Palaeoeconomy School tries to reveal economic patterns by studying the origins of animals and plants, their domestication and exploitation (Higgs 1972). It seems that Chisholm's work on rural settlement and landuse (1968) played an important influential role on the new approach, which now defines the theoretical framework of many landscape projects; focus lies on the relationship between culture and environment and cultural expression may be viewed as economic adaptation strategies to environmental opportunities, subject to technological potential. The principle concept is that human behaviour will adapt to environmental, technological and demographic changes and new economic opportunities. Characteristic landscape studies in this framework were published in 'Palaeoeconomy' (Higgs 1975), where for example Wilkinson talks about the relationship between animal and human behaviour since animals play a leading role in human subsistence particularly in hunter-gatherer societies, while Barker uses territorial techniques studying settlement in central Italy and explains patterns from Mid-Palaeolithic as rational economic adaptation to opportunities offered by technology and resources. Within the same problem orientation, Higgs and Vita Finzi (1972) develop the approach of Site Catchment Analysis (SCA) in search for the origins of agriculture in SW Asia. This theory supports that land exploitation decreases as one moves further away from a site. In geography the idea of landuse being studied in relation to distance from central settlement was explored much earlier – for Africa by Prothero 1957, and Steel, Fortes and Ady 1947; for India by Ahmad 1952; for Brazil by Waibel 1958 – (Henshall 1967: 445, in Hodder and Orton 1976). The strong theoretical interest in the economic nature of societies, which is seen almost as a natural result of the physical environment, encourages environmental studies in archaeological projects, which now focus on subsistence potential, but also the constraints, which demarcate the playground for human behaviour. In this framework Geoarchaeology and Soil Sciences become very important in archaeological studies in the 70's and many new studies seek to explore the relationships between settlements and the natural environment (e.g. Bintliff 1977; case study of Knossos: Jarman 1982). Geology and geomorphology are acknowledged to enhance understanding of long-term landscape changes and thus when linked to human activity (settlements) they can help towards a clearer picture of man-nature interactions.

Within a systems approach, interest in long-term man-environment relationships encouraged the search for patterns and models of human behaviour that could be tested on a wide temporal and spatial scale. Approaches that focus on the environment see it as the constraining or enabling force of human activity, which adapting according to ecological laws can be predictable. Besides that, with the aim of understanding cultural response to external environmental conditions, archaeological studies explore change versus stability and homogeneity versus heterogeneity, as e.g. weather changes instigate a seasonally variable landuse approach (e.g. change of croplands to pasturelands). The strong economic stance in cultural studies of the time in combination with influences from geography saw the landscape as divided in geographical areas of specific environmental description and economic potential spatially relevant to the settlement(s) of interest. Butzer, interested in the archaeological study of adaptation, sees 3 major goals of environmental analysis in archaeology (1971:401-2): 1) understanding of the *regional environment*, including climate, vegetation,

geomorphology etc, 2) understanding the *economic area* of regional food base and 3) understanding the *local setting* of the site(s) in question (in Kirch 1981:135 emphasis in the original). In 1982, seeing Archaeology as Human Ecology, he supports a geoarchaeological approach to landscape exploration, in order to both assess site preservation, and study human locational choices. Advocating studies of continuity and change he gives importance to the impact of human activities on landscape modification and again defines the goal of environmental archaeology as: 1) to define the characteristics and processes of the biophysical environment that provide a matrix for and interact with socioeconomic systems, as reflected, for example, in subsistence activities and settlement patterns, 2) to understand the human ecosystem defined by that systemic intersection (Chorley and Kennedy 1971:4 in Butzer 1982). His 'contextual' ecological approach encompasses geoarchaeology, archaeobotany, zooarchaeology and spatial studies.

1.2.3 Environment in Relation to Surface Record

1.2.3. i Settlement Archaeology and Settlement Patterns Studies

Landscape explorations have in general focused on settlements. Settlement Archaeology flourished in Great Britain as early as the beginning of the last century with figures such as J.P. Williams-Freeman (1915) and his successors such as O.G.S. Crawford (1953) who established field survey in order to collect settlement information. Another important figure of the first half of the 20th century is Cyril Fox (1932), who demonstrated the importance of studying settlement history in relation to the environment. Settlement studies have in general developed in different and at the same time often overlapping trajectories across Europe (Trigger 1989; Gojda 2003); for example Siedlungsarchäologie in Germany as defined by Herbert Jankuhn (1977: in Gojda 2003) was guided by an eco-deterministic worldview focusing on economic questions of Prehistory and relationships between settlement and natural environment, Anglo-American theoretical developments have stressed ecological issues, the post-modern paradigm has risen the importance of the social, conceptual and symbolic nature of landscapes, while CHRM projects collect settlement information focusing on locational and chronological-typological issues.

Overall, throughout the last century, landscape research has acquired an ever-increasing organised structure. Settlement patterns' studies in the Anglo-American tradition have been established since the 50's (Willey 1953), and over the 60's received many influences from the theoretical framework of Geography, ultimately adopting many concepts and methods that characterise landscape archaeology till now. In general, they stress interrelationships between settlements and their socio-economic context. The most important innovations were the implementation of: 1) the concept of the 'region' with definitions such as 'a unit of country larger than that associated with one particular settlement and smaller than that commonly found to be occupied by modern nation states (Bintliff *et al.*. 1988; definitions of 'region' also in Kardoulias 1994 and Relaki 2003) and 2) sampling theory (studies in Flannery 1976; Read 1975; Mueller 1975; Kalton 1983; Cherry and Shennan 1978). A regional approach is considered a prerequisite for the study of cultural change, an issue firmly raised by Binford in 1964. End of 50's beginning of 60's we attest the birth of large-scale regional projects seeking to answer big questions such as the origins of agriculture, domestication and processes of 'cultural evolution', opposing to plain descriptions of material evidence for the definition of cultural units. Such projects developed across the world, some of the most characteristic taking place in the Near and Middle East, but also at the other end of the Atlantic.

1.2.3. ii Regional Extensive Survey

The term Regional Extensive Survey is used to denote landscape researches of an organised structure and large scale, influenced by ecology and studying a specific region as the combination of environmental and cultural developments. It should not be confused with extensive researches of the Culture-History tradition, which were of smaller scale and focused on the description of archaeological sites within a specific area.

One of the most influential works in both theory and method of landscape archaeology in the second half of the 20th century has been Braidwood's and Howe's (1960) project in Iraq (ancient Mesopotamia). The aim was to look for the origins of agriculture from a palaeoecological perspective, incorporating studies of several scientific fields such as zoology, palaeoethnobotany, geology, plant genetics, ceramic technology etc. Their work sees the transition to farming as 'the normal consequence of evolution since it is inherent in human nature to domesticate and cultivate as soon as he becomes familiar with the biota of a particular environment' (in Harris 1977). Within the same conceptual framework the Diyala Basin Archaeological Project (Adams 1965) operated in a diachronic level (4000 BC-1900 AD) and focused on the development of intensive agriculture, seen as the result of human adaptation to environmental stimuli and opportunities. In this perspective, once food-production was invented, it was 'natural' to spread because it was a superior subsistence strategy (under the influence of colonisation and Christianity, agriculture was thought to be superior to hunting and gathering in western ontology). Ecological considerations encouraged attempts for environmental reconstructions with the belief that understanding ancient civilizations can be achieved via viewing them in their environmental settings (Adams and Nissen 1972). In Mexico, the well-known Teotihuacan Valley Project was carried out in the years 1960-1964 and aimed to explore the development of agriculture in Mexico within the context of cultural evolution (Sanders 1965; Sanders and Price 1968; Sanders *et al.*. 1979). Patterns of relationships between environment, agricultural techniques and settlement organisation were sought within the interpretive framework of seeing cultures as a complex of adaptation strategies to specific environments.

In Europe, the Minnesota Messenia Expedition in SW Peloponnesus in Greece, starting in the late 50's and fully published in 1972 (MacDonald and Rapp 1972), was a true offspring of the above three projects and the first large-scale regional project in Greece. Representing the political and historical circumstances of the time, it adopted a model of practice guided by scientific humanism and a cultural evolutionary ideology, emphasising the importance and tradition of scientific co-operation (Trigger 1989; Fotiadis 1995). Fieldwork was based on extensive survey, and the aims were claimed to be the diachronic interrelationship between man and natural environment. Questions were indeed wide; more specifically, they involved population fluctuations, the character of sites in economic terms and economic life in general, social differentiation, subsistence and environmental impact on site location. In Italy, Ward-Perkins's landscape explorations since the 50's led to a very long survey project in south Etruria (Ward-Perkins *et al.*. 1968; Potter 1979) starting as a topographic survey and in the end encompassing all levels of survey intensity and seeking to explain changes in the landscape of S.Etruria in the course of time.

Thus, landscape archaeology develops as a distinct part of the discipline that gathers a variety of data from large regions with various methods and seeks to explain site interrelationships and cultural development within a given region. The past is approached via questions of economic and social content. The 50's and mostly the 60's saw the rebirth of a multi-disciplinary approach in studying regional landscapes through the collaboration of many specialists in order to understand processes of natural and cultural ecology in the region under question. Within the era's beliefs, archaeologists make a great effort to be considered 'scientific' by working together with natural scientists, the scale and organisation of the research projects is greater than ever, and most importantly, objectives are not confined to reports and descriptions of material culture, but involve questions about cultural process. Such questions emphasise the influential role of the environment upon human activity and its relationship with subsistence strategies and economic endeavours. The archaeological landscape is explored more systematically than before, gathering a large number and variety of new data, while knowledge acquired through previous extensive explorations is also incorporated.

Landscape reconnaissance came to be acknowledged as the only tool that can help understand regional histories. The extensive approach such as used in the above projects, is based on a firm knowledge of the history of the area through written sources and a combined use of maps, aerial photography, local information, walking and driving around the area, in order to locate and discover sites. The choice of areas to be explored is based upon judgment of the most likely places to have supported settlement using geographical and environmental factors. After the 70's, however, we attest the rise of a new approach, the so-called 'New

Wave' surveys (Bintliff 1994; Cherry 1994), where projects operated in a much smaller spatial scale, but with much larger intensity, aiming at recovering human activity remains at a variety of hierarchical levels in order to elucidate subtle patterns of human behaviour and cultural change, still usually within an eco-determinant interpretative framework. Theoretical changes include a shift from the search of the origins of civilisations to the study of 'state' evolution and the rise of complex societies (Wright 1977). This is still a very popular research aim in archaeology and regional survey has understandably been acknowledged to be of fundamental importance trying to link major sites with their rural hinterlands and reveal inter-site relationships; however it should be stressed that interpretations do depend on the perception of state organisation and the nature of economic, ideological and political power (Knappett 1999).

1.2.3. iii Regional Intensive Survey

Intensive survey started by also being site-oriented, however, field-methods aimed at studying the landscape at a higher resolution than before, identifying and walking fields over a small geographical region in a structured and intensive manner. In the beginning, the identification of sites took place on the basis of empirical and qualitative criteria, namely the presence of architecture and high pottery concentrations (e.g. Ayiofarango and Lasithi surveys). In the course of time a much more sophisticated, quantitative approach was developed, that aimed to study human activity in the landscape at a finer resolution and concentrated on the recovery of the rural landscape, so as to elucidate further local settlement trajectories and cultural development. The approach is strictly regional and a multi-disciplinary frame of work is pursued, relating cultural history to areas of definable natural boundaries. The aims of intensive survey focus on the study of spatial continuity of human behaviour and the reconstruction of variability over time (Cherry 1983:381). The way to do this is via assessing site location in relation to environment, determining population fluctuations over time and studying economic and political organisation (Cherry 1983:380). The most basic information expected from surveys concern space, time, function and environment. It has been argued that survey data are used to answer four crucial questions (Cherry and Shennan 1978: 21-2):

How many sites of all types and sizes are there in an area? (total density)
How are they distributed by function and period? (density per function and period)
What is the relationship between site distribution and environment variables?
How do sites relate to one another?

The surveys of the 80's define their aims along the route of settlement patterns reconstructions, (example surveys: Megalopolis; Nemea; Pylos[1]) and the discovery of changes in population densities and landuse (Bintliff and Gaffney 1988). All projects employing a systematic, intensive approach operate in a multi-disciplinary level and emphasise the method's controllable reliability and advantage on revealing concealed rural landscapes, without which histories can only be partial and far from reality. From the 90's projects are interested in diachronic collections of material and multi-disciplinarity often proceeds to a real inter-disciplinary framework of synthetic data analysis. Theoretical and methodological discussions of the 70's and 80's have guided archaeological landscape research till now; thus, systematic sampling (usually stratified) is probably the most popular sampling technique used, multi-stage designs are encouraged, bias and the relationships of surface-subsurface as well as site-offsite material are discussed (Bintliff and Snodgrass 1988a; Bowden *et al.*. 1991; Schofield 1991a; Barker and Lloyd 1991; Dunnell and Simek 1995), cultural-ecological approaches are widely applied, and a socio-economic interpretative framework is used.

Sampling and statistics; methods borrowed from ecology

The new landscape approach was implemented widely and many new projects started worldwide. Theoretical considerations about what archaeologists should look for went hand in hand with methodological developments. The main focus of interest under the influence of New Archaeology was on defining the

1 For a list of references look at the Survey Bibliography section

best methodologies in the quest for settlement patterns and on identifying relationships between sites and environment. By the mid -70's starting in the USA and England and especially by the 80's, intensive fieldwalking and sampling were acknowledged as the future of archaeological landscape research and many have written on the methods to be followed in both the field and the analysis of the data (Fasham *et al.*. 1980; Hodder and Orton 1976; Boismier 1991; Kuna *et al.*. 1993; Bintliff *et al.* 2000a; Rupp 2004 etc). Statistics and sampling employed in geography and ecology since the 50's - 60's, became a major characteristic of New Archaeology's methodology particularly observable in landscape studies (Read 1975; Flannery 1976; Cherry *et al.*. 1978; Kalton 1983; Shennan 1988; Orton 2000). Intensive surveys of the 70's employed sampling for the first time in an effort to explore the landscape record scientifically and extract information of definable reliability. Survey designs used a variety of sampling methods and much debate followed over their efficiency (Plog 1976); thus, the implementation of probabilistic theory (Binford 1964; Cherry and Shennan 1978; Cherry 1982) was challenged by the belief that surveys should be of 'total coverage' (Fish and Kowalewski 1990), a proposition, which has also been reviewed (Kintigh 1990; Plog 1990). Within the ecological concerns of the time landscape is approached as a spatially measurable entity and the definition of site typologies and settlement hierarchies become of ultimate importance in the study of past settlement systems. Site densities and distribution in relation to environmental variables is a principle objective of intensive surveys and methodological concerns arise accordingly. Methods such as Site Catchment Analysis and Thiessen polygons have been used in order to explore land resources on a micro and macro-regional level (Bintliff *et al.*. 1988), but also site hierarchies (Moody 1987).

Surface record

Within a problem orientation of what we are looking for and how best to find it, Thomas (1975) was one of the first to support non-site sampling of the surface, an approach much endorsed later on (Folley 1981; Bintliff and Snodgrass 1988a; Kuna 2000) and considered the norm in most current survey studies. The experience acquired with the complexity of the archaeological record and the almost continuous spread of material across the surface, led to the acknowledgement that the landscape has been used continuously and human activity has not been site-restricted. This is revealed in the development of approaches such as the 'settlement area theory' (Neustupny 1986 in Kuna 2000), which is based on a deductive model of living culture, whose behavioural rules are believed to provide an explicit spatial model reflecting a whole range of human activities carried out in their community areas.

The value of intensive artefact survey has been emphasised, as it offers the opportunity to "reveal the settlement and population history of entire landscapes" (Bintliff *et al.*. 2000a:1). On the other hand, the difficulty of drawing inferences from ploughsoil assemblages has also been stressed (Haselgrove *et al.*. 1985; Schofield 1991a; Francovich and Patterson 2000) and even though surface survey is acknowledged to be an invaluable archaeological tool, its specific restrictions are highlighted. It is seen as only one tool amongst others, which are also needed in archaeological exploration, namely excavation, remote sensing etc, depending on situation and questions asked (Gaffney 2000). The complexity of surface scatters has indeed been an inexhaustible theme of discussions. The almost continuous carpet of surface pottery across the landscape has been argued to constitute evidence of past agricultural practices (Bintliff and Snodgrass 1988a; Wilkinson 1982) and transhumance (Barker 1989), while terracing, random dumping and other landscape uses (Alcock *et al.*. 1994; Halstead and Frederick 2000) as well as post-depositional processes increase the problem of interpreting surface scatters (Taylor 2000). Discussions over the nature of the surface record explore formation processes and retrieval potential amenable to factors such as geology, topography, landuse, pottery survival, visibility and walker differences, but also sampling and quantitative methods used (Plog *et al.*. 1978; Schiffer 1987; Shennan 1985; Ammerman 1981; Ammerman and Bonardi 1981; Hodder and Malone 1984;Terrenato 1996; Bintliff *et al.* 1999; Banning *et al.* 2005). Field and analytical methodologies have often sought to account for depositional and post-depositional effects on the recovery of surface material, studying mainly the effect of modern agricultural techniques and landuse, but also geological and geomorphological factors

(Taylor 2000 and his bibliography). At the same time, the importance of pottery studies on the same issues has also been stressed (van Dommelen 2000), since recoverability, which depends on a variety of factors from geological to cultural to collection techniques and visibility, is always case dependent; in other words the above factors do not have the same effect on all artefacts and therefore ceramic analysis (from size to firing and consistency) should acquire more attention. Regional ceramic studies have also proved to be a key to the problem of dating since most material recovered on the surface is coarse ware (Moody *et al.* 2003).

Another issue that caused long debates and still remains one of the hardest to deal with in archaeological theory is that of site definition (Dunnell 1992). A natural consequence of intensive surveys was the discovery of a very complex surface record and an overwhelming number of pottery concentrations not easily definable and understood (Bevan and Conolly 2003) However, our interpretations and reconstructions of past societies depend on how we define sites, a process that requires a good understanding of the role of cultural processes in the formation of the surface record (Pettegrew 2001; Osborne 2001; Foxhall 2001). Discussions over the 'right' set of criteria for defining sites have been extensive, supporting factors that vary from quantitative to spatial and qualitative (Plog 1978; Gallant 1986; Schofield 1991b; Gaffney *et al.* 1991; Gaffney 2000). Experiments (Reynolds 1982; Ammerman 1985; Shennan 1985; Odell and Cowan 1987) aimed at a better understanding of the ploughzone and the archaeological material recoverable through intensive survey, so as to achieve a more reliable level of inference. People's perceptions of a site have indeed been wide, often based on preconceptions and factors irrelevant to quantification, and may be period or area dependent (Binford 1996). For some, sites are nothing more than archaeological constructs (Fentress 2000; Bowden *et al.* 1991).

On-going discussions on the nature and interpretation of ploughsoil assemblages (Haselgrove *et al.* 1985; Francovich and Patterson 2000), the problems of non-response (Kamermans 1995) and survey bias (van Leusen 2002: ch.4) demonstrate a growing maturity in the theoretical framework of surface survey. In this context, environmental studies are used in order to understand taphonomic processes and the effects of landuse on the condition of the surface record, as well as to provide an environmental context for past behavioural patterns and to enhance patterns of changing human activities. As a result, multi-disciplinarity consists of the combination of survey with, geophysics, material culture studies, palaeoenvironmental studies, excavation, and documentary sources, but also social anthropology, ecology and ethnography (e.g. Biferno Valley; Phaistos; Sphakia[2]).

Site Survey

Special collection strategies are also pursued on the level of site so as to study the site's size changes and if possible functional character through time. Sampling techniques, of course, vary and opinions over the best strategy (random, systematic along transects or perpendicular axes, grid-based and grab) have differed accordingly. In reality, collection techniques may vary also within the same project depending on practical issues such as time available. To my view, there should be a balance between not 'extinguishing' all traits from a site and revealing extents and diachronic intra-site function differentiation, best achieved through grid-sampling. In the case of context surveys where landscape intensive survey springs from interest on a particular site and its history, a combined multidisciplinary approach incorporating artefact collections, topographic study and the use of historical sources is considered as the only way to elucidate internal organisation and functional differentiation as well as size changes at a diachronic level.

Modern site surveys usually consist of two components: 1) the detailed recording and mapping of extant architectural features and 2) the intensive collection of artefacts from as much of the surface of the site as possible. It is argued that the diachronic and functional variations of a site can be studied only with such a site survey approach and in combination with regional landscape survey the history of an area can be elucidated in terms of population changes and socio-economic relationships between central place and

2 For a list of references look at the Survey Bibliography section

countryside (Alcock 1991). Remote sensing, including aerial photography and geophysics are increasingly used in relation to intensive survey comparing surface with sub-surface information, with great success in illuminating the structure and history of towns (Falerii Novi; Tanagra; Palaikastro[3]). Archaeometric methods can indeed enhance site understanding, even more so when applied in a conceptual framework of integrated field strategies. The case of Rodik-Ajdovscina (Music 1995, Music *et al.* 2000) is a very good example of the potential of such an integrated approach employing the following strategies: 1) a micro-topographic study with the creation of a very detailed scale of the site's digital elevation model (DEM[4]), 2) the mapping of surface occurrences of rubble and stone, 3) archaeological surface survey, 4) Geoelectric survey, 5) Magnetometer survey, 6) Geochemical survey and 7) Magnetic susceptibility survey.

The combination of landscape and site surveys in an interdisciplinary framework is in fact pursued by many projects, which aim at revealing the relationships between urban and rural life and thus elucidate cultural, social and regional histories (examples: Tanagra; Phlius; Terralba, Sardinia[5] etc).

1.2.3. iv Interdisciplinarity

The co-operation with other disciplines from the natural and human sciences is considered a must in regional studies especially in projects that involve intensive survey techniques (Biferno; Argolid; Methana; Boeotia; Laconia; Palaipaphos-western Cyprus; Sydney Cyprus Survey; Phaistos; Nikopolis; Kythera; Sphakia[6] etc). In particular geomorphology has been recognised indispensable as regards field survey, because it helps assess site recovery on the surface over time and allows the integration of post-depositional and site movement biases into interpretation (Ammerman 1981). It is indeed, a most important tool towards the reconstruction of past physical landscapes and their changes. Furthermore, the study of the history of surface morphology gives us information on water sources, distance to the sea, vegetation and landuse over time, whereas degradation of the landscape and human impact on the environment can also be assessed. Soil studies are used to study landuse and subsistence as well as to identify raw material sources, but also to reveal man's impact on the environment and assess the state of the surface record (Morris 2002; van Andel *et al.* 1997). Palaeofaunal, palaeobotanical and palyntological analyses on sediments for the reconstruction of vegetation and climate are relevant to subsistence studies and in fact an indispensable tool for the understanding of past landscapes, in particular quaternary landscapes (Bailey 1997). Slag analysis illuminates the chemical and physical properties of metals and allows inferences regarding technology, mining and metallurgical activities. Many current projects may use petrographic analyses of cherts and clay in order to identify raw material sources and in particular clay provenance studies may be augmented by Instrumental Neutron Activation Analysis (INAA) characterisation. Information Technology has been of increasing importance used in data manipulation, mapping, and landscape studies (Remote Sensing, GIS[7]). Lastly, historical and documentary sources provide an invaluable tool in particular for post-classical periods whose archaeological material is little known; Regional intensive survey projects nowadays sponsor archival research as it is perhaps the most significant component of reconstructing settlement patterns in Byzantine, Venetian and Ottoman periods (Kiel 1997; Nixon *et al.* 1999; Bintliff 1999).

Overall, New Wave surveys have played a key role in the optimism that new methods and technologies, a multi-disciplinary approach, and the development of interpretative models (based mainly on

3 For a list of references look at the Survey Bibliography section

4 DEM is a quantitative model of a topographic surface in digital (raster) form. Also known as a 'digital terrain model' (DTM). It is often used in reference to a set of elevation values representing the elevations at points in a rectangular grid on the Earth's surface. The resolution, or the distance between adjacent grid points, is a critical parameter.

5 For a list of references look at the Survey Bibliography section

6 For a list of references look at the Survey Bibliography section

7 GIS (Geographical Information Systems) are computer programmes for capturing, storing, checking, integrating, analysing and displaying data about the earth that is spatially referenced. They perform analyses that combine relational databases with spatial interpretations and produce outputs usually in the form of maps.

ecological geography) can reveal a rich picture of the rural countryside, but also 'rediscover the heritage of previous research' (Bintliff 1994). Intensive surveys have naturally resulted in an amazing quantity of new data, which have encouraged the rise of demographic archaeology (Bintliff and Sbonias 1999, 2000; Hassan 2004) as well as synthetic works regarding long term patterns or period specific studies over large areas, based on the integration of results from different surveys (Alcock 1993, 1994; Blanton 2000; Wilkinson 2000; Halstead and Frederick 2000; Halstead 1994; Jameson 1994; Jameson *et al.* 1994; Blanton *et al.* 1982; Adams 1981; Bintliff 1997; Attema and van Leusen 2004; Galaty 2005; Mee 1999; Driessen 2001etc).

1.2.3. v Excavation / Survey - Intensive / Extensive Survey Debate

Although the merits of intensive survey have been fully acknowledged and it is widely applied as the only viable method that can offer some insights to complex questions about settlement history, its acceptance did not come easy. As soon as large-scale extensive survey projects started being implemented widely, survey became a new methodological tool that encouraged optimism for new possibilities in archaeological research (Macdonald 1966). Its non-destructive character (even though this is now debatable) and its practicality in comparison to excavation regarding issues of storage and legislation in the countries of research interest (Bintliff and Snodgrass 1985) have played an important role in its increasing popularity. Long debates over whether excavation or survey is of highest value have promisingly come to a halt, acknowledging the different purposes they both serve and their complementary rather than opposing role. Surveys need excavation data as reference to the building of their chronological sequences and in-depth understanding of specific sites. In turn, they provide a context for excavated sites and illuminate their regional histories. Past social reconstructions require the close co-operation of both methodological tools (Sjogren 2003; Cunningham and Driessen 2004).

Such debates were often quite fierce also a propos to extensive and intensive survey traditions, which even though they shared some common methodological issues such as the organised coverage of large areas, site-based recording and the comparison of site distribution maps per period, they also differed greatly on the issue of using sampling methods (Terrenato 2000). A classic debate on the value of intensive versus extensive survey based on the merits, potential and limitations of both has been between S. Hope-Simpson(1984) and J. F. Cherry (1984) triggered by Cherry's criticism on earlier extensive work (Cherry 1983). Doubts on behalf of the traditional approach which were perfectly encapsulated into Flannery's R.M.A. (Real Mesoamerican Archaeologist) character (Flannery 1976) were still strong almost a decade later as seen from Hope-Simpson's words: "Siteless survey" (i.e., the recording of all surface artefacts within a quadrant or transect, without any attempt to assign them to "sites") would obviously be both ridiculous and impracticable in the Mediterranean area, because of the high overall density of surface artefacts in this region'. In reality, the above statement holds some truth and this is why quite often collection is restricted to diagnostic artefacts; however, it has been acknowledged that at least the recording of the presence of all artefacts is very important. Intensive survey should indeed be combined with off-site collection methods, as it is siteless survey that illuminates interactions between people and the physical landscape and gives us a full picture of human activity in space by treating the archaeological record as a continuous data surface. As a result, it allows a better understanding of human behaviour over time. Siteless survey has certainly been a complex but leading theme in academic scholarship (Dunnell and Dancey 1983; Dunnell 1992; Caraher *et al*. 2006). Non-site oriented landscape explorations have also led to the development of concepts such as 'settlement area theory' (Neustupny 1986: in Kuna 2000) and community archaeology (Neustupny 1991; Kuna 1991; Gerritsen 2003; Knapp 2003), opening up themes of dynamic relationships between human societies and landscapes, at a variety of temporal and spatial scales. Overall, systematic, intensive, problem-oriented surveys gained credibility throughout the 80's and continued an upward course as shown in the increasing number of publications using or presenting survey data (Cherry 2004).

Most projects now treat the landscape as a continuous record of human activity and even if judgmental fieldwork still takes place, this occurs in combination with quantitative approaches as an indispensable requirement in defining 'sites' and understanding their interrelationships. However, the a priori belief that

higher intensity leads to increased quantity and quality of results (Cherry 1994) is challenged especially for the prehistoric patterns (Rupp 2004, Bintliff *et al*. 1999). Survey experience has promoted critical assessments and debates over the reliability of survey results within a Quellen Kritik framework (Bintliff *et al*. 1999 and responses by Barker, Mee and Cavanagh, Schonn, Tompson in JMA 2000; Davis 2004; Fentress 2000; see also research designs of most current surveys). In current projects, more often than not, research strategies combine both extensive and intensive approaches as it is acknowledged that they are complimentary to each other and they should be employed according to research aims, but also topographical, time and personnel considerations. Indeed, collection strategies have to be decided upon specific circumstances and questions asked, and methodology has to be flexible enough as to allow variability and improvements within the same project.

1.2.3. vi Survey Comparability

The quantity of landscape projects worldwide and particularly in the Mediterranean, which is still the focus of a vast amount of landscape research, triggers every so often discussions on survey methodology and comparability (Dyson 1982; Keller and Rupp 1983, Cherry 1983; Mattingly 2000; Alcock and Cherry 2004). Mattingly (2000) writes about methods of collection, recording and quantification in a whole volume dedicated to survey assemblages (Francovich and Patterson 2000) and demonstrates the variability in survey methods via a brief overview of current practices. Methods of collection and recording are of crucial importance because they define the data upon which interpretations may be derived. While it can be argued that some projects have employed a better methodology for the acquisition of data necessary to answer specific questions – e.g. siteless survey allows studying the intensity of landscape use over time – logistics play a leading role in the decisions taken. In any case, it has been acknowledged that we need inter-disciplinary and expert studies, explicitness on the relationship between questions asked and methods chosen as well as results that can be compared and integrated into synthetic works. The importance of comparability has been stressed as much by individual articles, as by survey project reports. Indeed, what is most important is to understand the potential of the methods chosen so that we can appreciate the results and assess the scale upon which comparison of survey projects can be undertaken. For this purpose it is crucial for the academic community to achieve an explicit standard of survey publication. Within the current survey critique framework, Cherry (2004) states the need to be explicit over the terms we use, discusses problems and suggestions regarding survey comparability and urges for the need to establish publication standards which are necessary if we ever want to communicate data and interpretations and compare survey results in a meaningful way.

1.2.4 Landscape Studies and GIS

One of the greatest innovative developments in landscape archaeology since the 90's has been the introduction of Geographical Information Systems (GIS) that have considerably increased the analytical potential of archaeological data. GIS are primarily a methodological tool emphasising the spatial relevance of environmental and cultural systems, but they are continuously interacting with archaeological theory as well. The publications that have played a crucial role in the increase of GIS applications within archaeology are Allen *et al.* (1990), Reilly and Rahtz (1992) and Lock and Stancic (1995), each making a noticeable impact in the discipline with the presentation of a variety of projects, new ideas and methodological suggestions.

GIS have been particularly useful for CRM purposes as they can store, manipulate, analyse and provide map visualisations of large numbers of disparate sets, which are spatially related. The ability to integrate the results from different types of landscape explorations such as field survey and aerial photography and produce an infinite number of map representations of surface datasets, allowing the combination of qualitative, quantitative and locational information, has led an increasing number of countries to adopt GIS as their main management tool of archaeological data. Britain has totally changed the way SMR's are handled; aerial photography traditionally used for the identification of cropmarks and therefore archaeological sites,

is used in combination with GIS allowing high resolution mapping while the production, management and analysis of both raster and vector data and their relevant databases improves interpretative potential. GIS can also play a significant role in the protection of archaeological sites and new suggestions regarding their abilities in planning and site monitoring are coming to light (Sullivan 1997; Hamari CAA 2004; Konstantinidis 2004a). In this framework, their potential in predictive modelling is particularly important for CRM. This research area that provides models for the employment of better and more effective strategies in the decision making process of planning, in an effort to ensure the protection of archaeological sites is continuously developing. The significance of protecting our Cultural Heritage and therefore historical and scientific study, but also the quality of modern human environment is now recognised at a European level (Valletta Convention), highlighting the danger caused by modern development, which destroys sites at an alarming pace. However, the construction of maps that predict where ancient sites might be located is not an easy task and proposed models have often caused much doubt and debate. The need to formulate a robust theoretical and methodological framework that operates inter-disciplinarily and connects governmental planning and economic development with the protection of our historical past is indeed urgent. New research has been implemented in this framework focusing on the adoption of the best possible methods (Kamermans *et al.* 2004). Predictive modelling is also used in scientific research mainly via the production of inductive models that are based on the observation of correlations between sites and usually environmental variables, an approach almost inherent in landscape studies from the beginning of archaeological research. Deductive models are also used, constructed on the basis of prior knowledge and proposals are then tested against data collected (Kamermans *et al.* 2004; Kamermans 2000). The theoretical as well as the methodological issues concerned regarding the application of predictive modelling for both CRM purposes and research are now the major discussion theme among GIS archaeologists (Westcott and Brandon 2000)

The acknowledgement of the great capabilities of GIS and IT in general has triggered an increasing desire for better management of archaeological locations, digital archives and the distribution of archaeological information. However, their deployment across Europe has been differential, slow and inconsistent due to problems of variability in recording systems, lack of standards, technological skills, the variability in spatial definition of archaeological evidence and the definition of analytical concepts (Sanjuan and Wheatley 1999). There are numerous projects across the world that have attempted the creation of digital archives including map representations on a national level and many smaller ones that demonstrate yet again the ability of GIS to store, share, manipulate and visualise digital data promoting research, management and dissemination. The quantity of digital information produced has created a need for their preservation and thus services such as the Archaeology Data Service (ADS) in Britain provide standards of digitally published archaeological data allowing the publication of a great number of information as well as their usability by a wide audience. At a wider spatial scale, the European Union has funded research for the electronic management of Cultural Heritage at a European level (Kenny and Kilbride 2004).

However, although the potential exists it does not come as a consequence that it is satisfactorily exploited. Dissemination in particular pauses serious problems that relate to the cost value of digital data; thus, instead of taking advantage of digital libraries available to all interested parties and which abide with necessary standards regarding their creation, documentation and publication, we attest an abundance of individual efforts that use different sources, have no standards and produce different errors and which most often are not usable by third parties and they do not inspire scientific trust anyway. The need to cope with the vulnerability of digital data, their dissemination and usability in the wider archaeological community as a prerequisite for future research and effective management, is indeed urgent and widely adopted standards are needed.

Archaeological surface survey has also been substantially influenced by GIS. One obvious reason for this is their strong mapping abilities allowing the overcoming of problems caused by the acquisition of data at different scales. Management, analysis, synthesis and visualisation of data in both vector and raster formats, such as environmental, topographical, remote sensing, archaeological and historical in the same working environment, are qualities of utmost value for the landscape archaeologist. Although GIS have and are often

being used to visualise archaeology as dots on a map, mapping of spatially referenced artefact densities do allow the visualisation of archaeological material as continuous surfaces. The variation of material densities is taken to reflect the differential intensity of landscape activity over time and its visualisation enhances greatly the understanding of site-offsite relationships. Correlations between environmental data such as geology, topography, hydrology and landuse with surface artefacts allow the evaluation of surface collection methods and inherent survey bias, as well as the assessment of various interpretative models. The majority of intensive surface surveys now integrate their data within a GIS environment and archaeologists explore advantages and problems concerning both field and analytical methodology as well as the interpretative process (example surveys: CPSP; SCSP; KIP; Boeotia survey; PRAP[8]). Regarding the assessment of the efficiency of survey crews, experiments have shown that it is possible to evaluate inter-walker variability relevant to different artefact types and visibility so that survey designs are improved and a more objective picture of what we recover is acquired (Banning *et al.* 2005). Even though little work of this kind exists in the archaeological literature, it is evident that such research is very important and can be particularly enhanced with GIS applications.

Landscape research and reconstructions over time have undeniably profited greatly by GIS applications even more so due to their ability to integrate data from science based research areas such as cartography, GPS and remote sensing, but also human sciences such as archaeology and history. Indeed, as CAA conference papers show, the new Geographic tool has been increasingly fashionable in landscape studies (Peterson 2001). Inherently interdisciplinary they promote studies of ecological and cultural systems in a holistic sense. Landscape changes inflicted by processes such as erosion, sedimentation, deforestation and coastline changes can be simulated and thus allow to propose explanations of a dynamic landscape rather than simply offer static visualisations of synchronic landscapes.

Period-specific reconstructions deploy GIS techniques to elucidate the social structure, subsistence policies and demography of past settlement systems, combining survey and environmental data and exploring a variety of statistical methods within current theoretical approaches such as hierarchy, site catchments, settlement patterns and locational modelling (Bevan 2002). The analytical potential of GIS has been used by many projects which focus on landscape evolution, one of the first being the interdisciplinary research on the island of Brac (Stancic *et al.*. 1997), while their intrinsic interdisciplinary approach also promotes the comparative study of different regions (van Leusen 2002; Witcher 2002). Besides that, cultural trends and processes can be studied and compared at a wide variety of scales, revealing dynamic spatial and chronological relationships.

Theoretical problems concerning the use of GIS vary, the most important being the Environmental Determinism debate (Gaffney and van Leusen 1995; Kvamme 1997; reply: Wheatley 1998). E.D. has been extensively discussed and many researchers call for the use of a theoretical framework that pays attention to social factors and defies environmentally deterministic explanations, which lay flat cultural differences (Gillings and Goodrick 1996; Wheatley 1993). The varied scales in data acquisition, but also the dynamic nature of the landscape and its interaction with cultural behaviour do not justify systemic explanations and indeed recent studies have proved that settlement patterns can not be a priori explained on the basis of environmental variables (Bevan 2002:238). GIS is now considered a valuable tool whether from an ecological or phenomenological perspective pursuing analyses such as relationships between site location and preferred environmental variables, visibility, cost (time) distance (Wise 2000; Witcher 2000). Many new GIS studies explore past sociality via themes such as mobility (Fairen 2004), visibility (Fairen 2004; Soetens 2006) and taskscapes (van Hove 2004), allowing space and time to be analysed in a wider perspective than settlement pattern analysis. Offsite activities reflect, indeed, the complex relationship between people and their environment, including economic strategies, taskscapes (Ingold 1993) and agency and developments in GIS archaeological theory demonstrate serious attempts to deviate GIS methodologies from Environmentally

8 For a list of references look at the Survey Bibliography section

Deterministic explanations. It is quite interesting that phenomenological perspectives have been proposed to be analysed through GIS (Konstantinidis 2004b) where settlement interconnectivity can be studied in terms of sights' and sounds' territories as an analytical variable of cultural interaction.

Historical cartography can also be used as a source of past territorial perceptions but also analysed from an historical and geographical perspective and viewed in relationship to modern environmental and cultural reconstructions. Seen as a historical document, historical maps allow insights into past mapping themes and techniques while GIS analysis allows quantitative and qualitative comparisons over time (de Silva and Pizziolo 2004, de Silva 2004). What I would like to draw attention to is the fact that GIS give us an example of a methodological tool that is not only the outcome of a specific theoretical background, but which also influences the questions asked. The ways in which we perceive space in the western world are inherent in our computer studies, which relate to geography and geometry, surface and distance, environmental properties such as vegetation cover and soils. At the same time, the strong spatial and relational capabilities of these systems may explicitly enhance such perspectives.

However, it can not be overemphasised that GIS are subject to the restrictions of the data they use and the questions asked by researchers. They are only a methodological tool following theoretical viewpoints and their powerful abilities should not be taken as panacea. One of the weaknesses of GIS has been acknowledged to be in representing time. Clark's observation (1989) that Geography has been dominated by a static viewpoint applies directly to Archaeology as well, which although aims at revealing and understanding processes of change, it only achieves to present spatial relationships of activity traces in 'frozen' time slices. Clark states that "the temporal resolution with which change of form or process should ideally be viewed is related to the rate of change", which of course depends on the rate of observations and putting it into surface survey data on quality and refinement. On the other hand it is important to remember that the time-space separation inherent in all human studies is a construct of western society expressed through the separate uses of nouns and verbs in language, while for example the Hopi Native Americans do not make such a distinction.

1.3 Landscape within a Post-Modern Context

Archaeological questions have traditionally been influenced by sister disciplines and mainly Geography, focusing on economic and demographic issues and studying resources, risk and subsistence. Prevalent theoretical perspectives in archaeological landscape research have represented a world view of an 'orderly and objective – thus observable – physical environment within which human activity is contained; this is conditioned by the environment, but it is also transforming it. However, the increase of regional research and the wide spatial and chronological scales of data acquired, together with developments in social archaeological theory (Hodder 2002; Johnson 2004), mark a new era in archaeological landscape studies; survey data are required, critiqued and used for past social reconstructions from a variety of perspectives, with an emphasis on communities, ideology and complex socio-political relationships (Relaki 2003; Knapp and Given 2004; Diacopoulos 2004). Recently, post-modern archaeological thought has drawn attention to the 'meaning' of various spatial concepts such as environment, region, landscape, space and place and tries to understand past societies not only through the identification of large-scale economic patterns and political hierarchies, but by focusing down at the community and the person level, engendering space, exploring agency, highlighting symbolism and trying to reveal personal experience. Since the 80's, landscape has been a most popular theme and a concept most responsible for a new 'Great Divide' between the Modern and Post-modern paradigms, which is discussed at length in most recent papers of landscape studies.

Overall, there has been a great diversity of landscape approaches indeed, fact that has attracted scholarly interest in itself (Stoddart 2000; Ashmore 2002; Gojda 2003). Post-modern literature now discusses the development of landscape studies looking through to the origins of the concept of the landscape in the western world, which relates to a geometric and rational perspective of the world as perceived through vision, and reflects a new political order, namely the emergence of capitalism (Cosgrove 1984, 1985, 1989;

Thomas1993). The main goal of such on-going discussions is to resolve the ambiguity of the term landscape which has primarily been used as equivalent to the term environment or the aesthetic representation of the visible world, but which is now also studied in relation to perceptions of people in the past as well as perceptions of researchers in the present. Discussions of the post-modern paradigm have dealt explicitly with the notion of the landscape and the variability of perceptions, and such a hermeneutic approach is probably responsible for the emphasis given on symbolic and sacred landscapes. Landscapes may be termed ritual, symbolic, sacred, burial, mythical, urban or aesthetic, while it is interesting to note that if no adjectives of reference to cognition and perception are used, focus usually lies on settlement patterns and their economic aspects. Three additional landscape categories are to be found in Knapp and Ashmore (1999), who classify landscapes into broad classes, expressing relationships between what people see, think and how they socially interact with their environs. According to them, constructed landscapes describe human impact via continuity of activity, transformation or abandonment, conceptualised landscapes refer to cultural meanings assigned to natural features and ideational refer to landscapes that exist as ideas rather than perceived through human senses.

Numerous definitions of the word landscape and relevant writings offer, indeed, an impressive variability of identified landscapes that combine natural and cultural characteristics. Current researchers luckily tend to use the term as inclusive of both the physical and social qualities of man's interaction with space around him. Modern approaches that oppose evolutionary and ecological interpretative models emphasise the distinctive socio-cultural traits of humans that have nothing to do with biology and observe that social beings and environment can only be understood if conceived in their real inseparable relationship (Evans 2003). Bayliss-Smith (1988) argues that societies do not necessarily exploit their landscape to the best of its potential given their technology, but according to their cultural needs, and thus historical variance can be explained. In fact, many man/environment relationships cannot be explained from an environmentally deterministic point of view; some human choices may make no sense at all in terms of cost-effectiveness or adaptation to the environment, but may originate from social conditions and worldviews. On the other hand, we cannot ignore the role that the physical environment may play in the formation of social, economic and psychological conditions.

Interest in the 'sociality of the landscape' has of course not been new and an achievement solely of post-modern approaches, even though it is within post-modern writings that it acquires a central position in research interest. The interest of modernist approaches in the social and symbolic should not be overlooked (Flannery 1976; Renfrew 1973; Renfrew *et al.* 1982), and in fact social archaeology starts already with Childe (in Preucel and Meskell 2002); however, it is post-processual hermeneutic and phenomenological traditions that emphasise social dynamics, structuring principles and agency as opposed to ecological, demographic and technological explanations (Thomas 2004). Regarding explicit discussions of relationships between the social and the landscape, one of the first to treat the social aspect of the landscape was geographer Carl Sauer who talked about 'cultural landscapes' that emerge from man's impact on the natural environment (Sauer 1952: in Cosgrove 1989). In the process, from the study of distinctive landscape structures culturally created, cultural geography acknowledged the possibility of simultaneous and equally valid different readings, discussing relationships between culture and consciousness, nature, power and symbol (Cosgrove 1989). Within a post-modern context, landscape is not seen as a system with sites belonging to specific politico-economic structures and subsistence systems, but as the manifestation of particular social relationships born from internal social processes and these are sought to be explained.

A distinctive characteristic of post-modern landscape archaeological theory is the use of modern sociological theory and in particular of phenomenological perspectives founded by figures such as Heidegger and Husserl. Among the most important meanings highlighted in post-modern writings are:

- Experience and the variety of consciousness experiencing the outside world. Landscape is studied in relation to time, space, place, memory, movement, continuity and perception (Tilley 1994), as a counteraction to interpretations based on top-down approaches focusing on ecological/systemic analysis, population levels,

climate, land use patterns, technology, settlement patterns and the organisation of places (Aston 1985). Places have different meanings for different people, perceptions vary and emphasis is given to understanding how landscapes are experienced by people who live in them as the social and experiential are taken to reveal a more objective picture of the landscape than supposedly 'objective' outsiders' views. Phenomenology forwards the idea of 'dwelling' in the landscape (Heidegger 1977) that stresses that man and landscape are characterised by relationships of meaning and not of mechanism. The idea of different meanings and perceptions of space, place and the landscape for different people at the same time is stressed, as is the continuity of landscape and man's dwelling in it, which oppose interpretations of fragmentary time-space slices with man contained in an empirically observable and apparently objective setting (Thomas 1993). Landscape is inhabited and assigned meaning on a continuous basis, thus it is acknowledged that there are different chronologies of landscape depending on 'who' and 'when' and there should also be a distinction between chronologies of 'inhabiting' and 'interpreting' (Barrett 1998).

- Power: contradiction and conflict are seen as embedded in the landscape Bender (1992); examples of landscape forms created by power struggles include land divisions and landuse enforced by socio-political tensions and power relationships. Expressions of power are indeed seen everywhere in the landscape, from territorial divisions and building structures to the appropriation of cultural heritage by nation-states. Power has been embedded in archaeological interpretations from the very beginnings of the discipline, but traditional views have recently been debated (Rehak 1995). Going a step further, writings that question a modernist standpoint have revealed a variety of power relationships conditioned by inequality in accessing material and social resources (Hamilakis 2002:14). At the same time attention has been drawn to present-day power relations that in a way dictate our views on power, and which in fact may seriously restrict our ability to really understand and correctly interpret the societies of the people we study (Jansen 2004).

- Agency: Bourdieu's works (in particular Bourdieu 1984) and Giddens with his structuration theory (1984) have introduced new methods in social studies, where they try to reconcile 'structure' and 'agency' and analyse their intrinsic and complex relationship. Their thought has encouraged archaeological discussions on the nature of society, where the individual is given attention and acknowledged an important role in the way society is constituted. Even though it is much easier to describe a general structure, history and society can not be understood if we consider people only as a passive recipients and ignore their active role as agents in the construction and perpetuation or change of identifiable larger economic, ideological and other 'structures'. Evans (2003) proposes to consider the individual from a socio-psychological point of view and study environments as being used by people to mediate their social worlds. Agency refers to the establishment of social condition through the mediatory influence of land or indeed any part of the social or physical environment and is now a key topic in archaeological theoretical discussions (Dobres and Robb 2000).

- Time, space and place: attempts to define the term 'landscape' emphasise its socially constructed meaning subject to space-time relationships (Rossignol and Wandsnider 1992; Gosden 1994). Landscape is seen as the context of people's actions, which take place 'within a certain tempo and at certain locales' (Barrett 1991:8). Focus on the social aspects of man's living in space brought the realisation that societies are based upon complex and variable notions of time and space, which define actions and structures of different scales. Terms such as 'Chaînes opératoires' and 'taskscapes', have been created in order to express new meanings in landscape studies. Chaînes opératoires refer to the social relationships developed at specific locales and concerns the study of annual or of other time-scale processes e.g. of movement and social action at specific locales. It is a term originally used by Andre Leroi-Gourhan (1943: in Evans 2003) in connection with the manufacture of small artefacts in the Palaeolithic. Ingold (1993) discussing 'temporality' and 'landscape' introduces the term 'taskscape', emphasising the intrinsic relationship between time and space, which is diffused by social meaning. Landscape is a living organism, socially created and variably understood, structured by temporal and spatial relationships. Time and space are studied in a wide spectrum of complexity, and are focal concepts in archaeological research that struggles to reconcile the momentary stratigraphical record with the processes of millennia that it might represent. Recent theoretical discussions, inspired by

the Annales analytical framework, produce in-depth insights into the history of dealing with time and space and analyse problems and issues that cannot be overlooked (Knapp 1992b). Still, quite often, archaeological explanation dissects landscape in different time-slices and fails to resolve problems of the relationship between the long term, conjuncture and event as well as problems between time of study and time that is studied. Considerations of time, space and place are intrinsic in archaeological research and in particular in a social archaeology of landscapes. Archaeological data in the landscape represent human activity at the community level, which is time, space and place bound. As a result, landscape research allows us to study how communities relate to space (resources, routes), time (seasonal or temporal activity) and have a better understanding of the wider social, economic and habitational network / inter-site relationships (Knapp 2003).

- Memory: People do not just occupy the landscape; they experience the landscape and in fact life itself, with body, senses and mind. Memory plays an important role in how the landscape is perceived and experienced over time and contributes to the creation and perpetuation of social and national identity. It guides the survival of past beliefs that are inscribed in later practices and monuments, and an appropriate conceptual framework may allow us to use materiality in approaching past belief systems (van Dyke and Alcock 2003). Myths and beliefs give landscape special meaning and are the founding structure that supports and preserves its memory. The past survives through memory and affects the present, which in turn influences the way the past is seen (Alcock 2002). Examples from across the world demonstrate the power of memory that guides preconceptions and world beliefs, perceptions and man's living in a landscape (Brady and Ashmore 1999; Rowlands 1993; Schama 1995; Kuna 1998). Social memory substitutes environmental factors in the explanation of settlement location choice and as a result symbolic landscapes receive most attention. The role of memory in landscape experience is not solely a product of post-processual thought; Bintliff (in Blackman and Branigan 1977) studies the relationship between settlement location and soils, but at the same time considers the continuity of a belief system that has practised rituals on tops of mountains from the Minoan times to the present. However, it is only recently that memory has acquired an important role in archaeological studies.

- Phenomenological approaches have also been applied to archaeologies with very strong links to traditional paradigms such as Minoan archaeology. Within a post-modern reaction to both the lack of a strong theoretical framework in Culture-History and the law-like strength of processual representations of past societies with emphasis on homogenous patterns of economic strategies, environmental impact and socio-cultural evolution, recent texts emphasise the corporalisation of the Minoan past (Hamilakis 1998). Interest lies in the human actors of identified social systems, the use of space, the symbolic meaning of iconography and representation, the social meaning of professions, and the engendered action (Nikolaidou 2002; Alexandri 1994; Barber 1997).

Overall, such approaches have mainly focused on reforming the interpretative framework of archaeological thought and they suggest new viewpoints. However, there seems to be quite a hiatus between archaeological practice and the new theoretical developments, ironically most obvious in landscape research, namely regional survey. Organised landscape explorations in the form of surface survey have traditionally tried to reconstruct historical and economic processes. No doubt, most regional surveys are becoming inter-disciplinary, and reveal a new picture of landscape ecology with discussions on a variety of human activities in space and time and the study of the co-evolution of cultural and natural landscapes. However, post-modern concepts are not often explicitly discussed. An example of the application of recent concepts of social theory in archaeological survey is offered in Given and Knapp (2003); they have used socio-cultural criteria as well as spatial and geomorphological on the definition of the region that they surveyed, and they tried to interpret the physical landscape into social space, in other words, they studied consistently the changing human use of the landscape. Methodology involved the integration of spatial, geomorphological, geobotanical and artefactual data into a GIS environment in order to assess surface data recovery and meaning as well as to interpret the relationships between space and human activity over time. The interpretation and discussion of survey data in terms of abandonment, movement, contacts, and intensity of landscape settlement and landuse, represent a

social archaeology of space, which instead of focusing on the physical remains of a place it tries to reveal the human experience *of place* that takes into account individuals, households and communities who dwell in the landscape and transform it (Knapp and Given 2004: 89, emphasis in the original). The integration of spatial, social and historical approaches is now part of most intensive survey projects, however, Knapp and Given discuss explicitly the role of such an integration in the understanding of meaning, memory and monumentality of the past (ibid: p.92).

Archaeology is a social science targeting past societies and as such, it needs to address all aspects of social expression and existence. These include subsistence, economy, social relationships of power, political expression, ideology, religion and symbolism, agency, gender and community, and all these should be explored in their intrinsic inter-relationships and at the variety of temporal and spatial scales in which they operate. Post-modern approaches including phenomenology, offer revealing insights into past societies indeed, but so do concepts such as the 'Chamber Theory' (Lehmann 1939, Philippson and Kirsten 1950-59), off-site archaeology and 'settlement area theory' (Neustupny 1986: in Kuna 2000, Neustupny 1991, Kuna 1991), but also the Annales framework. Views that oppose the great emphasis given in phenomenology stress that settlement changes seem to relate more to geographic and social issues rather than emotional 'senses of place' (Bintliff 2000b); at the same time, Knapp and Ashmore (1999:8) are optimistic that 'while we may never know the precise content of stories told from ancient landscapes, we can increasingly infer some of the contours of their telling and the social impact that they had'.

It seems to me that the new 'Great Divide' lies in the difference between archaeological questions. Some landscape studies focus on the structure and appearance of the landscape, others on post-processual concepts of social expression and experience. It seems perfectly valid to be interested in general patterns as much as in variance and individuality and in order to reconstruct past societies we should perform research on a multi-scalar level, recognising the fact that humans are social beings living in a physical environment; they create and transport belief systems, but are also characterised by economic relationships and they act at a personal, but also at a communal level. Landscapes are perceived differently by different people, certainly so by people who live in them and people who study them. They are subject to viewpoint, literally as they change with eye's movement, and conceptually as people's concepts, interests and beliefs vary. It should be stressed that the term 'landscape' in other languages does not only refer to a piece of land that can be visualised, lived in and assigned meaning, but a piece of space including land, sea, air and sky. The problem could perhaps be identified in the appropriation of the term for the transmission of absolute and incomplete models. Most important is to be clear about what research questions we set and what methods we use, paying most attention to the validity of our data and acknowledging as much our limitations, as the possible validity of different interpretative suggestions.

1.4 Current Trends

Landscape archaeology developed as the offspring of settlement archaeology encompassing traits from all traditions. Under the influence of New Geography and New Archaeology it developed a processual methodological framework studying societies with a focus on ecological and spatial concepts. Intensive survey is considered as the only tool that allows us to unravel regional landscapes at a diachronic level by collecting a large number and variety of data which can help us understand historical process inclusive of landscape and societal evolution. Edited volumes present and discuss regional studies on a variety of levels including the theoretical and practical basis of regional archaeological work (Crumley and Marquardt 1987; Kardulias 1994; Bintliff *et al.* 2000a; Papadopoulos and Leventhal 2003; Alcock and Cherry 2004). In general, there has traditionally been a strong environmental focus in landscape archaeology, and people's important role in conditioning their environment was also realised quite early (Sahlins 1964:133 in Kirch 1981) and has been stressed throughout the last decade or so (Bottema 1990). However, projects with a strong evolutionary perspective, which are characterised by a human ecological focus, have received austere criticism since 'all

human behaviour cannot be reduced to function at the level of interaction with environment, and thus not all behaviour is adaptive, or explicable in an evolutionary framework (Kirch 1981:131). Most landscape research is of course governed by ecological considerations, however, cultural ecological approaches are now governed by a man-environment interaction subject to cultural idiosyncrasy (papers in Kardoulias 1997) and the idea of co-evolution of man and his environment prevails in archaeological studies. P. Nick Kardulias and Mark T. Shutes in the preface of Aegean Strategies declare: *'The study of human interaction with the environment stresses the role of ecological considerations which often influence the development of mental and symbolic constructs in an intricate relationship'*. A most important development resulting from the increasing integration of survey results in the construction of regional histories, is the acknowledgment of the need to pursue survey comparability. Suggestions recommend the adoption of standards on methodologies that will allow to control 'walker effects' and 'field effects' and it is also stressed that we should be explicit over the terms we use so that communication is facilitated (Cherry 2004).

The interpretative arena of surface survey data could be summarised as one based on a regional scale of spatial analysis in studying settlement inter-relationships and man-environment relationships, using ecological models and territorial approaches and resulting to both inductive and deductive inferences about behavioural patterns. Current research studies the archaeological record as a continuous surface and tries to reconstruct human dwelling in the landscape through the identification of a wide variety of 'site' functions and there has also been an interest in the variable time-scales of site use (Bintliff and Howard 1999; Whitelaw 2000; Pettegrew 2001). At the same time, the multifaceted relationship between culture and environment has been increasingly acknowledged over the last couple of decades, as explanation has moved from ecological and environmentally deterministic approaches to the appreciation of cultural uniqueness and the interpretive integration of complex factors such as time in the shaping of man-environment interrelationships. The recovery of palimpsests of human activity through time has encouraged a Braudelian perspective of historical change (Barker 1995), identifying in the surface record mainly the long (environmental data) and medium term (archaeological data). Recent case studies (in Knapp 1992a; Bintliff 1991a) approach the past historiographically and support an Annales framework as offering the potential to incorporate 'science' into a 'narrative'.

Landscape studies operate in a constantly developing theoretical and methodological framework, which in a way integrates a processual methodology with post-processual concepts, encourages intensity of observations and interdisciplinarity, including IT, and stresses sociality. A representative example of landscape exploration operating with influences from both the 'processual' and 'post-processual' paradigm is the Czech school (Gojda 2003; Kuna 2000). Wilkinson (2004) refers to Landscape Archaeology as the tool to reconstruct and understand past societies by studying taphonomic processes, economic models and social and symbolic systems and using methods of geoarchaeology, aerial photography, remote sensing and surface survey. Current theoretical approaches in archaeological interpretation seek to escape both the frigidity of eco-deterministic views and the domination of post-processual concepts of 'memory' and 'gaze' by studying landscapes as multi-dimensional constructions, historically dynamic, the products of long-term social-natural co-evolution (McGlade 1995). The concept of human eco-dynamics seeks to unfold the multi-scalar spatio-temporal nature of socio-natural relationships and suggests an appropriate methodological and interpretative framework that is based on inter-disciplinarity and studies the dynamic relationship between social and natural phenomena over time (McGlade 1998).

Encompassing settlement archaeology at both a synchronic (spatial) and a diachronic (time) level, landscape archaeologists can try to distinguish between different forms of landscape organisation over time and assess how these may have related to environmental factors and social (including economic, political and ideological) needs. Landscape archaeology can in fact be the most inclusive branch of archaeology in terms of both theory and method, using both scientific methods and a socio-culturally based level of explanation. It is also encouraging that there is a developing source critique where researchers discuss the development of their survey strategies and results in a reflexive manner (Bintliff *et al.* 1999; Rupp 2004; Ammerman 2004).

Landscape research now seeks to adopt a middle position between the extremes of reductionism and relativism and indeed we should transcend divisions between Old and New World Archaeology (Knapp 2003). Moreover, Kuhn's impact after the 70's has led to a historiographical and epistemological approach to archaeology, which now forms a theme of study in itself and its course as well as its present are seen in relation to concurrent historical and political circumstances (Fotiadis 1995; Hamilakis 1995; Mantzourani and Catapoti 2005).

1.5 Concluding Comments

It is now widely accepted that Archaeology tries to understand the process of cultural change through time. Therefore, the purpose of archaeological research can not be limited to the discovery and description of material culture on its own right; the discovery of 'sites' is not a surprise given the fact that people have always existed and interacted with their environment. The question is how landscape has evolved through time and what sort of societies left the traces we find now. In our attempt to understand cultures long gone, we also need to understand the 'environs' of these cultures and try to reveal how landscape was perceived, experienced and used. Our readings of past human-environment relationships should reveal but also extend beyond economic and political relations to the process of 'socialisation' of landscape. In our doing so, we should also be aware of our society's and personal perception of space, but also of the political agenda of archaeology as a discipline and the restrictions it sets in our understandings and interpretations of the world in the past. Within these restrictions we can still do our best to understand and reconstruct past processes, something that certainly requires a fully interdisciplinary approach.

Landscape research in a wider sense, has been a fundamental stone of archaeology from the very beginning, going through different stages of research focus and the most vigorous methodological and theoretical process. Inclusive of environmental, archaeological, historical and ethnographic studies, it offers us the opportunity to understand better the local and regional temporal and spatial complexity, shed light to patterns of human action and social structure and result to more plausible interpretations of the archaeological record. Intensive surface survey projects have resulted to an exceptionally large amount of very variable data, which, however, call for an integrative framework so that their potential to understanding landscape and cultural process is fully exploited. As a consequence, we need to take into account the effects that different methodology and other bias problems might have on surface data recoverability, as well as the constraints set by theoretical background. It is also important to study the relationship between theory, method and results over time, and be able to be self-reflective. Undeniably, it is essential to work within an interdisciplinary framework studying local, regional, diachronic and human-environment dynamics and interrelationships.

Archaeological techniques and supporting technology improves and so do, I believe, theoretical concepts influencing methodological and interpretative frameworks. To use the discipline's advances we need to be more explicit on what we look for, what kind of data we recover and therefore what we interpret, and we should be open to a wide range of interpretative possibilities. An issue that requires and deserves the greatest attention, however, is the communication and integrability of data recovered. In fact, second-generation analysis has demonstrated the severe difficulties in using surface data to extract models of socio-cultural change, difficulties that are enhanced by obscurity in the presentation of data and interpretations (Diacopoulos 2004). Unless archaeologists work on how data and information can be comparable and used in an integrated framework, they risk to work in a vacuum and produce knowledge that unless useable, is I fear, meaningless. Lastly, we should remember that the production of knowledge is based on the ideological systems represented and reproduced by researchers throughout a discipline's process. Research interests and interpretative frameworks are part of a historical process; they are based on previous work and they have complex implications for the perpetuation and structure of ideology, but also for the future of political and social histories. This is why it is of crucial importance to adopt a historical stance to the products of archaeological work, understand it and at last accept responsibility for the social and political consequences that our work has (Mantzourani and Catapoti 2005).

2. Methodology of Studying Landscape Research in Crete

2.1 Introduction

Archaeological landscape research projects in Crete represent archaeological work over many decades and have been realised within different traditions and therefore theoretical and methodological frameworks. In order to understand and compare relevant work, I created two relational databases, which allowed the structured study of landscape projects. The first and principle one (Surveys database) collects information on the theory and methodology that has guided landscape research, and seeks to explore relationships between theoretical background, aims, methods and results in terms of site interpretations. The second (Interpretations database) is a brief study of the interpretative process that observes the relationship between data observed and site interpretations, for a sample taken from different Landscape Traditions. The structure of the databases designed for such an analysis and the classes of information believed crucial for intra-project understanding and inter - project comparisons are discussed below. Each project is entered into the *'Surveys'* database and discussed in a relevant text analysis (chapter three). In the process, I have had the chance to discuss with most major investigators who undertook archaeological landscape research on the island and whose work I have studied, and I have incorporated their valuable advice in the database and texts. The data collected are used for an inter - and intra - project analysis, that helps construct a historiographical overview of landscape research in Crete.

The fields or values, which comprise the *'Surveys'* database, have been part of a dynamic process, guided by experience as the study of the various projects progressed. There was of course, an initial structure based on project attributes, which were considered crucial, however, values were being added, omitted or changed until the last project. The tables have been completed according to the information published, and when possible the information obtained from my personal contact with the researchers, but insufficient publication and the lack of publication standards has been a great obstacle to complete, accurate and consistent records. However, even though there might be omissions, and published information is not always clear so as to allow undeniable and consistent documentation, it is believed that the databases allow a clear picture of projects and traditions and highlight problems of comparability. Both databases were created in Microsoft Access.

2.2 'Surveys' Database Structure and Presentation

It consists of sixteen (16) tables, which collect a variety of information for each of the 35 projects analysed and provides a detailed insight into the theoretical and methodological frameworks within which research was produced. The information collected concern principally aims, questions asked, methods used, interpretations, interpretative themes favoured, variability etc. Its purpose is to understand and assess projects, but also to allow inter-project and traditions' comparisons at various levels. Overall, the database proposes a methodology for the study of landscape research projects and highlights the information we need to know so as to understand what has been achieved by different researchers and how possible it is to integrate their data and interpretations. Below follows a basic description of the tables; fields are discussed in appendix two.

Table Names:

i. Surveys
ii. Data Observed
iii. Field Methods – Sampling
iv. Multidisciplinarity
v. Presentation
vi. Theoretical / Interpretative Framework
vii. Interpretations
viii. Chronology / Functions
ix. Integrability
x. Total site counts
xi. Chronological Variability
xii. Functions Variability
xiii. References
xiv. References of Influence
xv. Sitia sites
xvi. Sitia sites summary

Table 'Surveys'

This table collects general information about landscape research projects in Crete. Its focus is on the classification of aims and traditions, but it includes information regarding periods and site-types favoured, dates of the projects, approaches to the environment etc.

Table 'Data Observed'

The aim of this table is to obtain a picture of the variability of the observations researchers made. The data people are interested in and try to collect elucidate the theoretical background within which their questions and interpretations are formulated. Depending on whether observations were consistent or not we can understand how important these observations were considered. This relates to the methodology that is regarded as proper within epistemological paradigms, but also to the interpretations suggested. When fields are empty, they usually reflect a negative value, or a 'not known' value. Jennifer Moody (pers.comm) suggested that there should be a distinction between data observed during on-site recording and those observed during off-site walking. This distinction is indeed very important; however, this information is not available for most of the projects. Recording forms are hardly ever published, and observations of the physical landscape are often made as a separate part of the project and not during material collections. There can be observations at 3 levels: a separate environmental study based at large scale extensive fieldwork, observations gathered consistently and in a standard form during field-walking, and ones made at site level. Ideally, analysis and interpretation should be based on a combination of all three.

Table 'Fieldmethods-Sampling'

This table relates primarily to intensive surveys and collects information needed for the quantitative comparison of their results. It seeks to provide an in-depth understanding of the field methodology adopted, which defines results and allows their analysis. The fields draw attention to the information needed for inter-project comparisons. The variability of methods used highlights the importance of publishing methodology in a structured way.

Table 'Multi-disciplinarity'
It collects information about the operational framework of landscape research projects in terms of influences and cooperation with other disciplines. Multidisciplinarity is an integral part of archaeological landscape research and elucidates methodological patterns within traditions. It also defines levels of comparability between projects.

Table 'Presentation'
This table aims to inform us about the level and kind of information disseminated by each project. Presentation could be considered as the connective media between field and production of archaeological knowledge, but in fact it expresses a more complex relationship among the variable and multiple fields at a continuous interplay in the archaeological process (Witmore 2004). It reflects research interests that are mainly tradition dependent and epistemological paradigms created in specific socio-political contexts, but it also expresses variances according to personal interests, time, money and technology available. It shows what is considered important to be visualised and illustrates landscape perceptions. E.g. some may present general low-resolution pictures, others give importance to high-resolution, sites may be presented in relation to general environmental characteristics or in their spatial inter-relationship and in connection with topography etc.

Table 'Theoretical / Interpretative Framework'
It aims to explore the influential role that various theoretical approaches have had on archaeological landscape research. The fields of this table describe concepts researchers have used in order to explain material culture observed. These may have a principal role in interpretation, or be only touched upon. On the whole, Culture-History and humanist 'Greek archaeology' have shaped the framework within which archaeological research in Crete has developed; however, theoretical developments, distinctive of other traditions are apparent and here we can observe the interplay between traditions and theoretical approaches. The table is not very well suited for urban surveys, as they mainly record periods of abandonment and settlement, they look for in-site structure, the character of buildings and the interpretation of sites nearby.

Table 'Interpretations'
Here we have a summary in text form of descriptions or historical narratives presented for the main chronological periods.

Table 'Chronology / Functions'
This table contains the researchers' interpretations in terms of chronology and functions assigned to each site. It provides a classificatory system that can be used for possible comparisons of intensive survey results, and stresses the importance of distinguishing between different site interpretations regarding function and chronology, including categories with question marks as viable classes. It seeks to identify trends of interpretations favoured in various traditions, and relates to the necessity of knowing what we compare so as to refrain from a vague notion of 'site'. Comparisons based on site numbers with no further information on a site's character are extremely weak in providing meaningful interpretations; in this respect integration of site information from different projects should make clear if we compare areas of occupational character, religious, unknown, find-spots, etc. paying respect to the differentiations made by each researcher, including differentiations between certain and non-certain sites.

It has to be noted that the above classifications fit an investigation of a very large body of information both time and space wise. It is assumed and suggested that in projects where data integration is required,

classes should be more refined according to questions asked, however it is proposed that a similar approach is adopted, which acknowledges the importance of differences in classes of data and interpretations and studies this differentiation in a structured manner.

Notes on classification decisions

1) Classifying interpretations: Researchers have used and are using many chronological and function divisions and characterisations. Given the fact that it would be almost impossible to work with a classificatory system containing all categorizations used, this table's fields represent a broader chronological system (widely used by archaeologists working in Crete), based on periods of relative cultural homogeneity and times of transition. These, in turn, contain broad categories of functions. However, it should be stressed that chronological classes used, have the inherent ambiguity of the chronological terms used by researchers. For example, the R/LR class corresponds to relevant terms, which, however, are usually not defined. In fact, LR might partly overlap with the term 'early Byzantine' depending on region and researchers' preferences in terminology; however, this thesis does not attempt a re-evaluation of chronological data, and since the same researcher may use both terms of LR and early Byzantine, their terminology is respected and their interpretations classified in the relative fields. Ambiguity is actually embedded in most chronological interpretations, and as stated above, the 'chronology / functions' table studies interpretations in a medium resolution. It is stressed again that if somebody wants to use other researchers' interpretations for a specific period, one would need to construct a relevant table with finer classes and preferably assess and 'interpret' people's interpretations, if possible by accessing some primary data (e.g. when a researcher says 'Classical or Hellenistic', which of the two periods should we really use?). Furthermore, the decision to classify each site into one of the 'function categories' has been even more difficult, as researchers' interpretations are not always straightforward; e.g. sometimes the same site may be discussed as of both a 'certain' and 'possible' function. Most difficulties arose with multi-period sites where there is usually no distinction between known and unknown function per period. In the occasions where interpretation is not specific, the characterisation of the site had to be inferred from descriptions and connotations and when this was not possible the site was classified as of 'unknown function' for the periods that researchers did not discuss its function.

2) Inhabitation classes: When both 'habitation' and another function are stated, priority is given to settlement activity as it is not uncommon that where people live they also perform burial and religious practices. Therefore, places of ritual and burials are more than the relevant sites quoted in the database, which usually are exclusively 'burial' or 'religious'; however, differences are not great. The priority given to the question 'where people live' is subjective, but it is considered as the most important, since places of occupation are richer in social practices and they have been given priority in archaeological research worldwide. The function stated in the fields of broad periods e.g. 'PH', also give priority to the characterisation 'settlement' even if there are different functions in sub-periods. The above decisions were taken in the context of the present work, however, classes of chronology and function should certainly be more refined depending on research questions. E.g. someone might be interested in all places of ritual character, and why these occur where they do (in, near, or far from settlements); in this case, one should look for evidence in settlements as well as purely ritual sites.

3) Question marks: Sometimes researchers use question marks after their chronological or functional designations, in other cases uncertainty is inferred from hypothetical tenses or the general style of writing where doubt is implied. 'Probably', 'might' and similar expressions are taken as if expressing doubt. Certainty of chronological attribution is also relevant to precision e.g. when a period is 'Turkish or Venetian' the site would have a question mark for both of these periods, but for the BVT category it wouldn't. Typical descriptions of sites with question marks: 'the site could be a Minoan farm'; 'a pithos burial (a find) is said to have been found at xx location; Roman remains were noted by xx(previous researcher), but not observed by us (however, if someone quotes a site and the interpretation of a previous researcher without expressing doubt even if he did not visit the site himself, the interpretation quoted is taken as an accepted one and therefore it is

entered in the relevant field without question mark. Periods with question marks are included in the respective PH(?), GR(?) or BVT(?) fields, unless it is obvious that researchers are certain that a site is e.g. PH but not sure if e.g. pre-palatial. Then the site is classified in 'pre-palatial?' and 'PH' fields.

4) Urban surveys: there should be a finer classification of functions and chronological periods for urban surveys, but this has not been possible in the present database of landscape surveys. Surveys and sites of a different level of precision, however, can not be compared satisfactorily. For example many 'sites' could be parts of the same extensive settlement (Hood Knossos, Sphakia etc).

5) General: dash (-) between periods is taken to imply duration e.g. V-T is from Venetian to Turkish. Slash (/) is either one period or another. In reality it is possible that dash may also be used when researchers are not sure about the chronology.

Table 'Integrability'

This table refers to the 26 projects that have provided a site-database, even though information from the rest of the projects can of course also be integrated to a certain extent. However, this table aims to give a general idea of how successful integration of site characterisations might be, as site numbers per period and function can be used in social reconstructions. The general assessment of integrability is based on the confidence, precision and variability of function and chronological interpretations, provided by researchers. These have been calculated, rather than estimated roughly (see appendix 2) and relocatability is also taken into account as it is an important factor to know if we want to combine site data into meaningful spatial interpretations. The table is a rough assessment of how easy and valid it is to integrate not suggestions about how societies were, but the site-characterisations used for such reconstructions. It has to be stressed again, that integrability is assessed in terms of interpretations provided; the table does not assess the accuracy of these interpretations.

Table 'Total Site Counts'

All fields are the results of a relevant query from the table 'chronology/functions'. It should be stated that site numbers in the Culture-History tradition are not exactly equal with the sites people found due to classification and categorisation problems. Quite often a site name in a report contains many findspots that would be treated as separate sites in the Landscape Tradition, and when different toponyms were given or when distances among them were quite substantive these were entered in the database as separate sites. However, although consistency was much pursued, it has not been possible to always keep it at the desired level.

Table 'Chronological Variability'

(All chronological terms may be used in combination with dashes (-) or slashes (/), showing lack of confidence or continuity). When a site catalogue is published with specific chronological characterisations, which may group together finer classifications of pottery, the table follows the catalogue. However, in cases that a site is presented by name and pottery found, with no further comments, the table refers to all the periods mentioned. This table gives us an idea of the variability and precision in the chronological terms used by the various researchers, but it is not an accurate representation of site chronological classifications.

Table 'Functions Variability'

Some of the categories are also used in combination for the same site, especially when data observed are presented instead of an interpretation e.g. scatter and walls. Sometimes there is not a clear distinction between data and interpretations and usually when data is given instead of an interpretation the site has not been given a specific function.

Table 'References' & Table 'References of Influence'
The role of these two tables is to acquire a picture of the influential background of research projects. It is of course obvious that the work of contemporary colleagues has always influenced researchers in all levels. Also, interpretations of archaeologists who previously worked in an area are taken into account (and concern mainly chronological issues), since the history of research of an area is always studied.

Table 'Siteia Sites' & Table 'Siteia Sites Summary'
These two tables consist of site interpretations of chronology and function for the eparchy of Siteia, so as to serve the purposes of chapter six. The first table uses a very detailed classification of chronological periods; the second has summarised site interpretations into sections of time, which are considered as the most important for the history of human evolution.

2.3 The Sample

Landscape exploration researches in Crete are numerous; the priority has been to include all archaeological projects since the 70's, namely intensive surveys, but also an adequate and representative sample from the other traditions. The 'Travellers' tradition includes of course many more studies, but they do not have major differences and cannot be analysed at the same level with the rest of the surveys. The table below (2.3) presents the projects included in each tradition:

Survey id	Tradition	Survey id	Tradition
Hagios Vasilios 66	Culture History	Ayiofarango 77	Landscape Archaeology
Ayiofarango 75	Culture History	Katelionas	Landscape Archaeology
Ayiofarango 89	Culture History	Lamnoni	Landscape Archaeology
Hood 65	Culture History	Praisos	Landscape Archaeology
Hood 67	Culture History	Sphakia	Landscape Archaeology
Pendlebury 1934	Culture History	Vrokastro	Landscape Archaeology
Travels in Crete	Culture History	Phaistos	Landscape Archaeology
Wroncka	Historical Geography	Kommos	Landscape Archaeology
Faure	Historical Geography	Chania	Landscape Archaeology
Nowicki	Historical Geography	Aghios Vasilios Valley	Landscape Archaeology
Lehmann	Historical Geography	Malia	Landscape Archaeology
Schiering	Topographic	Palaikastro	Landscape Archaeology
Hood Knossos	Topographic	Gournia	Landscape Archaeology
Minoan Roads	Topographic	Kavousi	Landscape Archaeology
Itanos	Topographic	Hagia Photia	Landscape Archaeology
Sieber	Travellers	Pseira	Landscape Archaeology
Pashley	Travellers	Gavdos	Landscape Archaeology
		Lasithi	Landscape Archaeology

Table 2.3 Surveys Database: The sample

2.4 Survey Text Analysis: Structure of the Analytical Text, which Examines Each Landscape Project

A text discussion is provided for each landscape research project, based on the data acquired in the Survey Database. This section may be partly considered as a short project review. The themes discussed aim to provide a clear picture of the relevant projects and help to exemplify differences but also similarities between traditions.

2.4.1 Problem Orientation: aims and methods

A general picture of researchers' theoretical and methodological framework is obtained by describing declared aims and methodology followed. Questions asked and methods followed to study the landscape are characteristic of archaeological Landscape Traditions and the text aims to provide an adequate description so that the relationship between problem orientation, methodology and results is better understood.

2.4.2 Presentation / Relocatability

This section discusses the kind of data that are presented, including maps and map-scales, which are often related to the way the archaeological landscape is perceived. The visualisation methods used and the extent to which we may be able to relocate sites are important information regarding the usability of the data presented by researchers. Site location may often be presented through text descriptions, while map visualisation may be very poor, but in other occasions relocatability seems to be an important objective.

2.4.3 Density per area/period

The relevant table presents the number of site characterisations and the estimated densities for the four major temporal slices (PH, GR, BVT, MOD, as well as the class of 'unknown period'), presented for both target and sampled populations, when these differ. The first row includes both certain and uncertain chronological characterisations while the alternative lower densities in the second row include only certain interpretations. For projects in which area researched is not explicitly stated, density estimates are based on the map-area calculated from the GIS maps. It should be noted that usually the areas represented on the maps are quite larger than the areas actually researched, as map precision has rarely been pursued. Target, map and sampled areas can be seen in the database. The aim is to obtain an idea about the extent to which the different periods were studied and we are thus most familiar with and also the degree of certainty in chronological attributions. Site definition is also discussed.

2.4.4 Interpretative Framework

The interpretative framework of each project is discussed within a descriptive and analytical perspective. Examples of proposed results are linked to interpretative approaches in an effort to understand how obtained data are interpreted and used. This section discusses also the project's relationship to Landscape Traditions and the influential role of previous research.

2.4.5 Summary Assessment

This section discusses strengths and weaknesses so as to allow an evaluation of data and interpretations and assess the knowledge acquired. A major issue it tries to deal with is an understanding of what we can ultimately do with the results of the relevant projects.

2.5 'Interpretations' Database Structure and Presentation

In order to understand survey results and interpretations it is of great importance to try and understand what various site terms mean for different people and what their relationship with surface data might be. The problem of what we should call a site has been addressed from the beginning of intensive surveys, and a straightforward answer does not exist, quite understandably. The major obstacle, however, to integrating surface data and using people's interpretations, is not that we may not agree on what a site is, but that we do not know what people mean when they use specific terms, and whether their definitions are in accordance with those of other researchers, so that we can treat landscape interpretations as unified information. For this reason the 'Interpretations' database tries to follow the interpretative process by separating raw data observed and interpretations used to explain them, the term *interpretation* referring to the function and chronology assigned (or not) to a material entity at a specific location. The aim is to search for any clear links between data and interpretations in order to understand meanings of the various chronological and functional terms used, but also in order to assess whether interpretations are plausible or not. Below follows a short description of the tables used in this database. Documentation of fields is presented in appendix 4.

Table names:

i. Data Observed
ii. Sherd Quantities
iii. Chronology – Functions

Table 'Data Observed'

This table consists of data the researchers report for every site. Data are classified in different categories and reveal what researchers observe in the landscape and what kinds of information have been used in order to arrive at specific interpretations. Data observed include archaeological material, topographical/environmental and landuse observations.

Table 'Sherd Quantities'

Sherd Quantities table deals with pottery descriptions as used by the observers, since pottery has been the most important criterion used in interpreting whether a find-spot is a site or not, and of which date and function. The chronology fields used are the same as in the table 'Chronology / Functions' in the surveys database.

Table 'Chronology – Functions'

This table contains the interpretations (of function and chronology) that researchers assign to each site and has to be studied in relation to the data they observed and the pottery quantities they report. The three tables allow us to follow the interpretative process and understand what type of quantitative and qualitative criteria have been used for specific interpretations. The approach is proposed as a prerequisite to understanding what interpretations mean for different people and assess whether e.g. everybody's 'settlements' could indeed be used as such in a settlement pattern model or not. It also enhances understanding of landscape approaches and relevant traditions, and highlights weaknesses in the presentation of site interpretations. Assessment comments do not intend to cancel proposed site interpretations, but to evaluate understanding of the relationship between data and interpretations, so that we can have an opinion on whether specific interpretations are credible or not. The table consists of site interpretations, classified in the same way as in the 'Chronology / Functions' table of the 'Surveys' database, therefore, the documentation of the fields, remains the same.

2.6 The Sample

Culture History Tradition (survey id Hood 67)
All of his sites have been used. Descriptions of 'apparently' or 'appear to be' are treated as expressing doubt, therefore put in chronology fields [sherds table] with question marks.

Landscape Tradition (survey id Vrokastro)
Burial sites were not used because they are usually known, previously excavated, or with distinctive pottery and sometimes human bone. In most cases we wouldn't doubt the site's function.

Survey id: Vrokastro

PH	No. sites	Sample	GR	No. sites	Sample	BVT	No. sites	Sample
settlement	36	4	settlement	30	3	settlement	7	1
settlement	36	4	settlement	30	3	settlement	7	1
settlement?	2		settlement?	1		settlement?	1	
habitation	22	2	habitation	8	2	habitation	5	
habitation?	21	2	habitation?	9	1	Habitation / settlement	3	
Habitation/ settlement	16	2	Habitation / settlement	11	3	habitation?	6	
burial	6		burial	5		ritual	4	
burial?	3		burial?	5		ritual?	2	
ritual?	1		ritual?	3		fort	1	
agro-pastoral activity	2	1	fort?	1		fort?	2	
agropastoral activity?	3		industrial activity	1		agro-pastoral activity	29	3
presence	1		presence	9		agro-pastoral activity?	8	1
unknown activity	6	1	agro-pastoral activity	2	1	industrial activity	7	1
			agro-pastoral activity?	4		presence	13	
			unknown activity	15	2	unknown activity	10	1

Table 2.6 Interpretations Database: the sample

2.7 GIS Tools and Visualisation

Maps produced and presented in chapters four and six, aim to allow the visualisation of the spatial spread of archaeological landscape research over time. They offer the possibility to picture project information such as the area researched by projects of different traditions, as well as their overlap and hence regions of more intense interest. At the same time GIS tools have been used in order to calculate the area explored by projects, which do not publish relevant information, and therefore extract their site-densities. In this framework, project maps were scanned, geo-referenced, and linked to relevant data. Most of the images (project maps) were geo-referenced by Leiden university students during their course of Map-Info, under the guidance of Tjaco Mast and Hans Kamermans. M.Spyridakis was also very kind to help in this extremely time-consuming process. Some maps that could not be geo-referenced I created in Arc-Gis, the programme I also used for editing and the construction of maps showing the spatial spread of projects per tradition. On the whole, the following software programmes were used for image processing and registration, the construction of GIS maps and their linkage to the relevant databases: Adobe Photoshop, Map-Info, Arc-GIS, Microsoft Access and Excel.

3. Landscape Research Projects in Crete: Text Analysis

3.1 Introduction

The 'surveys' database (description in 2.2 & 2.3) allowed the collection of a large amount of information about many different aspects of the projects, so that we have a full description of aims, methods, results and general framework of each project. In this way we can assess what has been achieved and how, and therefore what knowledge we acquire and further, we can study the history of landscape research on the island. Chapter three consists of a text discussion for each of the thirty-five projects studied, describing and discussing aims, methods, presentation / relocatability, site densities, interpretative framework and providing a summary assessment. In general, the texts follow a set structure discussing and summarising important issues regarding landscape research. A description of the sections which constitute the text discussion of each project is given in 2.4.

The projects are presented in chronological order within the tradition they belong to, and traditions also try to follow a chronological order on the basis of their beginning as disciplinary paradigms, even though most of the time they co-exist. It is hoped that the chapter will elucidate the theoretical and methodological frameworks of the relevant projects and it will provide a better understanding of their results and potential. Finally, the last section discusses the interpretative process of site data, based on the 'interpretations' database (a description of the database is provided in 2.5 & 2.6).

3.2 Travellers Tradition

3.2.1 Survey id: Sieber

Problem Orientation: aims and methods

Sieber travelled around Crete in 1817 intrigued by accounts of previous researchers / Travellers from Europe. His primary objective appears to be a collection of Crete's known endemic rare plants, which related to his interest and practice of medicine. However, his book includes very little about plants; it consists mainly of stories and descriptive accounts of his experiences on the island, so that the goal of his journey seems to have rather been the journey itself, to learn and write about life on the island. He conceived himself as an explorer, and he certainly was one since travelling in the dangerous and remote 'east' was not something common for Europeans at the time. Being part of his time's intellectual elite he wanted to contribute to the collection of knowledge about Crete's little known land and culture. He was interested in ethnography, archaeology and socio-political and economic life, as well as botany and medicine. His chronological focus was his contemporary Crete, thus previous times receive little attention and the limited discussion of ancient ruins seems to be rather the result of 'scientific correctness' than his real interest. His study was based on personal experience and thus he travelled around Crete (mule was the transport of the time) accompanied by a local guide, collecting plants and observing life. He used Homann's map as his reference, but mentions that he also drew maps of some of the areas where he travelled and tried to estimate the height of the mountains using a barometer and octanta (Johann Baptist Homann 1663-1724: German chartographer. In 1716, 126 maps of his are published as a World Atlas).

Presentation / Relocatability

Sieber's literary text is accompanied by sketches and art drawings that aim to make his descriptions more vivid. Themes include the landscape, Cretans with their different clothing, or everyday life. Even though his

main interests are not in geography and sites, presentation includes a map of 'ancient Crete'. Almost all of the places he talks about, can, of course, be relocated, since they are villages still inhabited now, monasteries or well-known sites.

Density per area / period
Not applicable. He travels most of Crete referring mainly to his contemporary sites.

Interpretive Framework
Sieber was not primarily interested in the archaeological landscape of Crete; therefore, he mentions very few archaeological sites. Most of the sites he refers to are not described in detail, but are just the scene where his narratives take place. Others are only mentioned by name as places where he passed through. The ones he considers significant, however, and places that attracted his interest, are described in greater detail. The major towns of Chania, Rethimno and Herakleion (Chandax) are the most important among these. The past is little explored, but as it is part of his contemporary landscape, it survives in material remains and the non-material record of stories, beliefs and customs, giving historical depth in his descriptions.

As his aim was to give a picture of Crete, the content of his book reveals what he considered as important themes to discuss, representative of life on the island. Thus, he describes both cultural and environmental landscapes, focusing on people's relationships, their social and economic life. He uses all his senses in his descriptions, colouring his narratives with a very personal and vivid character. His point of view, representative of his upbringing and classical education, is strong and sheds light to the value system of his society as much as Crete's. He describes facts and situations, he is quite judgmental and always gives his personal evaluation of the situation or characters under discussion. He often mentions his impression of landscapes, behaviours and people.

At the same time he also tries to give some 'objective' descriptions, whether this concerns plants, geography, architecture or social behaviour. There is an evident attempt to give a character of scientism in his writing when he describes what he sees without expressing his personal views, or when he explains in detail everything (facts, behaviours, discussions) that led him to a specific conclusion. His text is a mixture of 'subjective' and 'objective', 'scientific' and 'literary'. He describes what he sees, hears, smells, feels and thinks. The romanticism and at the same time the belief in objective knowledge and science, spread throughout his work and correspond to the Enlightenment's intellectual stimulation of his time.

Influential references: Tournefort seems to have had the greatest impact on his work, but he also mentions almost all Travellers / explorers that had visited Crete before him and left accounts of their travels. He visits places they visited and tries to confirm the information they left, e.g. things observed, or plants Tournefort collected. Homann and German cartography appear to have been the major influence on his mapping and understanding of spatial relationships.

Summary Assessment

Strengths: vivid way of writing, important details.
Weaknesses: no specific questions and methodology, poor archaeological landscape.
Evaluation of data and interpretations: he gathered important information in Crete during his travel, although his interpretations are sometimes totally subjective opinions.
Knowledge acquired: flora of Crete, social hierarchy, economy, demography, health and life standards, traditions, politics, religion. Rich source of information.
Integrability: high; known sites.
Publication: completed

This travelling account is an example of the major differences in aims and research interests between Travellers' texts and archaeological reports that followed. An account of the physical environment and the social life of the island are the goals set in order to portray Crete. Moreover, a psychological outline of the people, both Turks and Greeks, receives great attention. He grasps and observes interesting social themes such as relations of control and dependence. It is interesting that apart from the repeated mentions in the obvious control of Turks upon Greeks whose violence he strongly disapproved of, he notices such relations also in the clergy, and among common people, who tried to profit from, or control others.

His work is a rich source of information especially of socio-political and economic associations at the time of his travel. Descriptions of the landscape he visited, both cultural and environmental, are particularly important for the history and archaeology of his time. We should remember, however, that his accounts of what he saw and perceived, are not necessarily objective assessments of the situation he describes, but usually his personal interpretation. Narrative is based on a time sequence as he travelled through Crete, often repeating places he revisited. The sequence breaks only when he narrates a story that takes place in different spatial contexts, which may not coincide with the places he visited in succession. When he finishes the story, he goes back to the narrative of what happened and where, in time order. The manner of his writing has the potential to reveal lively pictures of the places he visited, being indicative of his own personality and cultural background.

His classical education is noticeable through his mentions and quotes of ancient cities (Gortyn, Knosos, Kydonia etc), however, we do not learn anything new, as neither is he interested in discovering unknown remains of the past, nor in giving detailed records of known monuments. However, as archaeology is part of his living landscape, he considers it an integral part of the island's character, thus, occasionally he refers to ancient monuments he sees or knows of.

Landscape approach: he approaches the landscape as the living world around him. That is the environment where people live, loci of human activity and their interactions. He uses all his senses and he describes what he experiences, presenting quite a variable account of the landscape he interacts with. He describes amazing views and beautiful places, but also gives 'objective' accounts of geographical characteristics, or economic potential and restrictions (fertile plains).

3.2.2 Survey id: Pashley

Problem Orientation: aims and methods

Pashley travelled in Crete in 1834, in order to relocate ancient sites and provide a description of the island. He declares that he wants to 'increase our knowledge' about Crete, thus, he tries to select a variety of information about as much of the island as possible, touching upon all periods. His discussions, subject to his interests, focus on ancient remains, ancient history and mythology, monasteries and caves, ethnography and the socio-political history of his contemporary Crete, which notably also forms the subject of his introduction. This is studied through the systematic recording of villages and the population of the island, production and taxation, export and import, but he also uses his personal experiences and thoughts. His descriptions include customs, beliefs, stories, historical events and the relationship between Greeks and Turks, whereas sometimes he gives good descriptions of the physical landscape.

His starting point regarding the exploration of the past is the ancient writers. According to their information he tries to identify the geographical characteristics and spatial relationships that reveal the location of ancient towns. His descriptions contain records of exact measurements of distances and sizes, e.g. of buildings and caves. He also studies the history and myths known about sites and he uses etymology as evidence for their understanding, but also for the discovery of ancient ruins (e.g. 'the name Kamares often indicates area or location of an ancient town'). The accounts of previous Travellers, cartographers and antiquaries are carefully studied as well, and comparing his own observations with those of others, he uses both philological and archaeological evidence for his conclusions. Cyclopean architecture and sherds are the strongest evidence for the discovery of an ancient Greek settlement and in one case he characteristically states ' I found the most secure evidence of an ancient site: many pottery sherds'.

Presentation / Relocatability

Pashley's description of the island is accompanied by a variety of art drawings, which attempt to enhance understanding, by allowing the visualisation of themes discussed. These include landscapes and monuments, other objects (usually ancient), but also people. A map is also published at a scale of 1:1.535.763, which shows topography and ancient cities at their precise or approximate location. A very interesting component of his presentation is statistical tables, which record the Muslim and Christian families per village all around the island, income and expenses of the government, taxation, income from specific professions, imports and exports. Relocatability is in most cases feasible and many of his ancient Greek cities have been correctly identified.

Density per area / period

	area surveyed (km²)	Total site no	PH	GR	BVT	Modern	Unknown
	8297	80	0	54	17	20	3
Or:			0	50	17	20	3
Densities per km² (map area)		0,009		0,006	0,002	0,002	

Site definition: Although Pashley discusses all kinds of loci that attract his attention, his particular interest lies in loci with ancient ruins, which may be identified as ancient settlements. The term 'ancient' seems to refer to Greco-Roman times and 'site' is the equivalent for settlement, in particular a town mentioned in ancient sources. The sites included in the database, are those treated as 'sites' by Pashley and for which he is certain.

Interpretative Framework

Pashley is a broadly-read scholar of his time, and a connoisseur of the ancient Greek philology. His education covers mythology, history and archaeology and in order to identify ancient remains and interpret what he observes, he uses evidence from all of them. He endeavours into long discussions regarding a site's history, comparing views from various ancient writers and previous researchers. Considering all possible opinions, he usually clarifies why he agrees or disagrees with proposed explanations. Herodotus, Pleinius and Strabo are among his chief but not the only ancient sources, almost all previous Travellers and cartographers have been consulted, whereas Hoeck's and others' philological studies as well as Leake's topographical orientation have much influenced his methodological and interpretative background.

As already mentioned, his interest in pre-contemporary Crete lies on its ancient past, which of course is not well-defined chronologically, but it seems that Roman times separate it from recent history. From the extensive references to ancient sources it is clear that when he talks about 'ancient' he implies Greco-Roman (mainly Classical), and the vast majority of his sites are cities. Except for philological sources, which are used to discover and study ancient sites, material remains are considered the 'hard' evidence. He tries to date based mainly on architecture and indeed, the concept of archaeological material at his time is notable. Leake's topographical explorations have certainly influenced the way he observes and interprets material culture, e.g. the type of stones and the way they have been put together reveal their ancient Greek origin or not – and he often identifies cyclopean walls. Moreover, he records other types of material culture such as sarcophagi, inscriptions and coins, whereas the quantity of pottery sherds is an indisputable piece of evidence for the presence of a site. The themes he discusses when he talks about a site of his interest, include history, etymology, material culture, mythology and even territory and site interrelationships.

His interest in his contemporary Crete embraces a variety of themes, which are discussed recurrently as he travels through the island. His descriptions of the places he stays include standing monuments, physical appearance and character of people, their customs and beliefs, stories about their history / sufferings in Modern times. He is particularly interested in monasteries, where he often finds lodging. Facts of the socio-political life of the island, which express the tension between Turks and Cretans, receive great attention. His narrative is often interrupted by songs and 'mandinades', or descriptions of climate, plants and animals, landuse, costumes.

Moreover, he is very interested in the diachronic character of beliefs and customs, but also in their spatial spread. Therefore, he identifies systems of behaviour that have lasted over time and he likes comparing ancient times with modern, for example he notes the ritual and refuge use of caves over time, the continuation of beliefs in elves and pagan deities, or the isolation of both Muslim and Christian women in the house, a custom noted also in ancient times. On another instance he compares the theme of human sacrifices in myths of Crete with those of other places and times in the world such as the Roman Empire, India, Syria and Medieval Europe. Similarities and differences between the Greek Orthodox and Muslims, but also other Christians is also a theme that intrigues him.

A large part of his work is of course not subject to an interpretative analysis, as his aim is the presentation of his observations and experiences where either 'common sense' cancels any need for further explanation, or there is not an inquiry on 'what' such observations represent. However, his method in identifying and interpreting ancient remains can be seen in most later archaeological landscape explorations as some of his characteristic phrases show, e.g. ' the high hill in the middle of the plain (Mesara) seems perfect for the location of an ancient site'.

Influential sources: Leake, Hoeck, Spanakis, previous Travellers, writers of chronicles, topographers, philologists.

Summary Assessment

Strengths: rich sources and evidence used; clarity between evidence he uses and suggestions he makes. A great variety of themes explored.
Weaknesses: chronologically biased. Not always consistent in being methodical and all-inclusive.
Evaluation of data and Interpretation: the combination of philological and archaeological evidence allows the collection of large amount of information and a high degree of confidence in most of his interpretations.
Knowledge acquired: a great amount of information and bibliography on the history of the island, but also primary evidence from his own observations and description of experiences and thoughts.
Integrability: medium high
Publication: completed.

Pashley's work has a twofold character; on one hand we have a serious researcher who presents all his evidence and sources in detail, discusses the different opinions proposed and explains his line of thought in an effort to supply his readers with an as complete as possible picture of Crete. On the other hand we have a traveller who describes his thoughts and experiences, often with humour and spontaneity. He does not hesitate to declare his preferences and beliefs. The great importance given in the classical Greek past, in which the European identity had found its routes, reflects a long-established tradition of acquaintance with ancient Greek philology. Influenced by topographers and antiquaries, he tries to give objective records of his observations and he is methodical in presenting all the evidence, philological, mythological, historical or archaeological that guides his thought. Even though occasionally his opinion is not clear, he usually explains why he supports or disagrees with a specific view (mainly regarding the location of a site, but also about other themes he discusses). His writing is both descriptive and narrative and offers an easy and pleasant read, giving us at the same time a great amount of interesting information including thoughts even on topics of population and territory over time. The fact that he speaks Modern Greek helps him interact with Cretans and record their

culture to a good degree of detail and indeed, he manages to bring into light the history and life of the little known island of Crete, in such troubled times, exhibiting a remarkable perseverance and explorative nature.

However, expressing his historical circumstances he is heavily biased towards GR cities, whereas burials and post-Roman times receive only an occasional mention. He usually declares his disappointment when he discovers medieval or any other ruins which do not reveal a certain ancient Greek city. His observing eye is that of an elite European, who tries to be objective and hide emotions even if he expresses thoughts from time to time. Cretans form an object of research to him as much in fact as ancient walls. It is of course very difficult for him to understand the relevant society, as is to obtain a picture of previous societies. Ultimately, we acquire a rich and interesting selection of information about the island, its history and location of antiquities, even if, naturally, biased and fragmentary. What he writes is what interests him and what he thinks is interesting and expected by the spiritual elite of his country.

Landscape approach: the physicality of both natural and human environments. He is usually not as interested in landscapes as wide spatial contexts, but in what (material remains and people) these contain, even though occasionally he describes views he sees. His landscapes move as he moves and we acquire a picture of them through his notes and descriptions.

3.3 Culture History Tradition

3.3.1 Survey id: Pendlebury 1934

Problem Orientation: aims and methods

This report describes a set of journeys in Central and Eastern Crete, which took place in 1934 over a period of a month and involved 3-4 people who were based at Knossos. The aims of their landscape exploration were to revisit known sites reported by previous researchers and in particular A. Evans, record their situation and location and attempt to date them better. They visited sites excavated and while walking extensively through areas with important archaeological remains, they also looked for new sites. The ultimate purpose was to work towards the production of a ‘complete register of all ancient sites on the island’, which almost saw its fulfilment with Pendlebury’s ‘The Archaeology of Crete’ in 1939.

Investigations involved extensive judgmental walking, using older reports, maps and information from local people in order to find previously reported sites, but also new ones. Going to the kafeneion of a village and discussing with the locals about antiquities in the surroundings was a common tactic at the time; people were particularly helpful and gave them all information they could or even guided them to areas with archaeological remains. It is also stated that the foreman of Knossos, Emmanuel Akoumianos was a very successful guide as he was a native Cretan and also trained in antiquities. Transport was often based on mules, which carried the team’s luggage through difficult mountain trails.

Presentation / Relocatability

The maps published are in fact sketch maps of 1:135,135 and 1:280,000. The information presented consists of routes, the sites reported, some towns and rivers. The location of the sites is described by giving orientation and walking time or distances from known spots. Many of the sites are well-known and even excavated, thus their relocation does not pose problems. However, this is not the case for many loci vaguely defined as fields some distance from a village, with no distinctive material culture in them. There are also many cases where previously reported sites could hardly be relocated in 1934, and vague text descriptions do not allow much hope in finding them again.

Density per area / period

	area surveyed (km²)	Total site no	PH	GR	BVT	Modern	Unknown
	3.012,5	116	77	62	4	2	2
Or:			72	57	2	2	2
Densities per km² (map area)		0,038	0,025	0,020	0,001		

Site definition: A site can be anything from GR cities mentioned in ancient sources and identified by previous researchers to small concentrations of sherds discovered by Pendlebury and his team. The term site is often used without defining a specific function and it seems that it implies a settlement, an interpretative suggestion used in even debatable cases: 'There is also an Early Greek settlement here, for archaic bronzes are reported to have been found by the peasants' (Archanes: Troullos). Sites classified of 'unknown activity' in the database might have been considered as settlements, but since this is not clear, the characterisation 'settlement' is avoided. Remains of walls and sherds as well as phrases like 'abundant' or 'extensive site' are, however, regarded as settlements (e.g. Vathypetro: Stes Hagias Annas to Phanari).

A site description in Pendlebury's catalogue may consist of many sites located in the vicinity, which is rather common in the Culture-History tradition. Sometimes these can be treated as separate sites, in particular when toponyms are given. Loci of recent activity - and in fact 'recent' was considered almost everything after LR times - such as villages and monasteries, are mentioned only so as to help the description of the locality of an ancient site.

Interpretative Framework

Interpretation is limited to the characterization of function and chronology of ancient remains. Topography and communication routes between sites are the main themes observed apart from material culture. The location of sites is treated as 'common sense' e.g. Argeion: 'There, as was to be expected in a flat low-lying area, few traces of walls were to be found, but the surface was covered with Roman sherds and a small admixture of Hellenic'.

What is sought is a picture of ancient sites in the landscape, describing location, archaeological remains and their date and giving a brief account of the history of research. Sometimes Pendlebury takes part in the discussions of identifying loci with ancient remains as sites mentioned in ancient texts and quotes various different opinions of previous researchers. In such cases he usually presents his own opinion based on the remains he saw. There are several occasions, however, where a site's description consists of a record of what has been done or said about the site as well as fieldwork observations, but personal opinions are avoided. Some famous sites may be quoted only by name and a reference, with no further comments.

The interpretative framework adopted lies within the lines set by the pioneers of Minoan archaeology, with settlements forming a hierarchy distinctive of the supremacy of the palaces and in particular Knossos. Favourable themes consist of cultural descriptions and include trade and communication with the East and in particular Egypt. In relation to this, guard-houses are seen as serving a role of protecting such routes. Location is sometimes seen in relation to social issues e.g. the location of Geometric settlements at rocky places led to the following remark: 'life indeed must have been hard in Eastern Crete after the fall of the Minoan civilization'.

Influential References and Sources: Evans was the leading influential figure together with Xanthoudides, who as an ephor in Crete conducted numerous excavations; all previous archaeologists who

in every case operated within the same tradition are taken into account. Travellers are also used, mainly as sources of information.

Summary Assessment

Strengths: history of research of ancient sites; a catalogue of places of archaeological interest.
Weaknesses: poor interpretation; weak presentation and definition problems.
Evaluation of data and Interpretation: catalogues of sites were indeed important in handling the large amount of information already gathered by Pendlebury's time. However, lack of consistency in what is recorded and how it is defined cause many problems in how this report's data can be used.
Knowledge acquired: history of research, and source of information as regards places of archaeological interest.
Integrability: medium-low
Publication: completed

This typical and well-known expedition aimed at nothing more and nothing less than providing an index of ancient sites and their situation at the time of fieldwork. This is why many settlements with no surface remains at the time, but previously recorded, are mentioned. Sometimes it is attempted to assess the validity of previous accounts. Interest lies not in providing a history of ancient activity, but in observing and recording loci with archaeological remains. Thus, we have the description of what was seen and done, in a report that has almost acquired a diary form. Pendlebury was well familiar with the history of research as he was the curator of Knossos at the time and a leading Minoan archaeologist, whose interests extended also to historical periods.

Focusing on providing a good description of his itinerary with all sites on the way, he refers to sites known from excavators' reports even if he does not visit them personally. Sites taken as known do not receive more than a quote and a reference to their publications. It is evident that this report was addressed to Minoan archaeologists well familiar with the history of research on the island.

Although the value of this expedition can not be diminished for its time, we have to note that few of these sites can be used in any meaningful way. Records are incomplete, and lack of consistency in site definition and interpretations make the use of this data problematic. Often the only information we have is the existence of some pottery and stones at a vague location; poor description and landscape changes over time makes relocation very doubtful and a big obstacle to proper study that would allow reassessment of the data. This is of course an on-going problem, in fact Pendlebury himself failed to find many sites mentioned by previous researchers. By today's standards a lot of what is written can only be used as a source of information regarding places of archaeological interest and the history of research.

Overall, Pendlebury has certainly been an inspiring figure in Cretan archaeology, and many followed his example walking extensively around the island, looking for new sites and recording places of archaeological interest along the same lines. The information we receive about landscape and the situation of archaeological sites at the time is without doubt interesting and important and although his accounts were incomplete and inconsistent, the effort for objective observations can not be doubted.

Landscape Approach: Landscape is considered as the geographical space containing loci of archaeological remains. His personal love for the Cretan landscape in terms of physical surroundings, which much inspired his archaeological work, is obvious in the following statement: 'Goulopharango Gorge and Trypeti: 'In many ways it is strongly reminiscent of the Hagia Roumeli gorge, which it rivals in wildness and beauty'.

3.3.2 Survey id: Travels in Crete

Problem Orientation: aims and methods

The travels described in this report were undertaken by S. Hood, P. Warren and G. Cadogan in 1962 during a period of four weeks. This is one of the first reports from Hood's extensive research in Crete, the original aim of which was the identification of sites previously described by Pendlebury, so as to provide a revision and update of his lists. Involved in doing so, Hood developed a strong interest in the Minoan civilization, and being part of the British Landscape Tradition of 'let's walk around and look for sites' he also discovered many new sites. It is noteworthy, that Hood's archaeological experience in Roman Britain, and the fact that he had studied 'recent' Greek history, namely early Byzantine after the foundation of Constantinople in 324 A.D., encouraged him to have a diachronic approach, even if the post-Minoan times received, in general, little attention.

The method of landscape exploration was 'empirical', which means walking around following Pendlebury's indications, the locals' advice and trying to identify locations most appropriate for ancient habitation. These were established to be mainly low, flat-topped hills with arable land and water in the vicinity. In the process of looking for known sites they found many new ones accidentally, often in the environs of a known site, and explored them consistently and rather carefully. It should be stressed that talking to local people in the 'kafeneion' and asking for 'visala', was the most effective approach in discovering ancient sites.

Presentation / Relocatability

Most of the sites should be relocatable due to the very detailed description of their location, using modern landscape features, as well as distances and orientation from known villages, locations with toponyms or other sites already described in the report. Bearings are often stated, when thought to help relocation, giving a more systematic character to their descriptions. A lot of effort is indeed given to mark the location of a site with sketch-maps of less than 1:30,000 down to 1:5,000. In cases with substantial material culture, relocation should not be a problem; however, there are occasions where the location of a findspot would be practically impossible to find. In most such cases a site name may refer to a wider area with several loci of material culture, whose distinctive location is not well understood.

Site maps give an impression of the location of sites and broad distances between them and in one case function classification differentiates between ancient cities, ancient sites, modern towns and villages, monasteries and churches. The aim of the presentation is to show whereabouts the described archaeology is.

Density per area / period

	area surveyed (km²)	Total site no	PH	GR	BVT	Modern	Unknown
	2654	108	75	63	20	4	3
Or:			65	55	16	4	
Densities per km² (map area)		0,040	0,028	0,023	0,007	0,001	0,001

Site definition: a site is the locality of archaeological material usually easily distinguishable or even excavated, but in some occasions it could be just the place where something was said to have been found. Often under a site name several findspots and definite sites are described. Thus, a site name is often used as the name of a wider area where archaeological activity of variable nature and time frame was noted.

Interpretative Framework

The focus of this research was chronological observations and locational descriptions, meeting the principal goal of archaeological quest (in particular within the Culture-History tradition) of recording locations with archaeological remains. Relevant interpretation, not always clear, was the result of a combination between personal observations and the interpretations of previous researchers. Sometimes, relationships between sites are explored in terms of occupational sequence, based on the chronology of material. E.g. the early Minoan site above the cave of Melidhoni is interpreted as the choice of the people occupying Neolithic / Early Bronze Age 'Ta Grivila' for a more defensible location. During Protopalatial times that are seen as more stable and with no dangers, 'Ta Grivila' is reoccupied. Similarly, some Roman settlements are thought to have been the descendants of earlier ones on the hills following the same pattern of occupying plains during peaceful times. Such examples exhibit some first attempts to approach also 'why', even though this is not the principal goal of archaeological research at the time.

Interpretations of material concentrations as settlements or farms are based on the size of pottery spreads: e.g. Platanes: Gouledhianos 'There may have been a farm or villa here rather than a larger settlement since traces of occupation cover a comparatively small area (about 60m north to south by 50m west to east), and sherds appear to be rare (though lack of cultivation might account for this), while stones from walls are abundant.' In this case we also note that influential factors on the quantity of sherds have been considered. The term 'site' seems to be equivalent to 'settlement' or 'habitation', fact that reveals the importance given to occupation sites with an implied permanent character, however the catalogue contains also 'sites' that are places of not even certain archaeological presence.

The settlement character of Minoan Crete is sought in general patterns such as preferences for settlement location in different periods and what these might mean, and the extents of material recovery in terms of sites. Thus, refuge sites found inland and in rather inaccessible locations at the turn of Neolithic to Bronze Age are taken as evidence for social troubles; similarly, the vast amounts of Bronze Age material scattered all over Crete is interpreted as the result of a very dense population, perhaps the greatest till now with the possible exception of Roman times. Even though not explicitly defined, the idea of a settlement hierarchy is put forward, result of the variety of their findings in terms of settlements and occupation sites. The Minoan landscape is described as consisting of greater towns, lesser towns and dotted with numerous small hamlets or farms.

Discussion of such interpretative models are by no means extensive, on the contrary the majority of interest and attention is given to the observation and presentation of archaeological data, which are considered to lead to self-explanatory suggestions. This is not only evident by the character of research, but also stated in the text '…but from our survey some tentative general conclusions suggest themselves'. The very interesting thing is that some patterns tentatively identified by extensive research of the Culture-History tradition are sustained till now and often supported by further evidence of later intensive surveys, even if the latter have developed more elaborate theoretical frameworks (for example ideas regarding a settlement hierarchy, or the occupation of defensible sites at times of social troubles).

Influential References and Sources: Pendlebury, Evans, Kirsten, Faure, Guarducci, Alexiou; previous Minoan archaeologists of the Culture-History tradition in general.

Summary Assessment

Strengths: Detailed description of site location and archaeological data observed.
Weaknesses: no consistent relationship between data and interpretations.
Evaluation of data and Interpretation: interpretations are not always clear mainly due to lack of consistency in the criteria used and their incomplete presentation.
Knowledge acquired: The catalogue of sites presented is a very rich source of information.
Integrability: medium; appropriate classifications of certain and uncertain interpretations should be used, even though sites consisting of numerous findspots pose many difficulties.
Publication: completed

This is a typical example of extensive exploration within the Culture-History tradition where the catalogue constructed consists of known and new sites, accompanied with a history of research, as well as a description of the archaeology observed. In some cases the chronology and function of a site are presented as certain, in other occasions doubt is expressed, whereas sometimes data presentation is not accompanied by a clear interpretation, in particular when the interpretation of a previous researcher is presented and we are not given a position of agreement or disagreement. Lack of consistency in the criteria used for specific interpretations sometimes pose a problem in understanding what exactly researchers believe especially since interpretations or doubts are often treated as self-explanatory.

In site definition, archaeological data quality and quantity are of course the primary factor leading to a characterisation of a site, but sometimes hypotheses are based purely on opinion, which is not further discussed, e.g. Rethimnon 'the promontory with the Venetian fortress, about fifteen minutes north-west of this cemetery, may have been the site of the Minoan settlement, although no traces of Minoan occupation have yet been noted there'. Quite often, we have serious difficulties classifying sites which consist of a wider area that includes many loci of archaeological interest. These are not clear whether they belong to the same site or not, and in intensive survey terms most would be identified as individual sites. The researchers seem to describe the material culture found around a site often without trying to explore interconnections of loci discussed. The fact that archaeologists focus on the description of material culture providing evidence for ancient activity classified by wider area, even if the location and nature of activity are vague, are quite characteristic of this tradition. To identify the function of a site is of course still extremely difficult and often impossible, especially if based on surface survey data alone and the location of activity spots is often very vague in the Landscape Tradition also; however, research should classify sites upon the identification of loci that demonstrate separable activity and chronology, seeking a finer resolution that might allow better insights into past societies.

Interest in sites of provincial character is a typical characteristic of the New Wave surveys starting in the 70's, nevertheless its roots start in the extensive explorations of the Culture-History tradition, when archaeologists interested mainly in the Minoan period discover an extremely rich archaeological surface throughout the island. Thus, Hood *et al.* note that 'outside the towns the countryside was dotted with farms and villas, isolated or in small groups or hamlets of two or three houses'. This and other similar studies have been a great stimulus for further research and have planted the seed of some interesting interpretative approaches.

Effort for some methodological explicitness is attested in the somewhat systematic approach chosen to describe the location of a site (heights, bearings, topographical descriptions and catalogue), to date sites (chronology of Minoan tripod feet presented), to name them and also to present the history of research regarding the sites discussed. Having a historical background of research for a site is very important as a record of material that might have been present on site, but also when comparing interpretations. The presentation of archaeological data and in particular pottery, are often presented with 'photographic' descriptions. Chronological precision is, however, quite coarse especially for historic times, but it is hard to imagine it could have been much better considering the small amount of fieldwork and the identification on the field by only 3 researchers, and without special pottery studies. Thus, chronological attributions especially for historic times are often rather vague e.g. 'Classical or Hellenistic'. At the same time, Hood *et al.* are very careful in giving

certain interpretations, therefore conditionals are used most of the time (there may have been a Minoan villa; it might be a Roman farmstead).

Based on the above, data and interpretations suggested may be used for further research with the appropriate cautiousness, after assessing possibilities and restrictions.

Landscape approach: As with other extensive explorations of Hood, landscape is not discussed, but is implicitly treated as the geographical entity containing material culture of the past.

3.3.3 Survey id: Hood65

Problem Orientation: aims and methods[1]

This project was undertaken in 1965 and is the outcome not only of landscape research, but of bibliographical as well. Hood's aim was to provide a 'gazetteer' of Minoan sites for the 'remote' and little explored area of western Crete. The reason was the acknowledged need for some balance in archaeological knowledge among the different areas of the island, since archaeological explorations had traditionally focused on central and eastern Crete, producing a somewhat biased picture of human activity in the past. Sinclair Hood wanted to draw attention to the westerly parts of the island and prove that this was also occupied throughout the Minoan times and through history starting in the Late Neolithic.

The work of previous researchers in the area is his main source of information, but also a motive to perform his own landscape research. In cases where he visited sites already known, he compares his finds with what was quoted by previous researchers, and when he refers to sites he apparently did not visit, he only quotes what others said. Thus, he presents a collection of information about sites in this area using published papers and visiting sites himself. Local informants played, as usual, a key role in finding new sites on an extensive, judgmental basis.

Presentation / Relocatability

The sites described vary from settlements to caves, burials and possible roads. Many of them can be relocated quite easily as they happen to be caves or known settlements and close to a village, assuming that toponyms, textual description and guidance by local people would be sufficient. Although Hood usually used the British Army maps of 1:50.000 or 1:66.000, the area covered is presented in a map of 1:600.000 and only in the case of 5 sites in the Chrysoskalitissa area do we have a more detailed map of 1:77.000. In many cases locational information is rather vague usually because the exact find spot was not known. Some pottery drawings are of course also included, a usual 'must' for the presentation of the archaeology discussed.

Density per area / period

	area surveyed (km²)	Total site no	PH	GR	BVT	Modern	Unknown
	2486	63	58	23	6	2	6
Or:			51	22	6	2	6
Densities per km² (map area)		0,025	0,023	0,009	0,002		

1 For more details on S.F.Hood's working methods see the 'Travels in Crete' survey

Site definition: Sites vary from known settlements to reports of a findspot. The site index includes places where even 1 pot was found, therefore there is not a consistent set of criteria used to define a site, and the term is simply used for any location that might have produced evidence for Minoan activity. Moreover, some sites lack adequate chronological or locational information (e.g. C15.2, Koumares: 'Sherds noted by Faure in the sand at ' Koumares' west of the monastery'). It should also be noted that in the case of Chania (ancient Kydonia), many find spots (Neolithic and Minoan) are grouped under the same site-name.

Interpretative Framework

Interpretation of the data is kept to a minimum and is basically limited to pottery dating. Focus is on identifying people's existence in a specific area, but what variability in activity might mean in terms of societal structure is not discussed. Locations of ancient remains, even down to the level of 1 sherd, are considered important enough to be noted as sites. The fact that the term 'site' is often used instead of the terms 'settlement' or 'habitation' shows the implicit supposition that places of archaeological remains are regarded as indicating habitation either at the findspot itself or at least in the vicinity. In many cases we may even have only a quote of what has been mentioned by other researchers – mainly by Paul Faure. Sites are usually not described, neither is their content discussed, although disagreement in dating is stated.

This is a typical work of the Culture-History tradition aiming at the enrichment of the archaeological record of the island. This record *is* actually used for basic interpretative comments about the Minoan culture: the fact that Minoan sites do exist in the western part of the island and finds are comparable with those of the east, leads Hood to the conclusion of cultural unity even if he (like others) interprets the small amount of archaeological data to the less developed character of the area. Moreover, he comments on the fact that LM III sites occur on hills and mountains, a pattern that is also evident in central and eastern Crete and which implies troubled social times that caused populations to flee inland. Interpretative trends of this tradition are also evident in the work of the researchers he quotes.

Influential References and Sources: J. Pendlebury, A. Evans, Spratt, Kirsten, Xanthoudides, I. Tzedakis, P. Faure, S. Marinatos.

Summary Assessment

Strengths: site and finds inventory of the little known Minoan era in western Crete.
Weaknesses: Poor interpretation and presentation, problems with site definition and relocatability.
Evaluation of data and Interpretation: important selection of material known from the large area of western Crete. Interpretation limited to the assumption that any quantity of material culture hints to a site.
Knowledge acquired: we obtain an overall picture of the archaeology of the area as well as previous researches. Material culture reported from various findspots, may not be sites, but contribute to the knowledge of the area.
Integrability: medium-low
Publication: completed

The main strength of this work is that it gathers available information up to then about the area of Crete that had received the least attention. Thus, this gazetteer of sites and places of potential archaeological interest, not only accumulates knowledge of the Minoan period in the area, but also provides the motivation for further exploration. Hood's work has played an important role in guiding archaeological interest toward the question of cultural unity in Minoan Crete and the character of Minoan sites, themes much favoured in Culture-History tradition.

On the other hand, places cited in this work can not be all interpreted as sites; densities as well as dating should often be reconsidered. 1 sherd does not necessarily mean a site and there are also cases where

1 pot was found in a village, but we don't know from where. In the case of Chania (ancient Kydonia) many find-spots are grouped together under the same site, while they clearly form separate loci of activity. Other problems in using site numbers include sites like Hagios Yioryios in the Gouverneto monastery of which the description is: ' Worn undatable sherds, and a story of ancient vases found here, reported by Faure'. Function is usually not discussed as this was in fact beyond the scope of the study.

As a result, this work is valuable as a source of information and data could be used in terms of knowledge acquired for an area, but careful filtering and site classification is needed if sites are to be used in order to understand human behaviour in such a distant past.

Landscape Approach: Landscape is treated as a 2-dimenional surface with 'find-spots' scattered around, and archaeological questions formulate around 'what' and 'where about'.

3.3.4 Survey id: Hagios Vasilios 66

Problem Orientation: aims and methods[2]

Hood and Warren explored the province of Hagios Vasilios in 1965 with the aim to produce a report of the archaeology encountered, so as to increase our knowledge of ancient activity in an area that had received very little attention. The project involved 3 people who walked the area of interest in a period of 10 days. The report, which consists basically of the site catalogue, includes sites found by previous researchers and which they tried to discover and identify in the landscape through extensive walking in specific areas. At the same time, however, they also looked for new sites. Landscape exploration involved judgmental driving and walking on the basis of information by locals, reports of previous researchers and locations that seemed promising for habitation.

Presentation / Relocatability

According to Hood's common tactic we have detailed descriptions of the topography of the places visited. Site location is typically described in terms of distances and direction from villages and previously described sites. Toponyms are also mentioned. The overall map scale is very large (1:400,000), but more detailed sketch maps present sites in relation to contours (of unknown height), basic roads and rivers at a variety of scales from 1:50,000 to 1:80,000. Relocatability would, thus, probably be of a medium level. Sketch maps function as 'zoom-ins' in the more general site map which presents sites at a chronological classification of Minoan, Post-Minoan, both the above and modern, while functional classification consists of 1) city, town, hamlet or settlement, 2) isolated house, 3) cemetery, 4) isolated grave, and 5) miscellaneous finds. Presentation is completed with a few pottery drawings, which is a 'must' in archaeological reports.

Density per area / period

	area surveyed (km²)	Total site no	PH	GR	BVT	Modern	Unknown
	151,5	41	25	27	11	1	0
Or:		41	22	25	10	1	
Densities per km² (map area)		0,270	0,165	0,178	0,072	0,006	

2 For more details on S.F.Hood's working methods see the 'Travels in Crete' survey

Site definition: ancient structures and pottery concentrations. Many are known sites, usually settlements or cemeteries. Some of the 'sites' are places of interest with more than one findspots. The total site number includes five more sites numbered under the name of the same find-spot, although they were not given a separate site number in the publication.

Interpretative Framework

Very often in archaeological research there is not a clear distinction between observations and interpretations and observations are treated as self-explanatory. In this project traces of past activity are interpreted as a definite or probable site, the term 'site' usually implying a settlement, and thus constituting evidence of occupation for the relevant period. Investigations focus primarily on the locational and chronological specification of archaeological data, and if possible, on their functional. Hood and Warren look for archaeological remains of the Minoan period and at the same time they record all other sites they encounter, even though with crude chronological definitions such as 'Medieval or later'. In general, the difficulty in dating surface data, which is somewhat discussed with the example of the *diachronic* occurrence of cooking-pot feet with circular section, results in quite a lot of fuzziness in data and their characterisation. In any case, the main interpretative aims of the project are to identify and describe typological characteristics of the data found for both known and newly discovered sites. Interpretative suggestions beyond recognition of chronology and function include comments on the geographical potential that may justify settlement location (they were looking for harbours and landing places), and which include phenomenological mentions of the view which Minoan country houses would have enjoyed. Moreover, there are comments on refuge settlements of the LM III period and immigrations during the Slav inroads (6th and 7th ct AD), based on fragments of imported fine ware of the Late Roman – Early Byzantine periods.

Influential References and Sources: Faure, Pendlebury, Guarducci, Kirsten, Halbherr, other Travellers and Greek excavators. They all operate within the Culture-History tradition trying to identify location, chronology and function of distinct concentrations of material culture.

Summary Assessment

Strengths: Site index and description of an area poorly researched; discussion of the identification of ancient sites mentioned in written sources.

Weaknesses: Not a strong interpretative framework, site definition problems; too narrative.

Evaluation of data and Interpretation: although many classificatory and interpretative problems would have to be resolved, this work remains a valuable source of information about material culture in the area, with chronological and function interpretations still standing (although they might have to be reassessed).

Knowledge acquired: location of visible remains, landscape descriptions.

Integrability: medium

Publication: completed

This is a typical landscape project of the Culture-History tradition, especially Hood's characteristic travels, which focused on locating ancient sites and discovering new ones, offering descriptions of topography and finds (structures and pottery). It is a multi-period project but chronology is quite broad and in particular later periods are missing. Although pottery recognition problems for some periods is certainly a fact even now, at the time archaeological interest focused almost exclusively on ancient times. Turkish sites for example are mentioned in landscape descriptions, but are not regarded archaeologically important to be recorded and discussed. Site definitions are in general problematic as there is no consistency in what is recorded as a site. More than one find-spots are often grouped under the same place / village and therefore the number of sites reported should be bigger including both certain and possible sites.

However, although presentation is poor and we lack the methodological and interpretative merits that modern landscape approaches offer, this is another important work of its kind, offering information on which further work can be based. The aim, which was to provide a picture of the archaeology in the area, is in fact achieved. Integration of the sites mentioned would of course require careful filtering so that we know exactly what we have in relation to types of human activity per period. Interpretative suggestions regarding locational preferences and settlement pattern changes should also be assessed, as in many cases we should accept the inadequacy of the data provided and use it only as a source of information and motivation for further research.

Landscape Approach: landscape is seen as a physical entity containing ancient sites. Descriptions have the purpose of providing a picture of site-environs and helping relocation.

3.3.5 Survey id: Hood 67

Problem Orientation: aims and methods[3]

The aim of this study, undertaken in 1967 by S. Hood and his wife over 4 days, was to prove that Minoan occupation was not confined to the eastern parts of the island, but expanded throughout Crete 'including the most westerly parts'. Making use of the information given by locals as well as historical sources, S. Hood and his wife drove and walked around cape Krios and Frangokastello in SW Crete for 3 days, looking for places that were likely to reveal Minoan sites. This project is within the same problem orientation as Hood 65.

Presentation / Relocatability

The maps used in the publication are at scales of 1:100.000 and 1:45.454 and present sites in relation to contours of unknown height, basic roads and features (sketch of a telephone line), giving a general impression of whereabouts sites are. In some occasions, topography and geographic surroundings of the sites are described in detail and distances from known or previously discussed 'sites' are stated, in order to offer a better description of where a site is. Thus, some of the sites could be relocated, but there are cases of doubtful sites because of the very small numbers of pottery, which are assigned quite a large and vague area. Besides that, some of the landscape features described are likely to have changed in present time, fact that would also hinder relocatability. Presentation includes of course pottery drawings.

Density per area / period

	area surveyed (km²)	Total site no	PH	GR	BVT	Modern	Unknown
	76,25	15	6	9	7	0	0
Or:			3	8	5		
Densities per km² (map area)		0,196	0,078	0,118	0,091		

3 For more details on S.F.Hood's working methods see the 'Travels in Crete' survey

Site definition: Based on walls and sherds. Descriptions include historical evidence and data observed, while doubts are expressed. A site might be a spatial entity which incorporates more than one localities of past human activity. Chronological categories are rather broad.

Interpretative Framework

This site exploration project belongs to the Culture History tradition with research interest focusing on the discovery of new PH sites and the enrichment of the archaeological map of Crete. Interpretation, therefore, concerned issues of pottery typology and dating. Data was taken for what it appeared with problem orientation focusing on 'what' and 'where' following Hood's earlier work (Hood 1965; Hood *et al.* 1964; Hood and Warren 1966). The scarcity of Minoan sherds is interpreted as representative of a dispersed settlement pattern with 'isolated huts or farms rather than villages or hamlets' implying a hierarchy in site size and character. However, there is no consistency in the criteria used for functional variation and all sites seem to imply some sort of habitation. A settlement may be anything from about 50m sq. to 200m sq. and as in other works of this tradition, the relationship between data and interpretations is not well understood.

Influential References and Sources: J. Pendlebury, ancient writers, travellers, Guarducci. Interest lies in the identification of ancient sites mentioned in literary sources, in their historical context and in a 'proper' description of material culture.

Summary Assessment

Strengths: new sites of the little known Minoan period in western Crete.
Weaknesses: poor interpretation and presentation; problems with site definition and relocatability.
Evaluation of data and Interpretation: sites should be used with caution in reconstruction models. Interpretation is limited to the assumption that any quantity of material culture hints to a site.
Knowledge acquired: a picture of the archaeology of the area.
Integrability: medium
Publication: completed

This is a typical example of the Culture-History tradition, and even though it lacks a complex theoretical framework, it has been of great importance as it draws attention to neglected areas and contributes to surface pottery typology. Overall, there has been a conscious effort to give us a full account of what was seen and of the sherds that were collected. In terms of pottery survival and recoverability it is interesting to see which kinds of pottery and of which period are easier recognized, even when no sampling or intensive walking is involved, and reflect on why this is the case and how this may have influenced site maps of different periods.

However, judging by today's standards we need to take into account methodological and theoretical problems influencing the usability and interpretative strength of the data. Recording is not consistent and there is often confusion between data and interpretations. We lack a problem orientation of the relationships between methods, results and interpretations and as interpretation is limited to the assignment of chronology and function in quite broad terms, it is not easy to assess what activity in a specific locus meant. Many of the sites provide us only with a medium or low confidence level regarding function and chronology, and some reflect either some kind of activity or just the presence of a few sherds respectively. S. Hood himself is very cautious in assigning a chronology using phrases like 'appear to be… may be…' etc. Problems of relocatability and site definition ask for great attention when we need to use these data in reconstructions of past landscapes. A site described as ' A few Roman sherds were recovered from the saddle which the car road crosses in descending to the plain of Frangokastelli' would probably not stand a strong case of being called a site today especially if a settlement's function is implied.

On the other hand, such pioneer work promoted the development of landscape archaeology and forms a most important record of information regarding locations of archaeological interest.

Landscape Approach: Geographical and environmental data were recorded in a random manner so as to help relocatability. Landscape is a two-dimensional spatial framework of 'where' archaeology is.

3.3.6 Survey id: Ayiofarango 75[4]

Problem Orientation: aims and methods
This project was part of the Ayiofarango regional survey (Ayiofarango 77) undertaken in 1971 by D. Blackman and K. Branigan, but had the distinctive aim to survey further important sites with substantial material remains including architecture. These were located along the coastal strip 'from the mouth of the Ayiofarango valley to the ruined church at Chrisostomos' and the most important ones were the settlements of Hellenistic Lasaia and Roman Kaloi Limenes. Exploration in the area was motivated by sites already known from looting activities and some work by the archaeological service. The area had been walked quite intensively, but not systematically (no sampling) during the Ayioafarango 77 survey, but sites were now visited by a number of 6 (archaeologists and students) for 3 days in order to produce better records. These included descriptions of location, architecture and pottery. Sherds were collected on the basis of their suitability for dating and depending on what could be carried.

Presentation / Relocatability
The sites discussed in the text are presented in a contour map (but contours are of unknown value) at a scale of 1:35.700, giving a general impression of their distribution in space. Their location is described in the text with orientation bearings and distances from other sites, landscape features and villages. Although precision is certainly not a strong point of the project, sites include architecture and the remote and underdeveloped character of the area has prevented major landscape changes, therefore most of them could be relocated. Architectural plans are included for most sites, while landscape photos offer a pragmatic visualisation of the area studied.

Density per area / period

	area surveyed (km²)	Total site no	PH	GR	BVT	Modern	Unknown
	5,354	12	6	7	2	1	0
Or:		12	6	7	1	1	
Densities per km² (map area)		2,241	1,120	1,307	0,373	0,186	

Site definition: based on ancient structures and pottery presence.

Interpretative Framework
This project falls within the Culture-History tradition although it was part of the multi-disciplinary landscape project of the lower catchment of the Ayiofarango valley. It focuses on site description, which consists of locational information, architectural recording and pottery typology. Only in two occasions do researchers hint on the suitability of the environment for site location. Identification and interpretation of sites is based on discrete material culture, namely architecture, but pottery is also used for chronology. Their main interest is the sequence of the occupational history of the area, which is limited to two main periods, the Early Bronze Age

4 The archaeological surveys of the Ayiofarango valley and the area to the east of the valley were undertaken in 1971, as two parts of the same project; the first involved the regional survey of the lower catchment of the valley and was published in 1977 (survey id: Ayiofarango 77) and the second was the 3-day survey of specific sites to the east of valley, which produced the 1975 report (survey id: Ayiofarango 75).

and the Hellenistic and Roman times. The same 'abandonment' periods as in the survey of the lower catchment of Ayiofarango are identified, which are explained as a result of nucleation around urban centres. More specifically abandonment in MM (2000BC) was explained as the result of urbanisation around Phaistos (but abandonment lasted until the 5th century B.C.), while in mid 7th AD - second Byzantine / Venetian the area is believed to have been abandoned due to Arab presence and pirate activity.

As in the lower catchment of the Ayiofarango valley project, they occasionally try to translate quantity and size of data (sites and tombs) into population estimates. Within the same problem orientation they explore a very popular theme in social reconstruction attempts of Minoan archaeology, namely the relationship between tholoi and occupation areas including time of establishment and use. The aim is to assess how many people lived in the area and therefore what subsistence was like. In this framework, they note the problematic lack of EM settlements relevant to some of the tholoi found, and indeed this is a problem that has preoccupied researchers in the area till now (Vasilakis 1989, Branigan and Vasilakis pers.comm – Moni Odigitrias survey), but discussion on the matter is kept to a minimum. Overall, the interpretative framework adopted could be summarized as focusing on the identification, typological description, dating and functional interpretation of the sites found so as to have a picture of the history of human activity in the area.

Influential References and sources: The work of Alexiou, Sakellarakis and Davaras in the 60's (working at the archaeological service of Herakleion), served as a major source of information regarding the type and location of archaeological sites and was often a motive of further exploration. The Travellers have also been used as a source of information regarding site location and toponyms, but also offering descriptions of the sites from an earlier date. Faure and Hood have also played a key influential role, regarding landscape exploration that aims to identify the chronology and function of sites.

Summary Assessment

Strengths: integrability, quite good records of the sites discussed.
Weaknesses: poor theoretical and interpretative frameworks.
Evaluation of data and Interpretation: new and old sites with descriptions and plans. Interpretation limited to chronological and functional definitions, where possible.
Knowledge acquired: Some of the archaeology of the area with plans and descriptions.
Integrability: quite high
Publication: completed

This research project records some very important sites and sheds light on the occupational history of a hitherto poorly investigated area. Most of the sites exhibit substantial material remains (EM tholoi, GR harbour town) and would allow little doubt on their chronology and function. Most of them could also be relocated due to discrete architecture and size, and used pretty safely in historical settlement reconstructions. However, cases where doubts are expressed by the researchers themselves should be treated accordingly and the probability of a higher density of sites especially in relation to EM tholoi, which was admitted in the report, should be taken into account. The statement 'No trace of a related settlement was found by the SC8 tholoi, but there were suggestions of one, in the form of a sherd spread, in the area between the tholoi at SC11' justifies the possibility of sherd concentrations that may have skipped the attention of the researchers, most probably because they could only be revealed through intensive sampling.

Interpretation wise, we lack an analytical interpretative framework within which to view site function per period in relation to location and environment and thus explore social and economic factors at work. For example the importance of little known Roman farms and harbour towns although stated, no interpretative suggestion is offered regarding their location or their socio-political and economic background. It is quite interesting that although this was part of the first landscape project in Crete, it is presented as a typical product of the Culture History tradition, where research aims rather at data presentation, than interpretation. The merit of this report is that we have a good set of data and descriptions that can be quite informative.

Landscape Approach: Landscape is seen as the background against which we visualize archaeological sites. In two cases, however, reference to the landscape is used within an explanatory framework of site location; in the description of Kaloi Limenes we have the phrase 'the bay is well protected from the sudden northerly winds and offers good anchorage except in the south-easterly winds of the winter' and in the case of the Medieval (?) apsidal buildings it is stated that they were built on a locus that 'seems deliberately chosen to catch as much wind as possible'.

3.3.7 Survey id: Ayiofarango 89

Problem Orientation: aims and methods

This survey was undertaken as part of the A. Vasilakis's general interest in the island's occupational history during the pre-palatial period. His report discusses his study in the area of Ayiofarango between 1980 and 1984, which included both survey and excavation data, acquired as much by previous work (Blackman and Branigan 1975; Blackman and Branigan 1977) as by himself. The area is said to have been chosen due to the evidence for dense pre-palatial occupation, although practical issues such as the researcher's working in the local Ephoreia and being from Herakleion had, as always, a determining role.

The aims of his landscape exploration were the relocation of known and the discovery of new prehistoric sites in an attempt to understand the character of pre-palatial economic and social life in the area, through the study of architecture, crafts and the relationships between religious sites and settlements. He walked the area of interest in an extensive judgmental manner but quite intensively over many years (and in fact still now), relocating previously discovered sites and finding new ones. As he works for the Archaeological Service of Herakleion, walking the area has been partly within his job description, and partly performed during his free time as his main archaeological interests concern this area during the prehistoric period. His site records mention the topography and focus on the description and detailed recording of architecture and pottery. Geographical location is also considered in terms of subsistence potential. On-site, it looks like he collected all sherds believed to help define the chronology of the site.

Presentation / Relocatability

The site map presented in the publication has no map scale and looks like the sites have been added by hand approximately. Variability of site-types is, however, presented through a relevant legend. It should be noted that there are many differences from the relevant map published by Blackman and Branigan in 1977 (Ayiofarango 77), which raises some questions about accuracy in both projects, and in spite of the fact that the sites have standing architecture, site relocation may be difficult. Presentation includes architectural plans, pottery drawings and photos. Priority is, however, given to the textual description of the sites, which includes basic topography, approximate distance from known places or other sites, orientation, and toponyms.

Density per area / period

	area surveyed (km²)	Total site no	PH	GR	BVT	Modern	Unknown
	66,05	33	33	0	0	0	0
Or:			30				
Densities per km² (map area)		0,499	0,499				

Site definition: Based on architecture and pottery concentrations. His sites, often known from previous research, are relocated based on local information, ancient structures and pottery concentrations. He identifies 3 types of site function, settlements, tholoi and isolated houses, which are interpreted, often with some doubt, as farmsteads.

Interpretative Framework

It is stated that this study should not be described simply as a 'survey', presumably implying that survey projects focus on the discovery of sites within a specific area, while the researcher of Ayiofarango 89 uses all kinds of data for a historical reconstruction of the Prepalatial period. He commends on questions that had been a subject of speculation among archaeologists prior to his own research, such as the origins of Minoan people and the possibility of occupants coming from N. Africa and spreading further north, in relation to which he promotes the idea of a slow indigenous development. His interest in the area focuses on the cultural character of the communities, discussing occupation, architecture, crafts and economic life.

His approach is to describe and give a detailed record of the Minoan antiquities in the area, considering architecture (size and type), pottery and finds, as well as location. The identification of a culture via typological and chronological studies has been the main characteristic of Culture History archaeology, however spatial studies, economic and social life are among the leading theoretical considerations in the 80's and thus, site location is considered in relation to his division of the area upon subsistence potential. Land potential had also formed the explanatory framework of site location in the Ayiofarango77 project. It is concluded that people lived in all geographical areas of the region and exploited the subsistence potential around them accordingly, a view that is actually in compliance with how people live in the Cretan landscape still now. Social issues such as the relationship between settlements and tholoi, but also the time-span of settlements also receive attention; however, we lack an explanatory approach of correlative observations, even though data are presented.

Influential References and Sources: The work of Alexiou, Davaras and Sakellarakis who worked at the archaeological service and excavated many of the tombs that had been looted, was certainly a motivation for Vasilakis's research, and was used mainly as a source of information, but also in interpretation regarding the characterization of chronology and function. The Ayiogarango 77 survey was used as reference to his own data, but he is not always in agreement with Branigan's interpretations, in particular regarding possible 'peak-sanctuaries', which are re-interpreted as occupation areas. Vasilakis favours a more 'pragmatic' approach and as an excavator he is very concerned with data recording and comparisons in the wider area. J. Bintliff's soil potential studies in relation to economic and demographic issues (Bintliff 1977) played the leading influential role in Vasilakis's study of subsistence potential and economic life.

Summary Assessment

Strengths: Good records of sites discussed; data synthesis give a comprehensible picture of pre-palatial culture in the area.

Weaknesses: No usable site maps, low presentation and relocatability.

Evaluation of data and Interpretation: Detailed records of architecture and pottery allow direct comparisons with other areas of Crete. Description of material culture, however, is stronger than analysis and interpretation.

Knowledge acquired: A clear picture of pre-palatial cultural expression in the area and data on economic life and subsistence strategies.

Integrability: Quite high, but relocation is problematic.

Publication: completed

The main value of this project is that it gives us an account of all archaeological work undertaken in the area regarding pre-palatial remains and good records of the sites, regarding the surviving architecture and the sherds used for dating. The questions asked are indeed very interesting as they concern the history of the area in terms of time relationships between sites, cultural expression, and subsistence strategies and data is reliable to be used in inter-regional comparisons. It should also be noted that previous data has not been used uncritically.

However, spatial organisation could be studied in greater detail; location is considered only in terms of soil potential and settlements in relation to burial sites, but no apparent pattern is discerned. Hierarchy is not studied and subsistence strategies are studied in a general manner, confirming that Minoans used the potential of their environment, which should not be a surprise. The relationship between sites (settlements, farms and burials) and environment is the basic theme explored, but not a complete study is performed. Further quantitative and spatial analysis of the data would have led to stronger interpretative models and as it is the case with every project, there should be a clearer relationship between data and suggested explanations. It should also be stated that although the researcher regards his landscape exploration as an intensive survey, this is certainly not the case in terms of systematic intensive walking of a sample area; his work is based rather on much extensive walking.

Landscape Approach: landscape is seen as the geographical background of sites and the relationship between ancient people and the landscape is explored through an economic approach of environmental potential.

3.4 Human Geography Tradition

3.4.1 Survey id: Lehmann

Problem Orientation: aims and methods

This study was published in 1939 and it is the most characteristic example of the Human Geography tradition in Crete. The aim is described as the diachronic analysis of settlement geography in eastern Crete. Lehmann seeks the reasons of why settlements occur in specific locations, which he believes are to be revealed via an understanding of the role that the environment, culture and politics play in man's locational choice for settlement. To demonstrate the fact that man's locational priorities change over time and to study the reasons for such a change, he identifies geographical 'chambers' suitable for settlement and performs a detailed diachronic analysis of settlements within these chambers. The way people have used their environment is seen as a response to socio-political circumstances, and within a Human Geography theoretical and methodological background he aims at providing a complete interpretative framework that will shed light to past and even present societies.

Environmental studies are his main method to understand why people settle at specific areas in specific times. Thus, he refers to the topography, geology, water sources, and land potential of the areas under study. On top of studying chronological variability, he also refers – even if briefly – to variability of settlement across space and to support his observations he uses studies and interpretations of ethnographic parallels.

Presentation / Relocatability

Presentation consists of a geological map and topographical maps at scales of 1:333,333 and 1:214,285. The most important map however, representative of the conceptual framework of the study, presents settlements of all periods, in relation to environmental features that are considered as having played a key role in the choice of settlement location. The most important are valleys, harbours, agricultural land and 400m contours. Relocatability is not a problem since he studies known settlements.

Density per area / period
Not Applicable. His work did not focus on describing or discovering a number of sites so as to increase quantity of information, but on providing an interpretative framework in the analysis of known settlements.

Interpretative Framework
Discussion is based on the view that the study of settlement geography can help understand socio-political change over time since human communities depend on, but also use to the best of their interest the space around them. Man's relationship with the environment and his choice to settle in locations with specific geography and therefore potential and constraints, is considered indicative of one's society's characteristics.

In this line of thought, Lehmann observes that although Crete has always supported farming societies, places suitable for farming have not been used and preferred in the same way over time. The importance given to the best arable land has varied, but a general pattern of two opposite responses is detected; in times of peace the majority of settlement is on the coast, while in times of trouble populations have moved away from fertile lands towards the mountains looking for new areas to use. This binary form of locational preference between coastal and remote mountainous areas, even though the subsistence areas remain the same is also supported by several other examples all over the Mediterranean. In the case of Crete he identifies times of social stability during Minoan, Late Greek and Roman periods when the coastal zone is settled, whereas sub-Minoan, Geometric, Byzantine and Turkish times show evidence of social tension with settlements built in more inaccessible areas.

Variability in locational preferences is of course detected not only over time but also across space. The large amount of EM sites in eastern Crete, which does not offer large fertile areas is strong enough evidence for a society that does not give priority to farming economy, which on the contrary seems to have been very important in MM times with the shift of the large number of settlements in the fertile area of Mesara plain in central Crete. Having considered the geology of eastern Crete, which he states does not justify the density of EM sites attested, he concludes that the reason of settlement richness is the overseas contacts. To support the idea of cultural and linguistic influences spreading dissimilarly across the island with a tendency of moving to the centre, he uses ethnographic parallels from other areas, more specifically the island of Malaou.

Moreover, when a nucleated pattern is noted there are specific settlement cores that are preferred over others whenever the socio-political situation allows it and there are locations that have always been preferred. A good example is Praisos which was inhabited continuously since Minoan times till it was destroyed by Hierapytna in 200 B.C. Another example is that since Hellenistic times, open coasts and valleys have been the preferred location of major settlements, namely Ierapetra and Siteia, which are still the biggest towns in the area.

Continuity of use in space in its variable forms over time is studied by dividing the landscape in discrete geographical units or 'chambers' with distinct environmental characteristics, where differences in human behaviour are expressed via the variety of type and location of settlements. Within these chambers Lehmann studies the history of settlement geography exploring the role of the environment and the relationships among major settlements, sites identified as harbours and sites interpreted as farms. He attributes patterns to socio-political circumstances and follows them with many examples across landscape and over time. Moreover, apart from characteristics of settlement location, he notes that settlement size and number also change according to economy, defence needs and cultural traditions.

Influential References and Sources: Pendlebury (links with the Culture History tradition, use of site indexes), Gerola. Creutzburg (1933), Kirsten and Khalikiopoulos, who worked within the German tradition of Human Geography (siedlungsarchäologie). Khalikiopoulos used geological and topographic maps for the study of Siteia.

Summary Assessment

Strengths: concrete interpretative framework.
Weaknesses: only settlements considered, descriptive writing with coarse chronology.
Evaluation of data and Interpretation: valuable interpretative suggestions.
Knowledge acquired: diachronic value of patterns regarding man-environment relationships.
Integrability: high.
Publication: completed.

This is the most representative study of the Human Geography tradition in archaeological research undertaken on the island of Crete. Lehmann marks an interpretative framework promoted by early 20th century German scholarship focusing on the importance of studying geography and environment in relation to human societies. He considers the role that the environment may have played in human subsistence not from a deterministic stand, but in a dialectic relationship with man, who adapts to, but also chooses and uses his surroundings according to his social needs.

In this line of thought, he tries to reveal the social circumstances that might have guided human choice for settling. Every location has a specific geography, with advantages and drawbacks, potential and restrictions, which according to Lehmann, whether chosen consciously or not, are representative of societies and their needs. Thus, he discerns periods when specific areas were preferred to others and tries to explain the reasons for such choices looking at both environmental potential and socio-political conditions.

Descriptions of the topography and environment of the areas under consideration are vivid and to the point, exhibiting competently the characteristics which are used in interpretations. All 'chambers' or landscape units within the study area are described on the basis of their discrete geography, environmental potential and settlement history providing thus not only a picture of the natural and cultural landscape over time, but a concrete body of support to the relevant interpretative framework. Observations are not dogmatic and exceptions are also presented, for example it is noted that even at times of trouble when people flee inland, coastal areas are still in use even if seasonally. Indeed, studying settlement shifts within the same geographic area over time elucidate the underlying social and political features of the societies considered.

Patterns identified are supported with several examples, which even though may appear repetitive we are given a discussion of the settlement history in relation to geography and environment for all distinct landscape units in eastern Crete. Dissemination would of course be more successful if there was a plan in presentation where data are presented clearly (geographical areas with the environmental data considered and the sites with their chronology and location) and interpretation followed.

An inherent bias is that this study focuses on habitation sites, which can not provide a complete understanding of a society if considered in a vacuum. Social existence is expressed through a variety of activities taking place at a variety of locations and these are acknowledged to provide an invaluable body of information towards the appreciation of past societies (such information is acquired mainly through intensive surveys). Inter-site relationships can be very complex and their study needs a theoretical framework that takes into consideration a multiplicity of factors, from issues of recovery and interpretation to material quantity and character, environment, economy and ideology. On the other hand, settlements are a major characteristic of human existence leaving the most distinctive traces in the physical landscape. Lehmann treats this theme with respect and tries to exploit the potential that its study offers from a very valuable theoretical framework. This is certainly not acknowledged as much as it deserves however there are examples of present landscape researchers who make use of the indispensable strengths of the 'Siedlungsräume' theory in combination with more modern techniques and theory (Bintliff 2000a).

Landscape Approach: The physical landscape has specific characteristics that when related to settlement history can elucidate human societies.

3.4.2 Survey id: Wroncka

Problem Orientation: aims and methods

Wroncka's aim was to produce a map of archaeological sites in the area of Siteia for two reasons: The first had to do with the necessity of being able to relocate sites, the second with their study in relation to topography and their geographical settings, so that spatial relationships and environmental impact to settlement choice in Minoan times can be understood. Such an approach of studying interrelationships between geography, historical topography and human culture is proposed as a direction for future archaeological research. Her efforts focused on adding information to the already existing Greek topographical maps, but also on correcting them, producing as precise a map as possible. Her 1959 report includes sites discovered and discussed by previous researchers, mainly excavation sites, plus villages, metochia and place-names she encountered on her way during (extensive) exploration of the eparchy. The main reason why she chose eastern Crete for her study was the richness of archaeological exploration and discoveries that characterise this part of the island. Her landscape exploration could be visualised as visiting known sites and walking in areas of geographical interest, in terms of subsistence potential and site presence.

Presentation / Relocatability

The importance given to mapping was stated from the beginning of the paper and therefore the map produced was the outcome of a conscious effort for detail and accuracy. Sites are presented with their function classification in a contour map of 100m intervals and scale is 1:62.500 in a Grid of latitude / longitude. Commune borders, primary, secondary roads, trackways and rivers are also mapped. Even though visualisation of topographical features is always rather weak in black and white, most sites are known places and villages and therefore easily relocatable. Place names in relation to sites help a lot with relocation and are definitely a good example to follow even in our days, that attention to relocatability is somewhat neglected. Overall, we are presented with the location of Bronze Age sites in the area in relation to basic topographical features and to one another, and the map also seeks to present the relationship between geography and settlement discussed in the text, even though within the limitations and imprecision of the time.

Density per area / period

	area surveyed (km²)	Total site no	PH	GR	BVT	Modern	Unknown
	900	94	93	1	0	1	1
Or:	592 (map)		72	1	0	1	1
Densities per km² (target population)		0,104	0,104				

Site definition: excavations and archaeological discoveries although already known, vary from undoubted settlements and burials to the presence of one find, sometimes not even datable. Interest lies in the density of Minoan activity and therefore locations with any kind of material culture are included. Most of the sites are places that are now known to include many findspots.

Interpretative Framework

The noted variation of settlement intensity throughout the area under consideration, namely the municipality of Siteia, formed the main theme of study. Thus, research questions explored and interpretations sought concerned the reasons behind such variation and the choice of site-location. Wroncka takes into account the

possible effects of research bias as the likely explanation for the variability in the picture of site densities throughout the eparchy, since historically some areas had been favoured in terms of study and excavation. She argues, though, that the picture is quite representative of the Minoan reality and therefore answers had to be searched in the realm of human response to environmental circumstances.

In this framework she investigates the relationships between geography, environmental potential and presence of settlements of the higher scale of hierarchy, providing a guide of 'where' to look if we want to find habitations of a 'higher cultural level' and which areas are expected to represent sites of a poorer, rural background. Thus, coastal, alluvial plains, which are open to the interior of the island, demonstrate habitation of high density and important level, because they allow cultivation and exportation of wine and olive oil. The wealth and development of Minoan towns is seen as the outcome of exportations of the aforementioned crops. Along the same lines, coastal Minoan routes are explained as allowing people from important centres (Zakros) to exploit coastal plains (Xerokampos) so as to increase their exportation surplus, while routes linking the coast with the uplands could serve the need for cereal cultivation, which can not be achieved on the coast. Trying to interpr*et al*.l kinds of activity she suggests that 'guard posts' could be simply rest locations along these routes. The small size of coastal alluvial plains in the east is taken as the justification for the lack of palaces in the east (the 'palace' at Zakros had not been discovered yet), and comparisons with palatial centres in support of the argument examine production capacity.

To sum up, environmental factors such as location for habitation, landuse and communication routes form the main explanatory framework in the exploration of the development of the Minoan culture.

Influential References and Sources: Lehmann is the main interpretative influence and in the same tradition belongs also Khalikiopoulos. Bosanquet, Dawkins, Hogarth, Myres, Platon and in general researchers and excavators of the sites she studies form her information sources.

Summary Assessment

Strengths: site inventory and map visualisation; consideration of the environment's role in the choice of site location.
Weaknesses: problems with site definition as some are of low confidence (1 vase and the name of a nearby village), not full scale study of relationships between man-environment.
Evaluation of data and Interpretation: not all data-sites have the same strength; however, the environmental – interpretative approach followed is very interesting, even if we need to take into account socio-ideological relationships between sites as well.
Knowledge acquired: suggestions on site interrelationships and development, spatial and man-environment relationships.
Integrability: medium-high
Publication: completed

This study was certainly an innovative contribution to archaeological theory and the study of Minoan Crete. It provided raw data of good enough quality within its spatial context, to be used even in later research in the form of maps of the archaeology of the area. Wroncka tried to establish a picture of the relationships between sites and environment in Minoan times and understand the reasons behind the difference in archaeological wealth among different areas. She also looks into the spatial relationships between some sites in relation to environmental potential and exploitation. The importance of geography and topography for archaeology and their link to cultural expression including economic and political situations were acknowledged early in the Human Geography tradition and characterises the work of modern landscape archaeology. Current studies, seeking to understand past human cultures via exploration of spatial, and man-environment relationships, prove that Wroncka's approach was indeed advanced. Environment plays, without a doubt, an important role for human culture, not least as it pretty much defines potential and variability of economic development, but it also affects political and social interactions.

However, interpretative issues are only touched upon, spatial relationships are not fully explored and neither are man-environment interrelationships for the full spectrum of Minoan activity in the landscape. Even though she admits that continuation of habitation in some settlements may be explained more in terms of cultural reasons rather than environmental, it's only through geography that she explains the establishment of Minoan 'palaces'. Regarding the integration of sites discussed we should be cautious, because the site inventory includes sites of very low confidence (areas where single finds were discovered).

Still, the desire to know 'where' an archaeological site is has led Wroncka to enrich maps with archaeological dots that can at least be relocated, and she has also gone further than that, in trying to understand and explain human behaviour. Her approach and suggestions, even if not undoubted results, have made the study an important contribution to Minoan archaeology.

Landscape approach: Visualisation of a variety of past human activity (settlements, burial sites, routes etc) within its main geographical and topographical settings. Environment is seen as playing the leading role in the formation and character of past settlements and cultural activity.

3.4.3 Survey id: Paul Faure

Problem Orientation: aims and methods

Paul Faure was an admirer of the Minoan civilisation, but in fact his passion was Crete itself. He walked extensively throughout the island in the 50's and 60's and explored all kinds of sites in all periods; however, his main interest was in caves and ritual sites of the PH and GR periods. He was extensively read in ancient Greek and Latin literature and used ancient sources as information and inspiration in his search to locate ancient cities and reconstruct the function of new ones. His aims thus, are of a wide range: to locate sites mentioned in ancient sources, to explore caves and ritual sites and to find new ones, to reconstruct a picture of the ancient past at a variety of scales (site and island level). The reports published from his explorations focus on topics such as 'caves and sites', 'speleology and topography' 'the population of the mountains: sites, caves and rituals', 'sanctuary types', 'popular rituals in ancient Crete'.

Methodology is based on the use of philological but also archaeological sources and previous researches, on extensive walking and intensive exploration of sites and on the communication with the local population. Thus, trying to locate a site (e.g. the cave where Zeus was born), he uses geographical and topographical information from ancient sources as well as myths and stories from the local people. His research method is often deductive; for example in his search for ancient Pergamon, he explains his thought on what he looks for and why certain possibilities are eliminated. Data (archaeological, historical, landscape and toponyms) are presented for all sites visited, as both possible and negative evidence is used to make his argument for the suggestion of a site location stronger. In some cases, he tries to exemplify his line of thought by presenting the sources used (whether written, toponyms or local information), while in other occasions he just takes us through his travels reporting on what he sees, knows and has read. His involvement and co-operation with other disciplines is exemplary, so in addition to the study of archaeological, philological and historical evidence, he often describes geology and has even cooperated with astronomists regarding cult observations.

Overall, in his attempt to understand and reconstruct the function of a site, he presents all kinds of data he has used, experiences he has had and thoughts he has made, which presented in detailed text form, argue for the ideas and conclusions suggested.

Presentation / Relocatability

Presentation consists principally of landscape photos, representative of Faure's interest in visualising the areas discussed. In fact, even though on-site archaeological observations are an important part of his explorations, he is more interested in site history and landscape settings rather than their material culture. However, there are also photos of finds, architecture and inscriptions, which form an important tool in site interpretation.

Drawings include cave topography and engravings, but not really pottery and archaeological objects, fact that corresponds to the different focus of his reports in comparison to his contemporary works of the Culture-History tradition. Still, archaeological objects are usually described in detail and occasionally presented in photos. Relocatability is not a problem for sites that are known or easily discernible (e.g. caves), but it is a big problem for most small sites and places of interest. Descriptions are narrative and locations not clear, while the main site map included in his 1965 article is a site-dot map of 1:500.000.

Density per area / period

Site definition: the writings of Paul Faure do not include a catalogue of sites, but consist rather of a narrative of areas visited in which site descriptions are included. All places considered interesting are described, discussed or at least mentioned. However, places of interest often consist of many findspots and loci, creating confusion over what is considered to be a site. Some may be empty of archaeological information or exhibiting negative evidence in relation to a research question asked, however, they play a role in Crete's 'story'.

Interpretative Framework

Paul Faure is a very well read philologist specialised in the ancient Greek world, but also sculptured with the ideas of French Human Geography, which he uses widely in his attempt to reconstruct the history of Crete. The sources used include ancient historical texts and myths, writings of Travellers and previous researchers, inscriptions and archaeological finds, ethnographic data and information from the locals, but also landscape observations. The sites he is mostly interested in are caves and it seems that the social behaviour that strikes him most is encapsulated in refuge and ritual sites. These, he tries to understand them by combining a variety of information and observations, paying particular attention to topography and the landscape. His background in Human Geography is evident in discussions of the history of use of a site or region over time and the consideration of human activities in relation to environment. For example cave function is studied diachronically and changes are explained in terms of socio-political circumstances, and living in the mountains is discussed again over time, in relation to subsistence and the social characteristics of different periods.

Faure's research is characterised by a multitude of influences from archaeological and philological traditions: We can discern a traveller's exploratory interest, where ancient sources, myths and concurrent Cretan life figure widely in the texts; the narrative form of his descriptions and the inductive – common sense – line of thought is typical of the Travellers' tradition and culture-history's theoretical framework, observed also in his descriptions of material culture; on the other hand, his interest in topography, geology and the history of the landscape reveal strong influences from the historical and Human Geography traditions. In some cases narrative and site descriptions are related to a research question and a hypothesis, where he travels us through the landscape and his thought in quite a detailed manner, whereas in other cases descriptions of what is observed may not be linked to interpretative suggestions, but be just presented as information and 'proper' archaeological records. Indeed, this is a brilliant example to attest the interplay between various traditions of thought.

Interpretations are primarily on the site level, and more specifically on function and chronology, but he proceeds further to combining site information for regional and inter-regional explanations. Thus, settlement hierarchy in the GR period is explored and settlement spread in the mountains of Crete is studied, but he is also interested in modes of living, trading routes and subsistence. He identifies periods of trouble, when refuge settlements in inaccessible peaks and caves are encouraged, and periods of peace, and compares numbers and types of settlement between different parts of the island. Observations on population trends are related to topographical and social considerations e.g. abandonment of the coast in certain periods is thought to be due to submergence of the coast or in other cases / periods due to piracy. He is fascinated by rural life in all periods, including modern, which he tries to share with Cretan people. Being particularly interested in rituals and cult practices, he studies them over time and is fascinated by the continuity of beliefs and practices.

Influential References: Wroncka, Kirsten, Khalikiopoulos (German Human Geography tradition). Greek researchers: data and interpretation source. Travellers and ancient sources.

Summary Assessment

Strengths: extraordinary variety of information and a holistic approach regarding people's life in the past. Interest lies mainly in ordinary people and many aspects of social life as opposed to artefacts and sites of the highest level of hierarchy exhibiting rich material culture. Records offer rich information on the history of sites.

Weaknesses: no structure in the presentation of data, information may recur and site interpretations are not always clear. Archaeological data are at times poor and in general rather difficult to classify and use. Site status is often problematic.

Evaluation of data and Interpretation: Data discussed in relation to places of interest are variable and useful, in particular regarding landscape descriptions and historical information. Interpretations cover quite a wide range of themes and offer an informative picture of the Minoan culture and the history of Crete. Archaeological data are however not explored to their potential, and chronological / functional attributions may be too vague and difficult to use.

Knowledge acquired: the most important information we get relate to the location and description of caves and cult sites.

Integrability: medium

Publication: completed

Faure's aim to understand and reconstruct the past of Crete was driven from his passion for the ancient Greek civilization and the island's unique landscape and culture. He studied archaeological research on the island in detail and critically, historical sources and mythology, topography and environment, he participated in the Cretan way of life and used all possible information in order to approach the island's past. His focus on interdisciplinarity and the synthesis of a variety of different data is exemplary, in fact he explicitly states the need to combine speleology, history, geography and philology and he seeks interpretations based on a synthesis of data acquired from all different disciplines. His attention to topography and speleography enhance understanding of the sites in question, in particular little explored sites such as caves and cult places. An important merit of his work is that he was not captured only by the beautiful objects of art trying to recover palace and elite relationships, but he tried to portray the Minoan spirit and Cretan society over time in its entirety focusing more on the rural countryside. His book on the everyday life of the Minoans is characteristic of such a holistic approach, where he discusses geography, subsistence, professions, ideology, crafts etc, and even touches upon the psychology and gender issues of the Minoan society. Moreover, he does not hesitate to put his interpretative suggestions forward, e.g. the origins of the population are sought in relation to the rest of Greece (the islands having served as stepping stones), and are discussed in connection to geographical and language data, which is a more pragmatic view to ideas involving immigrants from Africa and the Near East. His interest in the diachronic use of caves and cult sites offer us interesting insights into Cretan society and overall, research is promoted for little explored areas and themes. However, occasionally views might appear too strong e.g. the difference in advances (especially during Minoan times) between central-eastern Crete and the more mountainous areas west of Rethimno, view that even though may hold some true, is based mainly on research biases.

The principle problem encountered in Faure's work is the difficulty the reader has to understand, classify and assess his site interpretations. In his attempt to present all his observations regarding a site he also refers to random observations of many other sites, as he usually describes everything in his way. Site information may recur as he revisits areas adding new information, or because he refers to sites in support of various arguments. Site size and archaeological data are not explicitly recorded and it is through a narrative text that we learn of finds and findspots. Even though he offers more than a sterile accumulation of empirical

observations, it is a fact that the lack of structure in his publications causes problems regarding the usability of the data he presents.

Landscape Approach: landscape is approached as a fascinating set of topographical and environmental settings that function as a wide context and enabling / restricting force for cultural and social expression.

3.4.4 Survey id: Nowicki

Problem Orientation: aims and methods

Nowicki's work on refuge settlements focuses on recovering and explaining the settlement pattern of the period during the transition from the Bronze to Iron Age. The main characteristic of the period is the abandonment of coastal settlements and the emergence of new ones in defensible hills inland, a phenomenon that had first been observed by Evans, Boyd, Hall and Pendlebury. Such sites in the mountains of Crete were identified in other periods also, in particular during MM and FN / EM I, but in later historical periods as well. The systematic study of this recurrent pattern, characterized by the idiosyncrasy of settlement topography, aimed to elucidate societal structure over periods that seemed to exhibit evidence of socio-political instability. At the same time Peak Sanctuaries were studied as an expression of territorial power of different groups and attention was given to their relationship with nearby settlement sites. Problem orientation is based on the belief that topographical / geographical study and spatial relationships of refuge settlements reveal a pattern of social behaviour respective of the socio-economic circumstances of the time. As a result, the researcher explores the way people used a specific environment to survive and cope with the social troubles of their time. Settlements are classified according to their size and location in terms of distance from the sea, inaccessibility of summit and relationship with other similar settlements. In order to understand site history, intra-site structure is also studied in specific settlements.

His approach consists of two components: a) fieldwork that aims to discover new sites, but also revisit known ones and study their topography and geographical settings and b) pottery studies that aim to ameliorate dating in particular of LM IIIC / PG, since survey sites are represented mainly by coarse wares and little comparative excavated material is available. Fieldwork is based on the author's extensive walking on the Cretan mountains over the 80's and 90's, and in fact continuing to this day, the inspection of rocky hills and places that seem to fit the topographical criteria for having hosted defensible settlements and PK's and the collection of information and interaction with locals, most often shepherds who live in the mountains and are part of the specific landscape. As chorographic studies form the basis of the research approach, sketch maps of sites and their location on the map are considered as important as dating and interpretation.

Presentation / Relocatability

The maps used in the presentation of this study over a series of publications consist of topographical-site maps at a variety of scales and levels of accuracy. General site maps of the island showing spatial spread of defensible sites can be from 1:333,333 to 1:217,391, while region and site-specific sketch maps may be at 1:33.333, 1:3.571, 1:10.000, 1:1.666, 1:416, and 1:1351 showing both inter and intra-site relationships. The purpose is to illuminate the topographical and spatial attributes of the refuge settlements discussed in support of the arguments presented. Contours are of unknown height, but drawings can indeed be very good, allowing a very good impression of the topography of the relevant areas. In several cases architecture is also mapped in relation to the site's topography.

However, there is not always a clear correlation between all sites discussed in the text and those presented on the map, and we lack map legends that clarify chronology and function interpretations. Maps should in fact portray the chronological relationship of the settlement movements that are discussed in the text. Regarding relocatability, sketch maps are an important tool to facilitate it, especially in the cases where a wider area is presented, with a number of sites in their topographical background. In such cases (e.g. Karfi)

difficulties regarding site location relate mainly to their remote and inaccessible character. Time and space distances in combination with orientation from known places and toponyms are additional tools used to describe the location of a site and indeed, very good directions are given on how sites can be approached.

Density per area / period

	area surveyed (km²)	Total site no	PH	GR	BVT	Modern	Unknown
	8297	171	160	58	7		1
Or:			145	53	7		
Densities per km² (target population)		0.02	0.019	0.006			

Site definition: it is based upon architecture and sherd concentrations. The term 'site' seems to be equivalent to the notion of settlement, although site nomenclature includes terms such as 'watch points' or isolated houses e.g. Orino Petroskopia. Categorization of refuge settlements consists of: 1) small hamlets 5-10 families, 2) settlements of medium size 10-20 families, 3) extensive settlements of 20-40 families and 4) extremely extensive towns like Karfi and Erganos. Most of the sites discussed are interpreted as defensible refuge settlements even though it is not always clear whether they are considered to be permanent settlements and of which size, hamlets or periodically occupied watch towers. Scarce material may be interpreted as temporary use or restricted habitation. Lastly, many known sites are mentioned in the discussion as part of the interpretation but not included in map representation.

Interpretative Framework

The general interpretative framework about refuge settlements operates along the same lines as the ones set by the first archaeologists, namely that the changes of settlement patterns in LM IIIC / PG reflect disturbances caused by piratical raids connected with the 'sea peoples'. The phenomenon, however, is studied in a structured manner and in a wide spatial scale, seeking to recognize micro-scale differences and elucidate their socio-economic character. Settlement location is considered within a general geographical background which includes discussions about the sea, the mountains, communication routes, water and vegetation. The importance given to the relationship between settlement and topography / geography reveals a very close association to the Human-Geography tradition. A combination of fieldwork, pottery studies and excavation results is used, but topography is the leading evidence upon which the whole interpretative scheme is based. Thus, defensibility, inter-visibility, control of routes, distance and at the same time view control of the sea and proximity to water sources are the main characteristics of the defensible systems identified, which consist of a number of sites that seem to serve the same purpose, namely the protection of the inhabitants or Minoan descendants from attacks coming from the sea. Three defence systems are identified in Hagios Vasilios, Lasithi and Siteia mountains, consisting of two types of refuge settlements: a) those near the coast situated on the summits of very inaccessible cliffs with very good view control of the sea and b) inland sites situated quite a long time from the sea and being part of a wider defence system consisting of smaller inaccessible sites on the periphery and larger settlements in the middle of the defence settlement system or refuge site network. The close distance and apparent continuity between coastal and refuge sites is taken as indicative of the flight of Minoans to higher defensible settlements above their homes. At the same time an interesting idea is developed regarding dual settlements as in the case of Monastiraki Chalasmenos and Monastiraki Katalymata where

the inhabitants of the first permanent settlement seem to have been using the second more inaccessible one at times of danger.

Except for the identification and description of the defence systems that exemplify settlement patterns in LBA / EIA, discussion develops also around issues of mode of living, intra-settlement arrangement and the permanent or temporary character of some mountainous settlements, e.g. Karfi. Regarding this last issue, architectural, archaeological and ethnographic evidence is used to support the author's view on the permanent character of the settlement even though at a very high altitude. In addition to that, explanations seek the origins of the phenomenon, which are related to the socio-political situation of the preceding periods, in particular after the Minoan destructions of the LM IB, and at the same time its consequences into later periods and the development of the pattern into the Geometric and Archaic polis. Thus, the period is seen in a historical perspective. Moreover, many defensible sites are recognized to have been occupied throughout time and the phenomenon is seen as a recurrent response to social troubles from LN to Byzantine and Turkish times.

Site histories revealed through dating are used so as to trace differences in regional developments, thus the trend of moving away from the coast, which is attested earlier on the south (LM IIIA Kefali Chondrou Viannou was destroyed in LM IIIB), in combination with the fact that coastal sites were not reoccupied after the LM IB destructions is taken as an indication of raids having started earlier in that area and it is also proposed that the south coast may not only have been a victim but also a starting point of raiders. Some settlements are interpreted as possibly piratical, based on their isolation from the hinterland and their close relationship to the sea, but also the fortification of MM settlements e.g. Mythoi Ellinika and Myrtos Pyrgos is interpreted as possible evidence for intra-island conflicts. Along the same lines, MM II-III defensible sites in Lasithi are seen as the result of struggles over territorial control between inhabitants of the plateau and those beyond. In general inter-site relationships, continuity and movements (settlements, burial and religious sites) are a central research theme.

Overall, the researcher tries to present clear interpretations of the patterns he identifies, even though the tentative character of some of his suggestions is noted and the necessity for further research including excavation is stressed. His approach is critical especially towards former interpretations, for example he disagrees with Evans and Pendlebury about Lasithi sites which were treated as part of a group of guard houses, showing an organized palatial defence system as in the East Siteia Plateau. He states that 'their function and dating must be analyzed individually and then seen against the general background of the period in question'. Looking into power relationships and regional variation, defensible sites in Lasithi previously interpreted as guard houses are now taken as an expression of a general need for defensibility, with MM fortified buildings being interpreted as part of fortified settlements and not as evidence of palatial control in the area. Instead, Lasithi is proposed to have formed a separate state or loose confederation of several Lasithian groups. The political boundaries between Lasithi and central Crete during PG-G times are seen to have had their origins on previous different developments between the two regions. Within the same framework of regional variation PK territories are believed to relate to pastoral expansion, while inter-site relationships between PK's and settlements are followed over time.

Influential Sources: the work of Culture-History archaeologists since the beginnings of Minoan archaeology was used as inspiration and sources of information, but also the same approach of extensive judgmental walking was followed. Rutkowski initiated formal study of the topography of PK's.

Summary Assessment

Strengths: systematic work, valuable sketch maps, clear presentation of interpretative suggestions.
Weaknesses: the known problems derived from lack of site survey (definition of site extents and function differentiation over time). Not clear chronology and function in a comprehensive site catalogue.
Evaluation of data and Interpretation: data is clear and interpretation is presented as a natural consequence of the evidence available. However, data is incomplete.
Knowledge acquired: site histories and their topography; interesting interpretative suggestions regarding social complexity.
Integrability: high
Publication: on-going

The great asset of this work is the detailed description and discussion of the topographical and geographical features that characterize locational choice, whose study and understanding may illuminate human behaviour as expression of specific social structures. Trying to reconstruct past social phenomena he studies settlement patterns not in isolated chronological windows but in historical continuums. The very good quality of sketch maps – mainly of the topography of the landscape but occasionally of the internal arrangement of sites - enhance understanding of the social reconstructions presented, namely of the need for defensibility that characterizes LBA / EIA, and which seems to recur at times of social troubles. Even though within a Human Geography tradition, there are very strong links with the Culture-History tradition as fieldwork is extensive judgmental and descriptions of sites, their environs and location, are given in long narratives often including catalogues of finds. However, there is a much greater emphasis on the interpretative potential of topography as opposed to the creation of descriptive site indexes.

The author's approach is in general critical and as a consequence he re-investigates sites visited by earlier researchers (e.g. Evans and Pendlebury), re-interprets them and at the same time he makes explicit the tentative character of his interpretations when based on incomplete data, reminding us persistently of the need for further researches in fieldwork, excavation of relevant sites and pottery studies. The publication is quite methodical as the author identifies a phenomenon, defines it and studies it according to a specific methodology. Opinions, questions and reconstructions of past historical circumstances are presented clearly. The line of thought and field methodology is most relevant to the questions asked. The identified topographical characteristics of a respectable number of refuge settlements in Crete (which in fact is continuously rising through the author's and others' fieldwork) and their spatial spread, hint to island-wide historical circumstances, even though regional and chronological variations are respected and avert rigid interpretative schemes of catholic value across the island. Variability is explored both in terms of space and time: in particular, the situation described is presented as indicative of the more isolated mountainous areas of Crete as opposed to the areas around Knossos and Mesara, while the possible variability among mountainous areas is also acknowledged. Besides that, patterns of settlement continuation, movement and topography are used as evidence of historical differences, e.g. the movement inland of late LM IIIB-LM IIIC was due to external attacks, whereas settlement movement to more inaccessible areas in PG (e.g. from Vrondas to Kastro) show internal, intra-regional troubles for territorial control and mark the beginnings of G-A town territories. However, we should note that the work of other researchers is not in total agreement with Nowicki's proposals. In particular Xifaras (2004), studies social transformation at the turn of the Bronze to Iron ages based on settlement, burial and ritual data mainly from excavations, also focusing on a geographical approach, and proposes a society structured on internal conflicts and not being a victim of external raids. The main arguments are based on the community's need to control subsistence-rich areas, but social memory and ideology are also explored, describing social reconstructions in a historical framework.

A weakness of the project is the lack of sampled site surveys and further detailed field and pottery studies, which would help have a more precise picture of the life span of these sites as well as their exact

character and relationship. What for example do site size differences mean and why in some cases settlements expand beyond their natural defence borders while in other cases they remain smaller than the defended space available? Which sites and why are further defended by fortification walls? The author puts forward suggestions as to the existence of fortified watch towers and the expansion of settlements leading to the Geometric polis, but further research and explanations are needed and indeed acknowledged by the author himself. Besides that, even though site definition and interpretation is indeed the greatest challenge for the archaeologist, opinions should be made clear in the publication. The author's studies are presented in a series of publications where sites are mentioned several times, not always though with the same clear characterization of function and date. Collective maps of refuge sites presented exclude some of the sites discussed in the text and not all of them are discussed with a clear definition of whether they are considered as settlements and of which size, as temporary habitations, watch towers or of uncertain function. To understand, however, settlement defence systems, regional patterns and differences, it is necessary to understand the role that each site played and the need it expressed during the historical period of its existence. In short, we are in desperate need of a total clear site catalogue with functions per period as well as a map representation of the interpretations suggested.

Landscape Approach: the landscape is perceived as the geographical entity within which human activity can be understood as a response to social and economic situations. The intricate relationship between man and environment is explored through detailed studies of the topography of settlements, which is used to elucidate past settlement choices and social organization.

3.5 Topographic Tradition

3.5.1 Survey id: Hood Knossos

Problem Orientation: aims and methods

A first map of Knossos was created by Fyfe in 1900, then copied, partly updated and used until 1952, when David Smollett drew a new map with much and important new information, which was published in 1958 at a scale of 1:5000. This served as the basis map for the topographical map drafted by David Smyth to accompany the catalogue compiled by S. Hood regarding the antiquities around the site of Knossos. An additional study on the physical environment was undertaken by Neil Roberts, included in the 1981 report of the Knossos survey as a separate section. The aim of this project, which took place in 1977, was to produce an up to date catalogue and map of the area of Knossos with the location of the excavations and soundings undertaken by the British School since the beginning of the 20th century and within about 10km² around the Bronze Age palace.

The main questions asked and for which the map and catalogue were used concerned the extents of occupation per period, the identification of activity loci and the estimation of population size for the major period of the Bronze Age. The goal was a history of the occupation of the area from Prehistory until the Arab conquest, although the weight of study and analysis is given to the PH. Methods are not explicitly stated, but treated rather as 'self-explanatory'; basically, they walked the area of interest rather intensively, mainly under the direction of Spyros Vasilakis the 'doyen' of Cretan excavators. This involved visiting known spots, walking around sites and places of interest depending on time and importance or likelihood to exhibit antiquities, mapping their location and producing a topographical description to accompany the catalogue of the material finds. Environmental studies seem to be a result of the major trend at the time to provide an environmental background for the archaeological sites considered, even though geomorphology is stated to have been used in order assess land availability and landscape change.

Presentation / Relocatability

The presentation of the archaeology of the area on a detailed topographical map of a good scale was a primary objective of the project, thus the scales used were 1:5000 and 1:21,739 and legends describe topographical

features and site-functions for the basic chronological periods. Landscape photos as well as an aerial photo enhance a visual picture of the area studied. Site-location is described in detail therefore many sites should be relocatable. However, sites may be isolated tombs, displaced (and removable) architectural material, old soundings and test pits; in combination with continuous landscape changes in an area that is heavily inhabited in modern times, it is expected that the relocation of many sites would be particularly difficult and a number of them will have disappeared.

Density per area / period

	area surveyed (km²)	Total site no	PH	GR	BVT	Modern	Unknown
	10	372	189	218	6		18
Or:			170	193	5		18
Densities per km² (target population)		37,2	18,9	21,8	0,6		1,8

Site definition: a large proportion of the sites described are burial sites from single tombs to cemeteries and areas with more than one locus of archaeological interest. In some cases it is not certain whether an interpretation is presented with certainty or not, because although question marks may be used in the title of a site's presentation, in the text the characterisation may be treated as certain. In such cases his interpretations are treated as uncertain. The variability of site-type is indeed vast including walls, paved areas and mosaics, wells, inscriptions, displaced architectural blocks, sherd densities, roads etc. Chronological definitions, however, are not of the same precision in particular for post-Minoan times when dating becomes cruder and occasionally the better chronological term that can be used for the date of a site seems to be 'ancient'.

Most sites, sometimes defined as of 'unknown activity' in the database e.g. roman mosaics, are certainly parts of the same settlement. Some may be areas with many activity loci while others describe parts of the same feature (e.g. a road is traced in many loci, each being a separate site). When sites consist of various findspots the site's function in the database classification is determined by the main characterisation of the site, as stated in capital letters by the researcher.

Interpretative Framework

Hood presents a brief history of the researches in Knossos from Travellers and early archaeologists to work undertaken till the time of his writing. Kalokairinos, Halbherr, Hogarth and Evans are leading figures among those who excavated and studied Knossos, but the site descriptions of his catalogue include references to every archaeologist related to the site described. The history of Knossos is portrayed in chronological periods with descriptions of material culture and its location per period. Continuation or gaps in use of space and changes in site size, pottery spread and population from period to period are the main themes explored. Within an inductive line of thought the spatial spread of material evidence is used in order to identify the extent of settlements and activity foci for all periods, but in particular for the Bronze Age and Roman times that exhibit a wealth of findings. Continuous habitation in the area and the dramatic modern landscape changes (mainly construction) as well as the lack of defence walls has naturally prohibited the identification of clear boundaries; however every location with antiquities is used as evidence of settlement and landscape use for the relevant periods.

S. F. Hood is particularly interested in the size of the Bronze Age settlement and in estimating its population, comparing it with Early Dynastic Ur and Medieval Candia. Describing the evidence, he suggests

that the Protopalatial and Neopalatial Bronze Age town had suburbs with terrace houses and gardens while the countryside was dotted with farms and villas, which hints to a high number of people spread over a wide area. Similarly, the decreased quantity and extend of material culture from LM II was interpreted as smaller population numbers. Dispersal versus nucleation and population estimates in comparative terms between periods, are in general popular themes and therefore also discussed for the Iron Age. The leading theories in Minoan archaeology regarding population changes and the fate of Minoan civilization, supporting Mycenaean influence or even invasion according to changes in pottery styles and burial customs, seem to be favoured. The theme of cultural continuity has been one of the most favourite in archaeology and in this report it is briefly discussed regarding the origins of palatial Knossos, by exhibiting similarities in architecture between earlier buildings and the palace e.g. the fact that they share the same alignment. In the same way, the distribution of Early Iron Age tombs is thought to have been conditioned by the distribution of the Bronze Age ones; reused tombs are always noted.

In short, S. F. Hood tries to provide a picture of the chronological and spatial spread of human presence in the area of Knossos diachronically. The Bronze Age receives a somewhat greater attention with an attempt to provide a more complete story of the centre of Minoan civilisation referring, even if briefly, to its beginning and end. The amazing variety of sites with certain, possible or no function from settlements to burials, wells, road construction and material presence summarise the effort to understand and reconstruct human activity in the area. Problem orientation reminds us of cultural heritage management projects. However, apart from the construction of a site index, Hood focuses on topographical mapping and tries to interpret spatial relationships between loci of archaeological interest so as to arrive at settlement size and population conclusions. When he discusses a suggestion or a hypothesis he presents his line of reasoning taking into account data and suggestions proposed by earlier researchers, with whom he occasionally disagrees. Historical sources are typically used in relation to GR finds and patterns.

Influential References and Sources: all previous researchers in the area, basically of the CH tradition (Evans, Hutchinson, Hogarth, Mackenzie, Jill Carington Smith, Coldstream, Popham, Howell, Warren etc).

Summary Assessment

Strengths: documentation of research undertaken in the area with a very good scale map.
Weaknesses: occasionally not clear definitions (e.g. ancient), and no consistency in site definition. This varies from a certain settlement with architecture and pottery spread to the locus of removable items and a wider area with several loci of antiquities.
Evaluation of data and Interpretation: Interpretation develops around the diachronic spread of human activity, site size fluctuations and population estimates. Excavation but also survey data are used. Often data say nothing more than the presence of material culture, which is expected in a heavily occupied and much researched area.
Knowledge acquired: environmental background and human activity locations through time.
Integrability: medium
Publication: completed

The sought-after and result of most archaeological work has been the location of antiquities covering a definable space and their chronological and functional character. In the case of Knossos, this is a task of great importance, given the situation of continuous landscape change and the plethora of findings. However, sites in the context of this work are basically loci of archaeological material, and can be principally used as information rather than as data for regional analysis and inter-regional comparisons. The need for visualisation in order to manage a plethora of archaeological findings is expressed via the labour-intensive construction of a map at a scale of 1:5000, which still remains the best archaeological map available for the area. Every site in the catalogue includes the history of research and the interpretations of previous researchers even if evidence has disappeared, sometimes with comments that support or create doubts over specific interpretations. Hood

tries to provide an as clear and objective picture of the archaeology as possible, paying attention rather to detailed historical recording, than the construction of a regional history, although his synthesis of data attempts to provide a general picture of the settlement history with size differences and loci of distinctive functional character over time.

Environmental work undertaken falls within a general trend of the time that serious archaeological research should encompass a study of the environment. The acknowledgement of the relationship between man and environment and the influential role of the latter was stressed by New Archaeology and even though the views of the new theoretical framework were certainly not adopted by everyone, they indisputably left strong influential traces in the work of even typically traditional archaeologists such as Sinclair Hood. As in much survey work even in our days, environmental studies in this project aimed at providing a background or environmental framework within which archaeological evidence should be seen. Relationships between man and environment were not discussed or included in the interpretative process. This project is not in fact a surface survey as most of its catalogued sites refer to excavations undertaken within almost a century in the area of Knossos, the largest and most intensively researched site on the island. Many of the 'sites' are parts of the same settlement e.g. the same structure traced at different locations, or loci of finds. However, the amazing variety of functions, which although allows comparison only with other extensively surveyed and excavated settlements gives us a rich picture of the settlement and its activities.

Landscape approach: geographical area containing locations of human activity.

3.5.2 Survey id: Schiering

Problem Orientation: aims and methods

The aim of Schiering's fieldwork in 1977 over 18 days (with the collaboration of Walter Müller and Wolf-Dietrich Niemeier) was to investigate areas of known archaeological interest around the town of Rethimnon in 'a more intensive manner than before'. Their main interest was in Minoan architecture and pottery spreads, but they recorded archaeological activity also down to the Roman period. More specifically, they walked intensively (but not systematically) the area from Stavromenos to Hamalevri and around the Fortezza (Venetian castle) of Rethimno and visited two known sites (houses) in the area of Koumoi near Armenoi. Fieldwork included the recording of material culture, but also the topographical mapping of fields researched. The general approach was to identify locations of archaeological interest and try to interpret their character and relationships so as to give an outline of the history of ancient human activity in the area. Schiering had explored the area of Rethimno also two years before, in 1975 (Schiering 1981).

Presentation / Relocatability

Given the fact that sites discussed are either known, or pottery concentrations over a very confined area of mapped field systems, they should be relocatable fairly easily. The topographical / sketch map provided is at a scale of 1: 12500. On the other hand, they also talk about very small quantities of finds, which would be a problem to relocate, especially due to possible landuse changes. Landscape photos allow a better understanding of the area discussed and object photos and drawings give an accurate picture of the archaeological material culture. The emphasis is on describing the archaeology of the area of interest.

Density per area / period

	area surveyed (km²)	Total site no	PH	GR	BVT	Modern	Unknown
	~ 2,25	19	18	6			
Or:			18	5			
Densities per km² (target population)		8,4	8	2,66			

Site definition: they describe places of interest, namely locations of material culture, but there is no certainty in spatial definitions. They state that concentrations may be many sites or areas of the same site, most likely a settlement. Thus, although it is implied that sites are places of definable activity such as a settlement, a burial or a cult site, the surface record is treated in a way that reminds us of the Landscape Tradition, recording all surface activity that was considered 'interesting' during fieldwork, even if not interpreted as a 'site'. Sites are not defined in an explicit manner, thus in some cases they discuss definite sites, but in other occasions they describe an area where they noted early material, which may include more than one findspots. Sites Tzampakas, Melissa 1, Melissa 3, Kakavella and Mandrakia could be parts of the same settlement. Also Sohora, Bolani and Chatzametis are considered as locations of probable settlement, perhaps as parts of the same one. Densities, therefore, concern mainly areas of interest defined mostly by toponyms.

Interpretative Framework

This work belongs to the Topographic Tradition, with attention focusing on the identification and dating of material culture, even though the border lines with the CH and HG are not very sharp. They do not only look for the location of 'sites', but observe in detail the topography and consider how it might have influenced site location within a framework of environmental / geographical potential (e.g. rivers → good ground water in ancient times). At the same time, much effort is given to the description of finds with the purpose of supporting a specific chronological interpretation. Data and interpretations are compared with those of previous researchers (Hood *et al.*. 1964) and agreement supports their findings, namely the continuity of use from Minoan to Hellenistic times.

Presence of material is considered important and representative of activity even if the kind of activity can not be assessed. As has always been the case, PH material is regarded as more difficult to survive and thus its presence in smaller numbers as more important than later material (representative of significant past activity). For example, 5 Neolithic sherds in the area of the Fortezza in Rethimnon are thought as possible to testify the presence of a Neolithic settlement. In this instance, we also attest a self-critical approach, since their opinion of the peninsula being a good location for settling is put forward as only a hypothesis within a western European eye, supported in the case of Chania, but not in the case of Herakleion.

Pottery spreads are interpreted with caution, and in order to understand what they might mean researchers map field boundaries as well as possible, with the thought that they might represent ancient fields, considering also the number of toponyms that occur. The area considered in this manner is about 900m N / E of Chamalevri, where the whole hill range with terraced slopes and plateau on top is characterised by a spread of Minoan pottery, which however can not be interpreted with certainty as settling activity all-over; the possibility of farmers being responsible for such a spread is also suggested. They admit the difficulty of interpreting sherd concentrations as many, a few or one settlement, but finally they prefer the idea of a few smaller settlements as opposed to one, whether all in one period, or changing locations over time. In relation to this interpretative suggestion they refer to A. Kanta (1980), who supports the idea that settlements in LBA Crete are established one after the other and that the criteria for location change towards more defensible areas

in LM IIIC are natural and of course cultural (transition from Bronze Age to Iron Age is characterised by social instability and hostility - pattern of refuge settlements linked to the Sea Peoples, attested throughout the Aegean). They are also interested in settlement size which they try to assess through material spread, paying attention to the direction in which the settlement grows, namely west, as opposed to burials which are attested to the east of the settled fields and south-east of Palaiokastro – also an LM III settlement and candidate of using the above area as burial ground.

Settlement location over time has been a theme of great archaeological interest, even more so in the German tradition, which received greater influences from Human Geography. Thus, although they noted Neolithic material on the hills, the earliest settlement is believed to be on the coast and the pattern of Late palatial material (LM III) being attested higher and inland, is once again confirmed. At the same time, as well as describing locations / fields in detail, they consider the area as a whole, attesting activity from Minoan to Roman times both on the coast and along the field systems to the south. In the same context Palaiokastro is suggested to have been the harbour of Eleftherna.

In short, they describe the presence of archaeology, focusing on earlier material, and seek interrelationships and associations with the topography of the area under consideration. In this way they try to reconstruct ancient activity and landuse and thus make a contribution to our knowledge about Minoan Crete and the history of this specific area in particular.

Influential sources: The work of Hood, Warren and Cadogan is used as both a source of information and a guide for interpretation, in terms of chronology of finds; in the same way they refer to Greek excavators (Tzedakis, Davaras) and others' pottery studies. Kanta's work regarding LM III Crete has also formed part of their interpretative framework.

Summary Assessment

Strengths: data potential is considered and there is an effort for objective accounts of data observed.
Weaknesses: no methodology in publication; the text is too literary – no systematic presentation of data and interpretations.
Evaluation of data and Interpretation: objective data (within the limitations of non-systematic survey) and careful interpretation. However, human activity is approached only via the location of settlements, burial and cult places.
Knowledge acquired: nature and spread of archaeological material within the area in relation to topography and major sites.
Integrability: medium (site definition problems)
Publication: completed

This report is almost like a diary of both fieldwork and thought. In particular regarding interpretation, data supporting specific explanations are presented in a descriptive manner, giving the impression that sometimes they lead to interpretations and in other cases they follow them. The same data and interpretations may appear various times in the text with the result of some repetition and confusion. Interpretations are occasionally contradictory, in an attempt to honestly present the difficulty of supporting a specific hypothesis. However, their line of thought is not always easy to follow as data are not presented in a specific sequence leading to the relevant interpretations. Areas (fields) are sometimes defined by toponyms or as areas between toponyms in a way that resembles a literary description of a digital map of pottery spreads, which is of course very difficult to visualise if not visually represented.

In general, the nature and location of finds is described so as to arrive at explanations when possible; e.g. many findspots were thought as possible to imply a number of settlements or parts of the same one, Geometric finds hint for a settlement that was not found etc. Detailed descriptions of the topography and the material found throughout the study area aims to present their reasoning on the extents of early settlement and present their doubts in interpreting data. Recording includes pottery spreads, topography, landuse and

features, e.g. it is observed that fields incorporated building stones and schists that seemed to have originated from Minoan buildings. Geography and topography are considered in relation to the location of settlements not only from an environmental perspective, but issues of social memory are also touched upon. The approach is closely linked to a geographical / environmental background focusing on correlations rather than explanations and has in fact strong links with Landskunde Archäologie. Overall, this interesting and quite characteristic work of the German tradition suffers mainly from a lack of a strong and clear structure of the text.

Landscape approach: Landscape is the geographical and environmental context of human activity expressed via material culture. It is considered as playing an influential role on human choice.

3.5.3 Survey id: Minoan Roads

Problem Orientation: aims and methods

The principal investigators of this project were Tzedakis, Chrysoulaki and Vokotopoulos, but Voutsaki, Venieri and Avgouli were also involved. As revealed by the name of the project carried out between 1984 and 1996, the researchers declare their aims as the detection, study and interpretation of the land communication system of proto-historic Crete as a means of deciphering the social, economic and cultural relationships of the Minoan world. Infrastructure concerning roads, harbour and irrigation works is regarded as the main evidence of the developmental level of a culture and as Minoan roads are the best surviving evidence, their study is thought to offer great potential in understanding Minoan society. To achieve this aim, they built a typology of road construction so as to understand it and therefore understand the development of infrastructure. Roads connect a variety of sites and serve variable purposes, thus, on a parallel level the project tried to reconstruct spatial organisation and settlement over time in order to achieve understanding of people – environment interrelationships. Questions concern the choice of settlement location, the use of natural resources, defence, contacts etc.

The pilot area chosen is in SE Crete around the centres of Kato Zakros and Palaikastro. Archaeological work in the area had revealed many important sites such as burials, peak-sanctuaries, villas and farmsteads, while excavation of the palace and Minoan town in Zakros discussed themes concerning its function and relationship to the town, its strong farming economy and trade with other centres inside and outside Crete. Within this framework, the underlying theme seems to have been the exploration of site interrelationships within the specific landscape.

The methodology followed is presented schematically as the organisation of bibliographic sources, the mapping of known Minoan sites, the hypothetical tracing of roads depending on site interrelationships and geomorphology and lastly the practice of surface survey in order to discover, map and describe existing remains. Field work has been on a judgmental basis, where they walked the area of interest as carefully as possible, looking for architectural traces, pottery / finds and in general man-made landmarks. At the same time the geomorphological, geographical and topographical studies play a major role in their work.

Presentation / Relocatability

Most publications present a contour map of the pilot-area at different scales with the major disadvantage that none of them agrees, and the same sites are represented with different numbers. The article which includes a map with the greatest number of sites does not include a respective site classification, while the text describes areas and systems of sites, making it impossible to know how many sites of a specific function there are. Besides that, not all maps have a scale, but in general they vary from 1:66.666 (the one that covers the larger area) to 1:25.000 (the one with the greatest amount of sites). Photographs and plans, however, are very informative of roads and guard posts discussed. Most sites should be relocatable as they preserve important architectural remains, or they may already be known and excavated.

Density per area / period

	area surveyed (km²)	Total site no	PH	GR	BVT	Modern	Unknown
	318,3 (map area)	89	82	10	0	3	
Or:			82	10	0	3	
Densities per km² (map area)		0,279	0,257	0,031		0,009	

Site definition: sites are usually places interpreted as settlements, burial caves, peak sanctuaries, viglas, guard posts and quarries. Enclosures and roads of course, are recorded, but not given a site number. Sites are not locations with small quantities of material culture and of unidentifiable function. As the unit of description is the area and not the site, every area description consists of the type of sites found and their map-identification number (varying between publications), but we do not have exact correspondence between site name and its function. For this reason sites in the database are entered with the name of the area followed by a consecutive number (the 1993 article was used as it provides the greatest number of sites). Densities are only indicative of the site-number used for the interpretations and discussion.

Interpretative Framework

The project focuses on 2 sets of data: on one hand the roads and on the other guard houses, described in terms of construction techniques, materials, function and location. Segments of Minoan roads were found in various areas and were classified according to the quality of their construction and function: 1) at Zakros roads connect the palace and the town with important sites in the hinterland, e.g. a villa (interpreted as controlling the agricultural production of a strategic small plain) and guard posts, 2) the road at Yiouchta leads to the important Peak Sanctuary and is thus connected to ritual, 3) the road found at the major LM III cemetery of Armenoi served burial practices and could be linked to the as yet undiscovered settlement and 4) at Samonas a road was found within the LM IA settlement and another one connecting LM III settlements. Regarding guard houses the main characteristics observed and used for their interpretation were topography / inaccessibility, construction, inter-visibility, location / route control and connection with other sites. Study observes homogeneity in interior design and megalithic exterior construction; their location did not spare labour and seemed to have been based on priorities of visibility, inaccessibility and control of the surrounding area and roads. Relating structures such as enclosures seem to supplement the role played by guard-houses, connecting them with viglas and thus building a wider defensive system. They are seen in relation to the wider landscape and their distribution is preliminarily explained on the basis of the main routes. They date from the first palace period and have been used in later periods widely even though often they have served different purposes. All these features have traditionally supported their interpretation as of defensive nature, and because the phenomenon is observed widely across the island, the project's researchers propose a picture of social developments that contradict the model of pax-Minoica forwarded by the island's first explorers. Instead, they see complex and troubled social relationships, a view that is reinforced by a brief mention of other evidence of defensive character such as the possible fortification walls in several important settlements.

Other types of sites that received special attention within the project were villas, megalithic structures and quarries, but in general all sites, including settlements, burials, peak sanctuaries and workshops were integrated in a cohesive reconstruction of human activity during the Bronze Age. Sites are not treated as spatial contexts of material culture, but as components of complex social systems, which can be approached through the study of site spatial interrelationships in connection with their function and geographical location. Spatial analysis and comparative pottery studies are stated to be the means in understanding organisation and use of space as well as type and degree of dependence relationships with the centre. A core-periphery model

with underlying hierarchical relationships between sites seems to be implicit in the theoretical framework guiding research. It is stated that there are two levels of site interrelationships, one between sites and centre within Crete, and another between centres in Crete and in the wider SE Mediterranean world, even though the latter theme is not actually explored. The proposed interpretative framework sees the attempt of the centres 'to consolidate fully their authority in the fluid situation in the hinterland' via the network of guard houses, as much as via the symbolic power of the peak sanctuaries. Chrysoulaki (1999) imagines the complex process of state emergence as one that sees the co-existence of fortified settlements in the mountains or remote areas and the unfortified towns in the plains. However, landscape shaping and social structure can not be easily explained as the conscious decision of a group of people over the rest of the population.

The project uses geomorphological studies as a principle tool for the study and explanation of human activity, expressing the belief that people use their environment and landscape according to their social needs and cultural development. Accessibility and contact potential between coast and hinterland, or between sites have been principle themes of enquiry. It seems that the current project has been particularly influenced by geographical considerations, and indeed, geography and geomorphology in Crete play a leading role in landscape structure and human activity even today. As declared, material remains of Minoan roads had actually been observed by various previous researchers, but this project uses a theoretical model starting from a hypothesis based on the connection between roads and geomorphology, which is then tested on the landscape. It is important to note that the starting point of their working hypothesis is declared to be that administrative planning is required for the construction and preservation of a road system, which serves the needs of local authorities and can thus be seen as a crucial evidence for the organisation of Minoan society at the time of the first state formations. The problem is that the term 'state' is a controversial one still, and it is not self-explanatory that a central authority invented and used a communication system in order to exploit the periphery. The project could be best described within an on-going topographical and Culture-History tradition, influenced by historical geography and developments of the Landscape Tradition. Minoan archaeology is characteristic for encompassing influences from all practised traditions.

Influential sources: Travellers and first archaeologists who discovered the majority of important sites in eastern Crete (Spratt, Evans, Hogarth), were used mainly as sources, even though their interpretations usually hold even today. The attention given to environment and a diachronic look express influences from Human Geography, an approach practised principally on the eastern part of the island. The Landscape Tradition surveys seem to have influenced methodological approaches regarding questions explored, and a wide interpretative framework regarding regional settlement development.

Summary Assessment

Strengths: focus on the interpretation of sites and not the discovery of new ones, based on a very interesting theme of exploration. Clear interpretative propositions.
Weaknesses: Problematic presentation of sites.
Evaluation of data and Interpretation: interpretation is based on well presented arguments and good quality data derived from many years' survey and excavation. Well-established theories (pax minoica) are challenged, and opinions are presented quite clearly. We are offered a coherent interpretative scheme, presented however on fragmentary data. We do not have a complete catalogue of sites-data used so that we are allowed a personal evaluation.
Knowledge acquired: good records of roads and guard houses (location, construction), interesting approaches to their interpretation.
Integrability: high
Publication: not completed (?).

The Minoan roads project allows an informative picture of how roads were constructed, what techniques and materials were used and what needs they might have served. Focusing on the topography and mapping

of Minoan communication systems and defence sites it is classified in the Topographical tradition. It is very helpful that we get a cohesive presentation of some of the sites studied, in particular guard houses and roads. The emphasis given on the description of the geography and geomorphology of the area, allows a better understanding of site interrelationships, for example, the important role that gorges and natural passes played as communication routes in a broken landscape. The discussion of sites within their geographical context highlights their character, promotes understanding of their interrelationships and allows a more informative picture of the relative landscape as opposed to a simple catalogue of sites. Besides that, excavations of many sites and in particular sites related to the project like guard houses elucidate their function and facilitate interpretation.

An important asset is that a critical approach towards the panacea of a peaceful picture of Minoan society is adopted, allowing different possible explanations and views to be taken into account. Attention to the tendency to exclude internal conflicts as an explanation to destruction horizons had already been drawn by Hood (1983) and discussed in bibliography from the mid 80's. Chrysoulaki (1999) presents a study of guard houses from a variety of points to conclude on their defensive character. However, there are some interpretative problems concerning a rather simplified model of state formation and we are not given a full picture of diachronic landscape changes, in other words we have interpretations, but not always adequate data. The most important predicament of this project is its fragmentary publication and the lack of an ultimate site catalogue with respective interpretations, so that readers can analyse data both qualitatively and quantitatively. Regarding functional classification, it is stated that in a multi-period site, its use during its foundation was taken as the primary role of the building and its relationship to the landscape, and therefore its interpretation during the first detectable chronological phase is used as its functional class. This is a common attitude, as many researchers present their sites with the most distinct functional characterisation and all the chronological periods identified, not clarifying whether the same function is presumed for all periods, or not. However, this is an important weakness, not so much because it represents our inability to identify function, but because misinterpretations are encouraged, when a variety of possibilities should be encouraged.

Overall, we have a wide theoretical framework within which data are used, and Minoan society is approached from a variety of angles. The character of sites, their history, location and relationship to the environment, but also the type and character of their interrelationships form a flexible and coherent analytical framework that can help us approach social, political and economic questions of past societies. It is also worth mentioning that researchers put a great emphasis on the preservation of sites and the natural environment in eastern Crete, adopting a responsible stance towards political practice and the current society.

Landscape Approach: landscape is seen as offering specific opportunities for the expression of cultural and social structures. Its study as of both natural and man-made features allows understanding of operating societies over time.

3.5.4 Survey id: Itanos

Problem Orientation: aims and methods

This project aims to recover the historical development of the site and its relationship to its territory, focusing on historical topography and trying to reveal the spatial organisation of the studied area. The ultimate purpose is to construct an archaeological map, which will highlight the organisation of space that defines the site's position in relation to its hinterland.

The project is a French-Hellenic collaboration with Kalpaxis, Greco, Schnapp, and Viviers and in fact work is on-going with the co-operation of several researchers from universities, research institutes and the Ephoreia of Hagios Nikolaos. It started in 1994 with a preliminary study of the city where focus was given on the construction of a topographical map using aerial photos of 1:8000. Architectural plans were considered essential in an effort to define and interpret construction phases so as to understand the history of

the monuments. Remains were systematically studied recording size, dimensions, plan etc and were plotted on the topographical map. Research strategy combined architectural study, topographical mapping involving also GPS measurements, excavation, geophysics and surface survey. Survey was undertaken in different seasons employing variable methods, but in principal it consisted of walking around the area of interest looking for architecture and pottery concentrations. In some cases terraces were investigated through sherd counts per terrace in 1,50m wide strips and diagnostics' collection. New sites and sites identified at first on the aerial photos were put on the map and some structures were topographically studied whereas arbitrary samples of pottery were taken from each site in order to help define chronology.

Presentation / Relocatability

Maps seem to have been produced at variable scales using digitised topographical maps of 1:5000 and aerial photos, whereas sites were plotted with the help of a theodolite and GPS. Reports describe briefly a number of sites presented at the background of an aerial photo of 1:83,333 and a topographical map of 1:47,619. The urban centre is shown on a topographical plan of 1:4000 showing contours at 5m intervals, as said created from aerial photos with photogrammetric methods and on which architecture and features were mapped with the aid of a theodolite. Relocatability of most sites is not possible with the present publications, but ultimately they claim to have a DEM based on maps of 1:5000 and contours of 4m, on top of which they want to overlay aerial and satellite photos. Taking into account the importance given on detailed topographical recording and the use of GPS, in the end sites should be easily relocatable.

Density per area / period

Site definition: no explicit site definition is given, but sites seem to be locations with material culture, whether a wall, or a combination of architectural and pottery evidence.

Interpretative Framework

Interpretation benefits from a multi-disciplinary framework and uses a variety of tools: topographical plans and mapping of material culture at a very good resolution both intra-site and on a regional level, excavation, geophysics, inscriptions, and surface survey. Excavation and topography reveal intra-site spatial organisation and chronology; aerial photographs allow hypotheses on the location of ancient remains and the organisation of space; geophysics test hypotheses regarding use of space; surface investigations aim to recover human activity in the wider landscape over time and date various structures, while a site database is used to organise the study of all sites, and guide interpretation.

More specifically, excavation data are used to define the chronology of different construction phases within complexes and study changes in spatial organisation over time, which may be linked to ideology, e.g. building activity in the necropolis reflects a respectful or not behaviour to earlier use. Anthropological and zooarchaeological studies make their own contribution to understanding how people lived, while pottery studies highlight aspects of trade, growth etc. The site's history over time is reconstructed by integrating the various monuments in the site's topography and thus creating surface levels of use of space per period. In this line of thought, the topographical survey of the urban centre is claimed to reveal the urban evolution and the general topography of the site, within a problem orientation of spatial changes in habitation and burial use of space between the Geometric and Roman periods. On the other hand, the discovery of new sites and their mapping is used in order to study regional data in relation to the developmental phases of the city and enhance understanding of the nature of the city of Itanos over the different periods. The approach is based on establishing chronological and site type correlations between the city centre and sites of the surrounding territory.

Typical results of a regional survey concern the variable intensity of human habitation and activity over time. Thus, the surface record does not show new communities at the end of the Prepalatial period and the

countryside is almost empty in Protopalatial times, a picture also evidenced from the neighbouring survey of Palaikastro. The greatest density is evidenced in the Neopalatial period, when the countryside exhibits a variety of sites, from Minoan roads, to guard-posts and villas. Later on, during Geometric, Archaic and Classical times, the countryside does not show traces of permanent habitation. Finally, the area seems to have been abandoned after the Roman period. Overall, surface survey found and recorded a variety of sites from different periods, claimed to supersede the number of 120. Results over the various reports include tombs, habitations, settlements, towers, farms, defensive sites, Minoan villas, terraces, walls, cisterns, quarries and buildings. Dating is based on arbitrary surface collections although in 1996 terraces were sampled and produced evidence on agricultural landuse from the BA to Roman times.

Considerations of site recoverability and the problematic nature of the surface record make their presence throughout the reports. For example it is mentioned that what we find in the surface record may not give us a real picture of human activity, as it is possible that lighter structures which have not survived may have been part of the landscape in little evidenced periods. The greatest importance is given to architecture, and the difficulty to date the great number of walls spread throughout the countryside without excavation is stressed. It is also acknowledged that periods may be underrepresented due to pottery recognition problems, as in the case of the post-palatial period, a problem well attested throughout the area. Following the example of other regional survey projects a coarse ware chronology is established. Overall, researchers try to illuminate the site's historical development by reconstructing the spatial relationships of ancient monuments and integrating the results of other projects in the area.

Influential sources: previous researchers, recent survey projects in the area. Haggis and Mook (1993), Moody (1985) on the building of a coarse ware chronology. Topographical studies of Lohmann.

Summary Assessment

Strengths: a multi-disciplinary framework and a variety of methodological tools in landscape analysis.
Weaknesses: site-oriented survey, with no sampling and off-site collections.
Evaluation of data and Interpretation: survey data is incomplete and fragmentary. Interpretation is also preliminary, and is based on almost self-evident relationships between evidence and explanation. No exploration of complex social issues and whys.
Knowledge acquired: a picture of site types on the landscape and the intensity of human activity in the landscape. Better understanding of the site of Itanos.
Integrability: medium
Publication: not completed.

Itanos project profits from an international collaboration and a multidisciplinary approach especially in relation to the use of IT. Its conceptual framework is traditional even though methodological tools are new and innovative. They offer us a good background of research in the area and place their work in relation to earlier research on site as well as other survey projects in the area. Reports follow a rather systematic structure and describe the work undertaken in all levels, the greatest part of which cover clearings of earlier excavations, new test pits and architectural mapping. Thus, each year they report on what they did, what they found and where, giving us information on the different construction phases of architectural complexes, their location and topography. However, presentation of sites found during survey is only brief and does not give numbers and a satisfactory accuracy of chronological and functional definitions. For the moment, we only have a preliminary description of some sites in a narrative form, and general reports on site types found.

The project has been going on since 1994 and new methods are continuously applied, showing a flexible and innovative framework. However, variability in surface survey methodology, which in fact is not clearly presented and understood, creates doubts regarding the consistency of data acquisition and poses problems in data integration and analysis. In general, the landscape seems to have been walked in both a non-systematic and occasionally a systematic manner, with the aim of locating sites, which are

defined in advance as the locations of architecture, usually in combination with pottery concentrations. The latest surface exploration involved a team which walked in space intervals holding a GPS, with the aim to find 'sites' and plot them on the map. Sites, in turn, are topographically studied, which means that all their architecture is planned and mapped, but no systematic collections took place. Such investigations may be successful in discovering sites with substantial remains and creating maps useful for the visualisation of the horizontal spatial relationships between material remains; on the other hand, the fact that the off-site record is not studied deprives us of information on landscape evolution that can only be studied if landscape is treated as a continuous surface. Lack of site sampling also restricts our understanding of site extents and chronology. Moreover, environmental studies and geography have not been integrated in the spatial context of human activity. It is very important to view the landscape in its totality, as the interaction between physical environment and human action and not as the surface of locations of human activity.

Landscape Approach: the landscape is approached as the spatial context of locations of material culture. Weight is given on the geometry of monuments and the landscape, and by mapping their location, the principal aim lies in establishing the spatial extents of human activity over time.

3.6 Landscape Tradition

3.6.1 Survey id: Ayiofarango 77

Problem Orientation: aims and methods

This was the first regional, multi-disciplinary survey in Crete with a diachronic scope and aimed to reconstruct the settlement history of Ayiofarango valley over time, even though the prehistoric period receives the greatest attention and periods after the Late Roman, the least. It took place in 1971 and the diachronic study of human presence in the area was aided by the fact that no major human activity had altered the landscape and indeed even these days the area is one of the least changed in Crete. The choice of the survey area was based on the presence of known archaeological sites and in particular EM tombs, which after being looted, they were studied or partly excavated by members of the Ephoreia (Davaras, Alexiou). As archaeological work had not been successful in relating tombs with settlements, the discovery of Early Minoan and Minoan occupation sites was one of the most important aims of the Ayiofarango survey. However, historic periods up to modern times were also recorded and studied. A secondary, but not less important component of the project was its rescue character due to road construction activities planned in the area.

The area was covered in a semi-intensive manner, as although walking was not extensive judgmental, no systematic sampling was performed either, and the 15-20 km² survey area was covered by 4 students and 2 professional archaeologists (D. Blackman and K. Branigan) over a period of 1 month. Each day they decided on the area they wanted to explore, based mainly on judgmental, topographic and accessibility criteria and they tried to walk it as intensively as possible, looking for architectural remains, but also noticing distinctive sherd concentrations. Areas that seemed likely to host archaeological material, e.g. prominent hills, on which EM activity had often been recorded, were of priority, as has always been the case in most research projects. On-site, it looks like they collected sherds that could later help for the chronology of the site. The project gives a strong emphasis on the environment and its suitability for human activity and uses cultural-ecology methods to study man-environment relationships, marking the beginning of a new tradition in Landscape Archaeology.

Presentation / Relocatability

The presentation of this survey focuses mainly on two themes: the first concerns environmental characteristics relevant to subsistence; geological, soil and land-capability maps, together with a stratigraphical section and a 3-dimensional plan of the geomorphology of the lower valley, reflect the importance given at the time to soil sciences. The second is the presentation of site location and function per period, but maps have no topographic or indeed, locational information, so the outcome is a general picture of a two-dimensional spread

of sites in the area. The landscape maps presented are at a scale of 1:35.700, while site maps are at 1:37.000 and 1: 45.454. A rather detailed description of site location is given in the text, quoting topographic features, orientation and distances from already described sites and landmarks. Taking into account that Ayiofarango is an area that not major changes in the landscape have occurred due to agriculture or tourism, there is a chance that some sites can be relocated, but since site maps are published separately from topographic maps, visual correlation between sites and topography is not possible. Sites without distinctive architecture do, as always, pose the greatest problems. Presentation is completed through graphs and tables presenting various data and analyses, architectural plans and pottery drawings, while sketch maps of individual sites also appear occasionally.

Density per area / period

	area surveyed (km²)	Total site no	PH	GR	BVT	Modern	Unknown
	15	51	28	25	14	16	2
Or:	21 (map area)		25	24	12	15	2
Densities per km² (target population)		3,4	1,866	1,666	0,933	1,066	

Site definition: based on architectural evidence and sherds. Variability of site recovery is down to pottery concentrations. Densities are only approximate because the target population was never calculated accurately. Besides that, sometimes areas with multiple loci are described under the same site.
Regarding site-dating, it should be noted that apart from the cases where researchers express doubts, there are additional questions as to how they date sites, since there doesn't seem to be any consistency on the number of sherds considered adequate to assign a date. There are cases where 4 or 'a few' GR or Venetian sherds are not enough to give a relevant date to a site (e.g. E11), while in other cases (e.g. E14) 3 Roman sherds assign a GR date.

Interpretative Framework
The main interpretative themes discussed concern the identification of settlement patterns and their changes over time in terms of locational preferences, as well as the intensity of landscape use and human activity in the area. Results focus on population expansion and 'abandonment' periods (MM I-II, Late Roman and 20th century), and interpretative suggestions use themes such as nucleation / dispersal, urbanization and population fluctuations explained through environmental and socio-political factors. As an example, the drop of population (sites) in MM I-II and the 20th century was interpreted as the result of movement to urban centres. Prehistoric settlement reconstructions are influenced by concurrent popular theoretical models, which supported the idea of Minoan palaces performing a wealth redistribution role, promoting urbanization around them and other major centres (Ucko *et al.* 1972; Renfrew 1972). However, we lack an explanatory agenda as to why some sites are abandoned and others are not.

Theoretical developments of the 70's operated within an environmental and spatial analysis conceptual framework. Among the leading methods at the time, also applied in this project, are Site Catchment Analysis, including carrying capacity and proximity to fertile land. For this reason environmental studies focused on the production of soil and land capability maps, in relation to which archaeological sites could be studied. Economic models based on environmental potential are quite representative of the theoretical considerations of New Archaeology and become very much in fashion in the 70's. The results of such spatial analysis form the core of the explanatory framework used to describe the distribution and nature of the settlement patterns in the valley. Thus, Bronze Age sites are linked to fertile land and population estimates are based on correlations

between EBA settlements and tholoi, which are seen as representing a socio-political system of clans (Branigan 1970).

A strongpoint of the project is that time is not viewed as a static entity divided in slices / periods, but as a continuum of interactions between 'before' and 'after'. Thus, change is studied, for example in trying to explain the beginning of settlement history in the area, considering processes in a wide chronological framework. Data from other researchers in the wider area are also used to suggest that the earlier period of Final Neolithic should be seen as a period of either permanent or at least seasonal occupation in the area, resulting to the population expansion attested in the beginning of the Bronze Age. Slow, internal processes are favoured over sudden and external factors causing change. Modifications of the settlement patterns in the Roman period are explained by the shifts in sites of religious importance and, as said above, by urbanization. At the same time, diachronic patterns are explored through culture, religion and economics (Appendix by J. Bintliff).

A conscious effort for some explicitness and a critical approach, typical of the rising theoretical complexity at the time, is evident in considerations of the interpretative problems caused by the problematic nature of the surface record. For example, dating is noted to be problematic when dependent on small amounts of pottery and unknown coarse wares (Venetian, Turkish), but the duration of a period is also admitted to hinder interpretation, for example EM II provides more material, but it's more identifiable comparing to EM III and it's a longer period than EM I.

Influential References and Sources: The work of Travellers, as well as of other previous and current researchers (P. Warren, P. Faure) is used as data and information sources. C. Renfrew and the trend of studying urbanization have influenced interpretation and so has the work of Higgs who promoted a methodological framework based on environmental studies.

Summary Assessment

Strengths: quite good records of sites discussed presenting data separate from interpretations; environmental study.
Weaknesses: unsatisfactory site definition, no consistency in recording and sampling, not good relocatability. Problems with definitions, e.g. 'Modern' is not defined; the resolution of the 2nd millennium A.D. is too low.
Evaluation of data and Interpretation: even though data observed are described, methodological and presentation problems make the assessment of interpretations rather difficult. However, results are viewed within quite a complex interpretative framework taking into account environmental, socio-political and economic issues.
Knowledge acquired: archaeological and environmental data of the area, interpretative suggestions.
Integrability: medium
Publication: completed

The Ayiofarango survey is one of the first inter-disciplinary projects and marks the beginning of a landscape approach to be followed by many intensive survey projects in Crete. The detailed environmental study provides a useful insight into the relationships between human activity and environment, while the intensity of the project resulted in quite a high number of sites in the area in comparison with extensive approaches; An effort for a 'scientific' scope of study is evident in both the incorporation of detailed environmental studies and the fabrics analysis, which again is one of the first examples in survey projects. The complex theoretical framework used, evident in both methodology and interpretation, marks this project as a definite innovation and landmark in Cretan landscape research. Researchers try to be explicit in their interpretations by providing detailed descriptions of the data observed and they often express their doubts as to assigning specific chronological and function interpretations to sites.

On the other hand, site definition is quite problematic as there is no consistency between data and interpretations. The fact that no sampling took place and the obscurity of what criteria were used in recording and collecting material causes problems in assessing methods and results and deprives us of potential quantitative comparisons, for example we do not know the size of the area surveyed or variations in site size over time and space. Admittedly, these problems persist even in current survey projects and are either due to recording failing or lack of standards in publication. The lack of knowledge of coarse wares, the debatable use of too small numbers of pottery in site definitions, but also other problematic issues in survey (visibility, survival of material etc) in combination with the long periods of 'abandonment' and too broad chronological periods, also add a feeling of ambiguity. Consequently, results can not be easily and explicitly incorporated with those of other intensive survey projects, and although this doesn't diminish the value of the project we should be particularly careful on what basis we may integrate sites and interpretations.

Overall, this project brings us closer to an understanding of the history in a very poorly known area and the explanatory framework regarding settlement patterns exploits to its best the study of the relationships between environment and sites. At the same time a socio-political approach as well as the use of ethnographic parallels (territories of modern monasteries comparable to peak sanctuaries, transhumance in the valley, rise of urbanism etc) contribute towards an all-embracing framework in explaining settlement changes. However, problems regarding refined chronology and site type as well as site definition, suggest that we should pay attention on how we use the data when trying to reconstruct settlement patterns.
Note: their interpretation of some sites as peak-sanctuaries, doubts later A. Vasilakis (Vasilakis 1989) on his further research in the area.

Landscape Approach: landscape is perceived as the geography of an area with environmental possibilities and constraints for human habitation. Environment is studied independently from archaeological recording, but considered in relation to site location. Topographic descriptions aim at facilitating relocatability.

3.6.2 Survey id: Lasithi

Problem Orientation: aims and methods
Lasithi survey was undertaken by L.V.Watrous in 1973 and was the subject of his PhD research. His aims were the documentation and discussion of the history of ancient settlement in the highland plain of Lasithi, an area claimed to have been chosen for being geographically well-defined and archaeologically well known. Focus lies on economic life and the questions asked are defined clearly: 'how did the ancient inhabitants in Lasithi live' and 'what is the historical meaning in the successive transformations of the settlement patterns on the plain'.

This is one of the earliest 'intensive' surveys in Crete; it was conceived and carried out within the theoretical and methodological developments of landscape archaeology in the early 70's. Environmental considerations play an important role in the project, and multi-disciplinarity involved also historical and ethnographical research, which seem to be the basic (if not the only) sources for the post-Roman periods.

Fieldwork lasted for 4 months. The foothills up to 200m were walked at 10-30m intervals by 3-4 people, who looked around carefully for sites. The plain was only traversed at various points, as it was estimated to not have hosted major sites due to flooding. When a site was found a visual estimate of its size was attempted. It is mentioned that on multi-period sites the area was walked and sampled at intervals in order to find relative localized areas in different periods. At that early stage intensive surveys involved inspection of the surface with attention and dedication of time, but neither the off-site record nor the sites were systematically sampled. People walked around the landscape in a rather intensive manner looking for concentrations of material that could be identified as sites. Sites were identified on the field based on artefact concentrations, while architecture and pottery study undertaken on the field aimed at defining site-chronology.

Presentation / Relocatability
Presentation consists of contour maps with relevant sites per period at a scale of 1: 77,000 and a contour map of 1:50,000 with present day villages. The contours have no altitude information, but altitude is often given in the text. Site records give us information that would help relocatabilitysuch as orientation, distance or time from known villages, toponyms, and topographical descriptions. Presentation also includes object drawings and architectural maps, while some sketch maps show architecture in relation to a road.

Density per area / period

	area surveyed (km²)	Total site no	PH	GR	BVT	Modern	Unknown
	48	77	61	40	16	0	0
Or:			58	39	14		
Densities per km² (target population)		1,604	1,270	0,833	0,333		

Site definition: sites are not explicitly defined. It is only said that sites produced potsherds, stone artefacts, traces of walls or a combination of them all. Concentrations noted were down to a size of 10x10m. Site description includes topography, visible material culture, catalogued pottery and sometimes interpretation. Interpretations, however, have been extremely difficult to classify; the term ‘site’ is used broadly, leaving the impression that the term is considered equivalent to a settlement. When interpretation is not clear, however, the site takes an ‘unknown activity’ characterisation in the database.

Interpretative Framework
The influences of New Archaeology’s theoretical developments are apparent throughout the study. A systemic approach that uses analogy and identifies recurrent and hierarchical economic patterns draws on historical and ethnographical studies of subsistence and economic relations of the population in the plain, as an indication to probably similar circumstances in the PH period not only in Lasithi, but also in the rest of the island.
The geographical and environmental background of the area is presented in a text description prior to the settlement history narrative so as to provide a general context within which to view human activity throughout history. A mental picture of the physical landscape is regarded as a prerequisite to an understanding of the subsistence potential and possible mode of living, and prepares the ground for conclusions regarding locational choice, subsistence, transhumance and communication. At the same time, the importance given to ‘scientific correctness’ is noticeable in attempts such as the assessment of the recoverability of sites on the surface, which is based on the study of 2 profiles. This revealed PH sherds about 0.50m below the surface, but since sherds of the same period were also present on the surface it is assumed that not many PH sites should have been missed.

Interpretation is based on the identification and characterization of sites in relation to archaeological evidence, their geographical characteristics and environmental surroundings. Artefact study and quantity, the location of the sites, environmental data, the known archaeological record, the ethnographical work undertaken and historical sources guided the reconstruction of settlement patterns over time. Thus, FN / EMI sites with a small amount of material and a preference for some distance from the plain were interpreted as possible seasonal pastoral sites according to ethnographic examples. EM II – LM I is seen as a period of growth and continuity of settlement towards a more sedentary form of life. Small MM III sites were interpreted as metochia, or seasonal farmsteads used by people from a main settlement. Population fluctuations inferred from the varying numbers of sites, are explained mainly via immigrations and emigrations, while settlement movement is seen as a result of economic factors such as economic centralization and intensive exploitation

of the plain linked to larger economic systems e.g. LM I Malia or Venetian demands. Hence, LM I scarcity of material is explained via emigration and urbanisation, while site location on the plain is seen as the result of a wider economic structure centred at the palatial centres, in which the rural areas produced goods to be used in centres (Malia) and in turn imported luxury goods. It seems that prevailing views of the Culture-History tradition are also adopted, e.g. it is implied that LM II destructions were due to the Santorini eruption. Along the same lines, the idea of Minoan unity under Knossian control is favoured with suggestions such as, that the Mycenaean presence in Lasithi was part of the system of garrisons around Crete responsible for the flow of tribute to Knossos.

As a conclusion, reconstructions of past social histories focus on subsistence (farming, herding, and hunting), permanent and seasonal settlements, production, contacts, settlement movement (from higher hills to areas closer to cultivable land), burial and religious practices. Locational choice is explained via geography, environment, political and social reasons. Diachronic patterns are sought and noted, such as the exploitation of the plain by invaders (Mycenaeans, Dorians, Venetians) and the reaction of the inhabitants by deserting the plain in LM IIIC, Classical and Venetian periods respectively. Besides that, the same pattern of subsistence and living throughout history is identified, extrapolated from periods with historical and ethnographical sources and based on adaptation principles.

Influential Sources: The history of archaeological research that involves the excavation of many sites was used as a source of information but also influenced aims and interpretation. It is stated that Lasithi survey intended to carry out Pendlebury's work whose series of excavations in the plain aimed at the reconstruction of a history of ancient settlement.

Summary Assessment

Strengths: wide interpretative framework, systematic work and multi-disciplinarity.
Weaknesses: no sampling, not fully diachronic, no clear criteria used for site interpretations.
Evaluation of data and Interpretation: archaeological data is collected only up to LR even though descriptive accounts of life in Lasithi include the Venetian period and 19th-20th centuries. Lack of sampling and the study of material in the field allow some doubts as to the reporting of a complete spectrum of human activity. Interpretation follows usual trends in Minoan archaeology and is also influenced by New Archaeology, covering a wide range of economic and social issues in settlement archaeology.
Knowledge acquired: loci of human activity per period and interesting interpretative suggestions regarding economic histories.
Integrability: medium-high
Publication: completed

Lasithi survey is a typical product of landscape research in the 70's when reconstructions of ancient histories through survey came very much in fashion. The choice of such a unique geographically area (a plateau 800m above sea level and surrounded by mountains) that constitutes an environmental 'pocket', makes a diachronic study particularly interesting. A Modernist approach with emphasis on subsistence, systems and repetition of patterns of living is discerned throughout the study. The fact that walking was intensive and not based on judgments of 'where sites should be' allowed the discovery of small sites that elucidated a diverse picture of human activity in ancient times. In fact, sites down to a size of 10x10m are included in the catalogue.

What we ultimately have is an account of how people lived in different periods, a narrative history. We are clear about how the writer sees the past and we get a variable picture of human activity based on a multi-disciplinary approach and the rich archaeological knowledge of the area. Narrative is fully diachronic, but post Roman periods are only partially and historically / ethnographically documented. The Venetian period is based on Spanakis's work (Spanakis 1957, 1976) while the 19th and early 20th centuries, on the ethnographical work undertaken by H. Blitzer and there are also some brief references to travellers (Pashley and Spratt). The

Byzantine and Turkish periods are not discussed and receive no comment as to the respective archaeology. One wonders whether anything at all was actually found, or these periods were either totally unrecognizable to the researchers or of no significance archaeologically. It seems that the significance of later periods was in the identification of evidence and modes of living that could be used for relevant interpretations in ancient times. In any case, the ethnographical work is very interesting and helpful in understanding life in such an idiosyncratic environment and was the first such work to take place under the hospice of an archaeological project.

A problem that we have to deal with is that site definition and characterization (in particular that of a settlement) seems quite problematic as there are no definable criteria upon which interpretations are based. Lack of systematic sampling does not allow studying densities of human activity across the landscape and creates problems in the definition of site extents per period. Presentation is also weak compared to nowadays standards, with not enough visualisation of the data and interpretations discussed. Maps show dots that represent sites in relation to contours and thus one can of course also note distances between them, but they are all treated as if they are of the same function and thus human presence in the wider landscape is poorly represented. Such problems though, are present in most landscape archaeology reports still now, even if off-site sampling has actually taken place.

Overall, this project had a pioneer character and was most important for its time. Multi-disciplinary and diachronic, it applied new methods and a wide interpretative framework. It manages to construct a history of ancient activity illuminating a poorly known but very interesting area and discusses society from various perspectives, giving us clear interpretative suggestions with which we can agree or disagree.

Landscape Approach: the landscape is seen as a spatial entity of characteristic environment and geography where human behaviour develops accordingly, but not in an environmentally deterministic sense, as social factors are not neglected.

3.6.3 Survey id: Kommos

Problem Orientation: aims and methods

This survey project took place in 1978-79 under the direction of Hope-Simpson, as part of a long study at the site of Kommos and its wider area. The site is a very important Minoan town, brought into archaeological attention already in the beginning of the 20th century and excavated systematically from 1976-1985 (study seasons lasted until 1990). Large scale excavation was complemented by fauna, flora, geological, soil and landuse studies, as well as a systematic survey. The aims of the survey are not explicitly declared, but these are implied by statements such as ‘we believe that we have achieved our objective of locating and recording almost every significant **observable** (emphasis in the original) site or “scatter” of ancient artefacts in the survey area’. The principal aim of the whole archaeological investigation in the area however, was ‘to understand the physical and archaeological character of the town’ and surface survey was one of the “methods” used.

Out of the 25km² of the area of interest, they investigated about 70%; the other 30% was inaccessible. Walking methods are declared to be ‘simple and traditional’, investigating hilltops and slopes but also valley bottoms, traversing both along and across plateaus, terraces, and valleys. As in other projects of the 70’s (Lasithi, Ayiofarango), field investigation was not planned upon a specific sampling technique and no off-site collection took place. The area of interest that could be explored on foot was walked as carefully as possible and researchers looked for sherd concentrations and other material remains that seemed to represent sites. Surface collection was confined mainly to sites, even though the site catalogue includes many sites/scatters, where from no finds were collected.

Presentation / Relocatability

Field investigations were based on Second World War RAF photographs, which in combination with field measurements produced topographical maps of about 20m contours. Their accuracy is stated to be low as there was no field control (apparently there were no maps available, and certainly neither was the necessary technology at that time). However, sites are claimed to have been recorded reasonably accurately within 20m of their exact location, as they could all be positioned on the air photographs. Extensive text description together with toponyms used in site records should allow quite reasonable chances of relocating sites.

The location of the sites is given schematically, so what we actually acquire is an idea of the approximate location and a basic visualisation of the discussed patterns (sites per chronological period). Presentation includes object and landscape photos, sketch maps of architectural remains, while soil and landuse maps are included in separate sections of the volume.

Density per area/period

	area surveyed (km²)	Total site no	PH	GR	BVT	Modern	Unknown
	25	120	63	86	13	5	1
Or:	20.59 (map area)		58	78	11	4	1
Densities per km² (target population)		4,8	2,52	3,44	0,52	0,2	0,04
Densities per km² (sampled population)	17,5	6,857	3,6	4,914	0,742	0,285	0,057

Site definition: the term ‘site’ is used to describe ‘places where evidence is sufficient to warrant the conclusion that a habitation, burial, or other type of ancient site actually existed at, or very near, the precise location of the surface finds’. Ancient structures were the most secure evidence, especially when they could be dated. Sites were classified as large (i.e. 10.000m²), medium (2.500-10.000m²) and small (under 2.500m²). No site sampling actually took place, measurements were rough and the spread of artefacts is not believed to necessarily represent the actual extents of the site. Scatters are called ‘large’, ‘moderate’ or ‘light’ and from the last, finds were usually not collected.

Interpretative Framework

Interpretation was based on surface data that were not collected in a consistent manner and in many cases no sherds were collected at all or they were identified *in situ* (e.g. ancient Metallon). However, it is believed that ‘the artefacts analysed constitute a representative selection of the evidence of ancient habitation in the area in all the periods recognized’, even though one wonders how certain this can be with no sampling and often no laboratory work. Site size was estimated and not measured, and we presume that eye observations classified sites as large, medium and small, even though artefact spread is stated to not be a trustworthy criterion in defining site size; The project’s investigator commends briefly on the problems of interpreting the surface record due to changes caused by erosion, sand cover, sea level changes and modern agriculture and as an example, the lack of Minoan finds in some areas was thought to be due to later disturbances (e.g. ancient Metallon was densely occupied in Roman times). Visibility problems due to vegetation were also considered and in some cases problematic areas were revisited the second year. Overall, there seems to be little trust on the surface record, which is interpreted according to the obvious relationships between approximate location and pottery quantity.

The site catalogue gives text descriptions of site-location and the data/evidence observed. The information presented, and thus considered important, include the chronological periods recognised, but in the great majority of cases no function for each period is discussed. As a result there is no distinction between presence of human activity and certain habitation. As shown in the discussion of the settlement patterns, however, it seems that settlement or habitation is in fact implied for all sites, as if it is common sense that pottery concentrations always represent settlement activity. As an example, in one case the presence of a Minoan sherd is presented not as certain Minoan presence, but as possible Minoan habitation. The project's diachronic approach hardly reaches the Medieval (apparently Arab and Byzantine) and Venetian periods, which are practically only mentioned, while locations of modern activity are mentioned only so as to serve relocatability. Interest lies not in diachronic dynamic landscape reconstructions, but in reconstructions of the density of ancient settlement. These are in fact typical characteristics of the Culture-History tradition, which however survive in the Landscape Tradition as well.

Interpretation of the settlement patterns is based on a correlative approach, reporting locational preferences in different periods. Altitude, slope and distance to the sea are the major geographical characteristics observed. Thus, Minoan sites are often found in clusters and there is a preference for south slopes sheltered from the winds. FN/EM I has been found near the coast and possibly at a later stage on hills and ridges further inland, perhaps a sign of insecurity. Habitation on the hills is in general interpreted as a sign of concern for security in all periods, even if in the MM IB for example, both hills and the coast are inhabited. The usual EM II population increase is also attested here and the increase in the size and number of MM sites shows a continuation of this trend. The lack of sites between EM II-MMIA is interpreted as a period of centralisation probably around Phaistos, an interpretation connected to the rise of the palaces and supported by Minoan archaeologists in general across the island. Similarly, the small number of LM III sites of large extent shows a tendency for nucleation. The weight is by far on observing nucleation versus dispersal of sites/ settlements and not so much on the kind of sites, the activities represented in the landscape and what these might reveal for the relevant societies. Discussion of this theme uses the combination of the size of settlements and the number of sites, even if sizes were only estimated and not reported for every site in the catalogue. In short, quantity and dispersal of material is studied in order to conclude on extensive or restricted habitation of sites and country, as well as on preference of location over time. An interesting point is that the re-habitation of some sites during Protogeometric to Archaic times is explained through an idea much favoured in post-modern theory, namely memory (sites were previously inhabited in LBA).

Influential sources: the main framework is settlement archaeology of the 60's and processual work on environmental issues. Interpretation has combined a Culture-History framework with New Archaeology developments.

Summary Assessment

Strengths: rather critical attitude, effort for good site descriptions.
Weaknesses: no function interpretations. Limitations in data analysis and interpretative framework.
Evaluation of data and Interpretation: the data acquired are subject to the limitations of the field approaches of the time. Interpretation seems to treat all loci of activity as habitation sites. It does not explore socio-economic relationships.
Knowledge acquired: good descriptions of site locations and evidence observed. A picture of the density of human activity in the area.
Integrability: medium
Publication: completed.

Kommos survey is one of the tools employed in a much larger project in the area, which studies the history of one of the most important Minoan sites. It benefits from excavation work at the site and gives us important information regarding the history of ancient settlement in its immediate area. The emphasis of the survey

report is on the detailed descriptions of observations made. Text descriptions remind us of Culture-History reports, even though the approach of exploring the physical and cultural landscape in an intensive manner and diachronically, classifies the project into the Landscape Tradition. This is one of the first large scale surveys in Crete and as in other similar cases, one can recognise a Culture-History theoretical framework regarding field methodology of 'let's look around as carefully as possible and try to identify periods of occupation'. Only now work is more systematic, there is a large amount of time and people invested and projects incorporate organised environmental studies.

Hope Simpson's attitude to surface survey is well known through his earlier publications and his statements here are quite characteristic: 'it should be realized that surface surveys alone, even when of "intensive" type, cannot be relied upon to produce anything approaching a complete picture of the patterns of ancient settlement'. As he states, for sure earlier deposits are most likely to be obscured by alluviation and later deposits and observations have depended on time allowed. Hope-Simpson's traditionally critical stance towards survey does of course remind us of its limitations and the caution with which we should interpret our data. Indeed, site movement and size changes have been reported and studied repeatedly. However, the point is not whether survey is more valuable than excavation, but what we can gain most from both these methodological tools. It is a fact that neither survey nor excavation can provide us with a 'complete picture' of ancient activity or ancient settlement. Moreover, the 'intensive' type undertaken in the 70's is not that intensive in comparison with later developments; the merits of an off-site approach have been adequately discussed since. The complexity of the surface record is certainly great, but as survey developments have demonstrated, we can also improve reading and understanding it.

A rather important weakness in the survey report is that site information is not clear and adequate and does not allow us to reconsider interpretations. Mapping is limited to the approximate visualisation of site location and does not allow analysis, which is further restricted due to lack of sampling and the limited material collection. The fact that the site catalogue presents only chronological periods found, and the treatment of most but not all sites as settlements in the discussion, perplexes the reader over which site is interpreted as what and why. Evidence that is not reported in the catalogue is used, e.g. size and certain function of sites and in general, lack of consistency and controllable field methods limit understanding, and instead, promote the acceptance of a reconstructed density of human activity with no objection. This is of course a rather usual situation in survey reports and I am not necessarily suggesting that results should be significantly different if better field and analysis methods were used; however, interpretations should certainly be clearer.

Still, the sincerity over the restriction of the evidence available and the poor quality of the maps as well as the effort to be cautious in using the evidence available should be acknowledged. The picture we acquire over the density of human activity in the area is no doubt significant and descriptions of landuse and topography help us 'visualise' how people might have lived.

Landscape Approach: the landscape is approached as the spatial context of material remains, and as a physical landscape that can help us understand the reasons of locational preference.

3.6.4 Survey id: Chania

Problem Orientation: aims and methods

This project (one-person survey) was undertaken by Jennifer Moody from 1978 to 1987 towards her PhD thesis. The aims were declared to be twofold; 1) to reconstruct the settlement system that supported the Minoan centre in Chania and compare it with the one existing in central Crete and Messenia and 2) to test systematic sampling in the rugged terrain of Crete. The area of influence and interaction between the Minoan palace in Chania and its hinterland (survey boundary) was defined upon economic criteria, namely the time usually spent to and from market places. It was hypothesised that an area within a 3-hour distance from the Minoan palace

in Chania (and similarly Knossos and Pylos) would define a large enough boundary and target population on which various statistical models could be tested.

The end of 70's was a time of fast developments in archaeological theory that encouraged questions of cultural growth and change particularly within a cultural ecology framework. Landscape studies were acknowledged as the means to reconstruct the processes that led to specific settlement distributions and were reinforced with the adoption of systematic surface survey, the application of statistical techniques and the co-operation with other disciplines, mainly ecology and geography. The methodology followed in this case was formulated within a theoretical framework that stressed the importance of environmental studies, multi-disciplinarity and field survey and included the study of previous archaeological research in the area, the collection of new data via field survey, and the application of statistical tests.

Field methodology included both extensive and intensive techniques. The landscape was initially divided into 2km² areas on the map and secondarily into field units which were walked in transects of a 7-20m interval. Walking transects could in fact be 'contour', 'terrace' or 'straight linear' depending on the topography. Basically, it seems that the landscape was divided into larger or smaller topographical units which were walked in different ways according to what seemed most appropriate, until a scatter was identified. There were no consistent off-site counts, but 'sites' or 'scatters' were identified upon a visual estimate of higher artefact density and importance of the material. Regarding site sampling, steps included the measurement of the circumference of an activity locus based on the spread of architecture and artefacts, its plotting on the map and the collection of 1 or 2 samples, as well as diagnostics from the whole site. The sampling unit was defined as a circle of a 70cm radius. Landuse played an influential role on the decision of field methods and sampling.

Presentation / Relocatability

The maps used were the Greek Military Maps of 1:5000 and British Army Maps of 1km² grids, but the ones presented are of 1:142,857, 1:133,333 (topographical), 1:650,000 (geological) and 1:200,000 (sites). Site information is given in a consistent manner and principally comprises location including map co-ordinates, nearest village and toponyms, size, distance from the coast and Chania, history of research, functional and chronological interpretations, and environmental description. Presentation offers a pretty high level of visualisation including maps of statistical analysis and numerous tables and graphs. In general the visualisation of both methodology and interpretation is given great emphasis. Relocatability is said to be quite good and it is expected to be so, considering that the landscape is pretty stable in Akrotiri and locational description quite detailed. However, based on the scales presented and as site-maps do not include topographical and modern features, scatters would be quite problematic to relocate.

Density per area / period

	area surveyed (km²)	Total site no	PH	GR	BVT	Modern	Unknown
	171	272 (29 from previous research)	266	115	125	12	6
Or:			257	107	119	12	6
Densities per km² (target population)		1,59	1,555	0,672	0,730	0,070	0,035
Densities per km² (sampled population)	146	1,863	1,821	0,787	0,856	0,082	0,041

Site definition: in the beginning it was decided that 'a site would be defined as a place where a density of 4+ artefacts per sampling unit (a circle of 70cm-radius) was found'. Soon however, 'less dense artefact scatters were also recorded and called 'scatter''. Function interpretations were based on both material culture present and the topography of the location and include six categories: habitation, scatter, sacred, burial, isolated find and quarry. Site sizes range from 0.3 – 7.64 ha and have defined a relevant site hierarchy: level 1 (large towns): 7+ha (80+households), Level two (towns): 5-3.5ha (50-40 households), Level three (villages): 3.49-2.4ha (38-28 households), Level 4a (small villages) 2.3-1ha (25-15 households), Level 4b (hamlets): 0.99-0.28ha (15-8 households), Level 4c (single houses or farms): 0.03-0.2ha.

Note: Some sites could be a single dispersed settlement or different habitations. Moody states that she separates the sites because it's easier to combine information than to divide it. Additionally to the 272 sites of the Kydonia (Chania area), the catalogue includes 30 more known sites from the wider area of western Crete, which although not in the survey area, they influenced interpretation.

Interpretative Framework

This is one of the first New-Wave surveys in Greece and the first one to apply sampling techniques in Crete. The theoretical framework, upon which it is based, is quite characteristic of the developments of New Archaeology; it sets questions of socio-economic relationships as an understanding of past human behaviour, stresses the advantages of intensive surveys over extensive and demonstrates the usefulness of statistical applications comparing to personal speculations. Aiming at general reconstructions of mode of living in different periods Moody uses her data on a background of already existing interpretations. Thus, interpretation formulates within the theoretical framework of Minoan archaeology and explores themes such as overseas contacts, peer polity, subsistence, territories, influence spheres, site-interaction, exchange networks and hierarchy looking at similarities and differences between periods and the different parts of Crete and seeking the origins of identified social and economic systems e.g. the MM hierarchies might be seen already in the EM period. The underlying theme is the 'interaction between general cultural growth processes and the changing constraints of local environment and human cultures' and within a strong cultural ecological perspective, change is seen as a gradual, internal process occasionally punctuated by external stimuli.

Ecological considerations played a leading role in function definition, but also in the study of site distribution. Environmental factors, specifically topography, elevation, geology and water, were recorded consistently and examined in relation to site location in order to determine correlations and study environmental influence. Subsistence potential is thus, studied in a structured way as it is considered very important for the understanding of the development of human cultures. Inferences on the character of a site whether agricultural, pastoral, industrial etc and the efforts to read seasonality, are based on the quantity and nature of material but also on the location of sites in relation to the geography. Studies of erosion and sedimentation history were used in order to assess agricultural land while subsistence studies include environmental research such as pollen and animal data, which incorporate studies regarding the exploitation of animals for primary or secondary products.

The analysis was based on a variety of statistical methods, which explored systematically and diachronically, trends in the relationships between site types and environment as well as spatial associations among sites for all hierarchical levels. Hierarchy has traditionally been defined upon size differences and amount of sites in each size-level per period and in this case calculations of size resulted in the definition of a four-tier hierarchy (see site density section), whose changes are followed over time. Distribution is explored in terms of the correlations between environmental factors and sites of different hierarchical level. The significance of environmental associations was estimated very high and proximity to exploitable sources was identified as the strongest correlation between environment and site location, but as patterns were not predictable the probability of proximity to already existing settlements as a social factor influencing choice of site location was also examined. Territory, inferred mainly from distance relationships between sites, but taking into account also site size and catchment area, is also a fashionable theme explored within hierarchy studies.

The relationship between settlements of different rank and critical environmental variables is thought to illuminate their function but also their role in a wider site-interaction system, while clustering and dispersal among sites of both different and the same hierarchical levels are thought to reveal a social character in the decision of the locality of new sites relevant to their function and hierarchy level. Indeed such an approach hints to characteristics of a site such as its relationship with agriculture, industry, commerce, its self-sufficiency, socio-economic sphere etc, however, divergence from patterns such as the reasons why only some cells of the same environmental values were inhabited and not others was not discussed adequately.

Overall, the interpretation of the site distribution aimed at and resulted in, the reconstruction of the settlement system or else the socio-economic and administrative circumstances that created the observed distribution of sites. The explanation of the settlement system was based on the definition of a hierarchical structure and interaction between sites, which were analysed in terms of function, location, population and subsistence. Population and size calculations were also used to infer internal site structure e.g. EM sites were viewed as not densely inhabited. However, the social meaning of dense or not occupation of a site was not actually discussed. The interpretative framework promotes the consideration of a variety of factors, economic, social, political, religious, and environmental and is formulated within a wider discussion of states, climatic influence, exchange networks, contacts and influence spheres. Change is studied as an intra-cultural development and it was concluded that settlement differentiation in Akrotiri was the result of small-scale, local processes. General, systemic concepts within the project's theoretical approach are evident also in explanations such as, that the fall of the palace systems might be seen as the result of competition caused by decentralisation.

Influential References and Sources: New Archaeology sampling and statistical analysis theory shaped Chania survey and its analytical techniques. Interpretation was formulated within the same framework influenced by Geographical theory and studies regarding the inter-relationships between social organization, exchange networks, administrative systems and material culture distributions e.g. Smith (1976), Renfrew (1972, 1986). A cultural evolutionary perspective is also evident in discussions about the Chania state (Friedman and Rowlands 1978a and b; Friedman 1982). Moreover, all previous archaeological research in the area has been used as sources of information and interpretative background.

Summary Assessment

Strengths: Multidisciplinarity. Strong theoretical framework, emphasis on methodological and analytical principles; effort for clear relationships between aims, methods and interpretations.
Weaknesses: problems in the relationship between site sampling and hierarchy models. Site interpretations not always clear.
Evaluation of data and Interpretation: the amount of work, the holistic approach, the attention to methodological correctness and the multifaceted interpretative framework allow valuable insights in the past of the Chania region. However, site size estimates based on visual approximation of material spread and not on grid sampling, are not precise enough to allow strong models of hierarchy per period.
Knowledge acquired: for the historical periods we basically learn about places where material was found, but there is no further study. We gain a much clearer picture of the PH periods and socio-economic processes.
Integrability: high.
Publication: completed.

KASP project was part of the outbreak of New-Wave surveys, a response to archaeological interest in questions of cultural process, which necessitated systematic study of the landscape at a regional scale and usually a diachronic level. Archaeological theory borrowed many concepts and methods from New Geography (central place theory, catchment area, sampling and statistical analysis etc) and this is a rather typical

example where most ‘new’ concepts and methods are used. The strong theoretical framework is supported by extended discussion of both field methodology and interpretative approaches. Discussion includes issues of recoverability, survey biases, the effectiveness of field methods and biases in the statistical methods used in analysis. Subjectivity, the problematic nature of surface data and the speculative character of interpretations are therefore stressed, within a theoretical framework that considered both the potential and constraints of archaeology. The fact that archaeological conclusions may be nothing more than hypothetical postulates was already acknowledged within the Culture-History tradition and researchers have in general been cautious regarding the certainty assigned to their interpretations. However, it is within the New Archaeology tradition that for the first time some effort is made to assess and estimate biases and the varying degrees of probabilities in archaeological explanations. Comparison of survey work became the means towards regional reconstructions, but it was acknowledged that the variability of intensity and quality in fieldwork posed significant problems. Still, Moody expresses the optimism of the time that one should analyse and interpret ones data rather than not even try, as long as the limitations of that data is stated and understood.

Structured and ‘objective’ methodologies are given a great importance and a holistic approach is pursued in order to understand cultural behaviour in the past encompassing archaeological, environmental, historical and ethnographical studies. The reconstruction of the settlement system in the PH period is based on descriptions of site function, distribution, population estimates and hierarchy and it explores the social and economic nature of defined chronological phases. Excavation data and research already undertaken in Minoan archaeology constitute a general interpretative framework within which KASP survey data are interpreted, seeking differences and similarities between Eastern and Western Crete and testing the proposed reconstructions.

One of the greatest advantages of this project has been Moody’s development of a coarse ware chronology, reinforcing the analytical potential of surface pottery, which by default is the least diagnostic. The approach has led the way for most regional projects and indeed its contribution to survey interpretation has been significant, even more so when rugged and little known areas such as western Crete are concerned, where coarse wares are usually the best we can get from the surface. Moreover, the significance given to explicitness defined a clear structure in the presentation of problem orientation, aims, methods and results. Analysis upon which socio-economic interpretations are based is also clearly presented and includes: discussion of site types for all periods in the survey area, discussion of the methods used in population estimates (the only survey which performed various calculations including and excluding possible sites), presentation of the correlation between site location and environmental factors, correlation between specific site types and environmental factors and comparisons of identified correlations over time. Hence, the strong theoretical and methodological framework attested, allow quite a high credibility on data and interpretations.

The main problems encountered concern the fragmentary nature of site sampling but also the presentation of interpretations, specifically the site catalogue, which although has a well-defined structure, interpretations of site functions are often unclear. Quantitative and qualitative criteria even though used to determine site characterisation, are not discussed explicitly and in relation to their variability over time so that we understand what sites are called habitations, which ones can not be interpreted and in which cases only presence of material was noted. The distinction between substantial but uninterpretable quantity of material and simple presence is usually not possible to make. The problem becomes worse due to the focus on the PH period. In most cases functions are stated only for PH times while later periods are stated as being present even though we usually can not be sure whether only a couple of sherds were noted or a substantial amount which either could not be interpreted or its interpretation was not considered important. When a site is called ‘Minoan habitation’ and periods of several hundreds of centuries are noted, it seems to be implied that the site is interpreted as a habitation for all this time. However, the hierarchical differentiation proposed on the basis of site size is not clear for all periods, as site size does not vary per period and one wonders whether the same size is applied to all periods in the analysis of hierarchy that follows. For example a site interpreted as ‘Minoan habitation’ that exhibits material from pre-palatial to late palatial times (could be more than 2000

years) and which according to its spread of material is classified as a village in LM I, is it taken to be a village for all PH periods noted on site? Moreover, characterisations such as 'Minoan and later habitation' where periods up to Turkish times might be noted, increase the ambiguity of interpretations (is this site considered to be a habitation for all later periods noted on site?). Comments in the text that follows every site description are usually not of much help in understanding the process of interpretation. Nonetheless, this project remains a very good example of methodical consciousness in the process of data acquisition, interpretation and communication.

Landscape approach: the landscape is seen as a spatial entity with specific environmental conditions, within which human cultures develop in a unique man-environment inter-relationship.

3.6.5 Survey id: Palaikastro

Problem Orientation: aims and methods

The site of Palaikastro in eastern Crete has been studied since the beginning of the last century with a series of excavations, on-going today. Extensive researches in the wider area over the years has led to the identification of many Bronze Age find places (Wroncka 1959; Kanta 1980) and excavations have revealed several loci of settlement, burial and religious practices. In 1983 an intensive survey of the site was undertaken, initiated by the urgent need to record the prehistoric remains before modern construction and erosion destroy all crucial evidence. Survey was used as a means to define the town's boundaries, network of streets and routes of access. By plotting deposits and recording all architecture within the town they tried to establish how it changed size and activity foci over different periods of the Bronze Age. The combination of survey and excavation data in the wider area aimed to study the history of the development of the town in relation to activity in the surrounding area.

The urban area explored was about 36 hectares and the field method used is described as 'systematic examination of the chosen area, field by field, noting and sketching architectural and other features'. Aerial photography (balloon photos) allowed a more successful navigation on the ground through the preceding identification of land features. It is supported that sherds were not collected due to their immense amount, worn condition and the extensive reoccupation of the town in LM III, which conceals earlier material (only excavation is thought to be suitable for earlier phases). Instead, subjective counts of 'dense', 'light', 'sparse' and 'nil' densities were taken, on the basis of ground tests which related these terms with real numbers per m². Surface studies were reinforced by a magnetic survey of 13000 m² in order to 'complement the conventional site evaluation in the elucidation of major wall locations'.

Presentation / Relocatability

Presentation consists of a general contour map of the immediate area at scale of 1:20,000, plans showing walls and previous excavations per period (1:6,666), and walls in relation to areas of the magnetic survey (1:3,750). The sherd density map is at a scale of 1:4,500 and allows a picture of how dense material is across the town, but does not differentiate between periods. Moreover, there are house plans (1:300), pottery drawings, quarries sketch-map and plans, tables and plots of the magnetometer survey results. Relocatability is of course not an issue, as precision in the location of architectural and other remains has been an important concern, therefore, many good maps and excavation plans are available. Overall, presentation reflects the attention given to the precise mapping of material culture in its 2-dimentional spatial relationships.

Density per area / period

Not applicable.

Interpretative Framework

This project combines components of the Topographic and Landscape Traditions, combining a focus on the precise mapping of architectural remains and landscape features such as routes, and on intensive surface survey approaches, estimating sherd densities. It functions within a multi-disciplinary framework and applies remote sensing techniques along with archaeological recording. The employment of a variety of methods, both traditional and modern, aimed at the detailed study of the spread of material culture, which was the main interpretative tool for the identification of the centre and the size of the settlement at Palaikastro.

Results showed that the LM I town (period of greatest expansion) extends over an area of 600x600m² and that the centre of the town actually lies to the north of the ridges where the first excavations took place. An analogy to the situation at Zakros and Knossos is made, and it is assumed that the houses of the wealthy are situated in a level higher than that of the centre of the town (Platon 1974 and Hood and Smyth 1981: in MacGillivray *et al.* 1984, p.136). Architectural and pottery survey also led to the identification of new routes enhancing the picture obtained through excavation; routes are noted in a self-explanatory way of linking the town with other areas of the island and sites around, while the strongly built structures along the routes were explained as defensive in character (the typical LM I guard posts). Materials used in architecture and their sources were studied within a problem orientation of establishing patterns between materials and function and exploring questions regarding transport, technology and life-style.

In general terms, interpretative framework is based on the identification and characterisation of material culture, which is used to construct possible models of the town's extents, function and structure (routes, entrances, and main habitation areas). At the same time there is also some consideration of the spatial relationships between town and nearby loci of variable activities (religious, burial, industrial), which indeed define a significant component in the understanding of a town's historical development. However, we lack suggestions on what processes might have been critical in the developmental changes observed, or more synthetic insights into the relationships between different sites over time and the inter-relationships between people and the landscape.

Influential Sources: this work is part of the continuous studies at the site of Palaikastro, and therefore the history of archaeological research that involves the excavation of segments of the Minoan town as well as various loci around it, is the basic core supporting interpretative framework. However, new field methods and techniques were also applied within the framework of the Landscape Tradition. The work of Khalikiopoulos (1903) which has a geographical focus has also been taken into account.

Summary Assessment

Strengths: A multi-disciplinary methodological framework has allowed the acquisition of very important data.

Weaknesses: lack of sampling. No exploration of social questions.

Evaluation of data and Interpretation: the intensity of architectural studies and surface observation in combination with the magnetic survey and knowledge acquired through excavation, has allowed the collection of a high quality of data and the suggestion of plausible reconstructions of the town's developmental history (mainly from an architectural / demographic point of view). However, lack of sampling has perhaps restricted the potential of the data available.

Knowledge acquired: extents of the town in LM I, additional information on the road system.

Integrability: medium-high

Publication: completed

This project may not offer any remarkable insights into Minoan social organization, but it sets its objectives clearly: to define the extents of the Minoan town and trace its developmental history by studying the spread of material culture using a variety of methods. The settlement of Palaikastro offers indeed a unique opportunity

for such a study, as the site is almost intact by later activity and the amount of previous work (mainly excavations on site and in nearby sites) offers invaluable information in trying to relate town activity with its immediate landscape. The methodological framework adopted seems suitable for the questions asked, as a combination of survey densities, excavation plots and the results of the magnetic survey are used for a detailed study of the site. Moreover, other sites nearby are also explored, namely routes, defence structures, quarries, the harbour, habitations, burials and religious sites.

However, the surface examination methods did not exploit intensive surface survey to best of its potential. Even though the field by field inspection allows a general idea of activity density over the area and informs us on the possible extents of the town, lack of systematic walking and sampling prohibit the precise mapping of densities and their micro-variations. With no collection it is not possible to re-evaluate data and even though excavation may be the main tool in the study prior to LM III (it is stated that collection would not make much sense due to the extensive occupation of LM III), systematically collected surface data might also add significantly to chronological variation of activity foci and extents over the town (it is accepted that sometimes a distinction between LM I and LM III on the surface can be made). The decision not to sample was reinforced by the belief that the combination of architectural studies and estimates of pottery densities are strong enough indicators of cultural activity and therefore a sample was taken only in two cases where deep ploughing had brought to the surface considerable material, but no comparison can be made with other surface areas. The 1990 paper (MacGillivray, J. A., and J. Driessen. 1990) presents a thoughtful reconstruction of the Minoan activity based on the re-examination of the excavation data; however, it would be desirable to have similar chronological maps of Minoan activity based on survey data as well. Our inability to work with on-site period densities is attested in other urban surveys as well; therefore we are by default limited in making comparisons between different projects.

One of the greatest assets of the project is the significance given to the sufficient documentation of data, methods and way of thought and the serious effort for the use of explicit criteria in the interpretation of the data observed, for example we are given the sets of characteristics used to define a wall as certain, likely or possibly Minoan. Thus, we obtain a very descent record of the situation of material remains, and an assessment of the result of archaeological researches over 100 years. Researchers are being objective in the assessment of the potential of their data and methods, for example excavation biases are acknowledged, as is the limited help acquired through the magnetic survey. A critical approach to the reconstruction of the settlement activity in the area, which depends heavily on excavation data, highlights problems regarding the exact dates of building construction and the inherent bias of the selective nature of excavation. Overall, we acquire a clear picture of the archaeology of the area, but it would be useful to have further discussions on interrelationships between people and landscape over time and how we may understand the relevant societies.

Landscape Approach: the landscape is approached mainly from a topographical point of view, observing the spatial interrelationships among loci of material culture.

3.6.6 Survey id: Phaistos

Problem Orientation: aims and methods

The survey of the western Mesara plain is a characteristic product of the developments of landscape archaeology in the 80's. The aim was to study the diachronic settlement and environmental history of the area, focusing on the circumstances that promoted the rise of complex societies, namely of a Minoan polity and a Classical Polis (both at Phaistos). As they state, they hoped 'through survey to trace the rise of the Phaistian state and its regional structure as well as to identify the local ecological and cultural factors that might have contributed to its development'. Interrelated was the goal of providing an archaeological context for major excavated sites in the area. The area was chosen for its long established archaeological interest, demonstrating a number of very important and previously researched sites, in particular Minoan, which provided a fertile ground for the specific research questions.

The research team employed an inter-disciplinary approach encompassing environmental (K. Pope, J. and Th.Shay), archaeological (V.Watrous, D.Hadzi-Vallianou and J.Bennet), historical (D. Tsougarakis and H.Angelomati-Tsougarakis) and ethnographical studies (H.Blitzer). The landscape was, thus, studied on both a cultural and environmental level. Geomorphological studies as well as helping with the environmental reconstruction, aimed also at providing a stratified sample for the archaeological survey and at assessing the surface record. Field methods were based on those implemented in the Keos survey in 1983; 12-20 people walked field tracts at a spacing of 10-20m, counting all material found and collecting diagnostics. The total area covered was 22 km² over 3 field seasons (1984, 1986, 1987). Sites were identified in the field as exceptionally high pottery densities and were revisited in order to establish their extents and study their relationships with the landscape, as well as with other sites. Site sampling involved material collection along 2 axes at right angles, and grab collection from the quadrants.

Presentation / Relocatability

As this is the latest and best so far published interdisciplinary, regional survey in Crete, presentation is expectedly very good. Sites are presented per period on contour maps (usually on 1:77.000) with a functions legend. Tables, graphs, photos and maps follow the interdisciplinary framework of the project. Human activity, however, is not presented through density maps; Maps of the tracts walked do not present intensity of landscape activity, but a binary record of tracts with definite or probable pottery of the various periods. Many of the sites should be fairly easy to relocate as many are known and most are in clusters, and also because the area's geography helps walking and visibility. Single tholoi and sherd concentrations of a small area would of course pose greater difficulties.

Density per area / period

	area surveyed (km²)	Total site no	PH	GR	BVT	Modern	Unknown
	22	113	76	67	24	5	
Or:	25.7 (map area)		75	67	24	5	
Densities per km² (target and sampled)		5,136	3,454	3,045	1,090	0,227	

Site definition: target and sampled populations coincide. Sites were defined during fieldwalking using as main criteria the recognition of fairly definable boundaries and dense concentrations of artefacts. When they decided upon a site, they only counted to the end of the tract; collection was performed at a secondary stage along two axes from the notional centre, after having re-walked the site so as to define its approximate boundaries. Eight sites were found outside the survey area, and an additional catalogue of Byzantine to Ottoman period sites known from written sources is published.

Interpretative Framework

Questions regarding the rise of complex societies were a driving force for the development of regional surveys in the 60's and 70's across the world. Another characteristic of the time is the acknowledgement of the environment's influential role in human societies, which promoted multi-disciplinarity in archaeological research. By the 80's, quantitative methods were also a 'must', while the 90's saw intensive theoretical discussions regarding explanatory models of past societies. Within this framework the Mesara survey shaped its methods and research questions, but also its interpretative approach.

Studies towards an environmental reconstruction aimed at providing a context of human settlement and activity. At the same time, questions of social organisation sought also the impact of human activity on the environment. The intensity of such activity was assessed through the establishment of periods of landscape change and stability and the identification of erosion and depositional cycles, in connection with the archaeological data recovered. Such an assessment aimed at a better understanding of the socio-economic and political structure of the relevant societies that developed in the area. In general, the study of the relationships between cultural factors and the environment was considered as a prerequisite for the understanding of the rise of complex societies in the region. Methodological and interpretative themes of man-environment studies are best comparable with those in the southern Argolid survey (Kevin Pope was involved in both), and form a characteristic example of New Archaeology's research framework. In the same context geomorphological work assessed recoverability, e.g. Final Neolithic sites are estimated to be underrepresented due to the fact that they were identified in deposits which rarely survive on the surface. The issue of small representation of specific periods was explored further via estimations of visibility (which was assessed to not have influenced the discovery of sites significantly) and the consideration of pottery knowledge for specific periods. Densities of artefacts are thus interpreted with caution taking into account survey methodology, the environment, and the interpretative potential of artefacts (although it is not as clear how the bias of poorly known pottery was evaluated in relation to results).

The main themes figuring in the interpretation of data towards a history of settlement, concern hierarchy, settlement dispersal or nucleation as a cause and result of socio-political and economic situations, demographic expansion, subsistence, sequence of settlement over time, chronological and functional variation. Hierarchy was defined at 3 levels, namely centres, villages and farmhouses, with a possibly additional level of seasonal sites. The last, are an interpretative suggestion attested in the Landscape Tradition, which is not only related to small numbers of pottery densities, but to the observation of current landuse. Ethnographical studies were used to identify various economic strategies, whose effect could also be traced in the environmental record, and which shaped the interpretative framework. Historical sources and archives allowed valuable insights into man-land relationships that cause and result from, social, economic and political circumstances. Analogy was used extensively in pursuing interpretative ideas and in particular Egyptian history contemporary to Minoan times was used as a major source; Egypt was concluded to have influenced greatly Minoan ideological structure of palatial times. In fact, state formation was explained as the result of intense social stratification and conflict in combination with an ideological framework borrowed from Egypt and the Near East and imitated by local communities. Renfrew's neoevolutionism and redistribution model are discussed, but ultimately rejected.

All themes explored have long been fashionable in Minoan archaeology, and some particularly so, since the extensive practice of intensive surface surveys. Interpretation takes into account discussion of previous researchers in the area as well as patterns identified by landscape archaeology projects in other areas of Crete. In fact, the particular questions of the rise of palatial and Greek Phaistos are explored in the context of discoveries and discussions in the wider Aegean, Greek Mainland and SE Mediterranean. It is stated that they have supported 'an inductive and more flexible gathering and evaluation of cultural data within a systemic approach before attempting to understand the data in the light of any single hypothesis or model' (Watrous *et al.* 2004:8). Various models are discussed and rejected and finally a combination of a processual theoretical framework together with post-processual ideas and concepts was admitted to have been adopted. Ultimately, a diachronic diagram of social evolution is presented, describing environment, subsistence, population, technology, exchange, ideology, conflict / competition, social organisation (egalitarian, ranked, stratified, state, empire, kingdom and polis), settlement pattern, social diversity and social hierarchy.

Influential sources: theoretical framework of most previous and contemporary regional projects in both the old and new world e.g. Mexico, Mesopotamia, Messenia survey, southern Argolid, Melos, Keos (methods), Boeotia (quantitative work). Fieldwork followed a full coverage approach (Fish and Kowaleski 1990) and interpretation was influenced by Systems Theory. Landmarks on survey literature such as Flannery 1976. Previous research in the area, namely Greek and foreign archaeologists.

Summary Assessment

Strengths: inter-disciplinary approach, defined methods, broad interpretative framework. Good publication and high integrability. Self-assessment.
Weaknesses:
Evaluation of data and Interpretation: strong theoretical and methodological backgrounds encourage a belief in the acquisition of high quality data and the formulation of relevant inferences.
Knowledge acquired: a comprehensible reconstruction of historical development in the area.
Integrability: high.
Publication: completed

Regional settlement surveys have traditionally been interested in environmental reconstructions and diachronic settlement patterns, asking questions in relation to the rise of complex societies. The current project is a product of the Landscape Tradition and thus, makes use of relevant popular theoretical and methodological developments. Sampling and quantitative methods are used in all kinds of fieldwork, namely archaeological, environmental and ethnographical. Field and analytical methods are discussed extensively and often compared to other projects and publications. Within the framework of 'proper archaeological discourse' presentation describes both methodological and interpretative frameworks. The site catalogue presents in an exemplary clear manner the relevant interpretations of functions per period with a good chronological precision. Uncertainty is stated and so are opinions of site relationships, e.g. a cemetery or graves related to a particular settlement. The overall publication of the project allows a great deal of clarity over aims and interpretative framework, discussing in detail the history of archaeological landscape theory within which the current project was born and developed as well as which interpretative ideas were followed and why. As a result, we are able to understand and assess conclusions and integration is greatly enhanced.

The project uses interdisciplinarity in a very good way. Geomorphological studies in combination with other environmental (e.g. botanical) and archaeological data, historical sources and current environmental research of landuse, vegetation etc, allow an in-depth look into the history of landscape evolution. Ethnographical work and the study of the present society and economy with its variability between town and village life also make an important contribution towards an understanding of man-environment interrelationships. As in most landscape archaeology projects comparability is pursued, and this is evident in the frequent references to other survey projects in Greece. The effort for the acquirement of objective observations is linked to an effort for the construction of objective interpretations, a goal proclaimed by all New-Wave surveys. The approach is fully diachronic and it is very important that there is quite a methodical effort to achieve self-assessment and present some of the project's limitations. Thus, site collection methods were thought to be adequate for determining overall site size, but not for distinguishing size between different periods. Overall, this is the best so far published survey work in Crete.

Landscape approach: landscape is perceived as the interaction of cultural and environmental factors that determine the process of evolution (change) over time.

3.6.7 Survey id: Hagia Photia

Problem Orientation: aims and methods
This project is a context survey, regarded as complementary to an excavation undertaken within the survey boundaries. However, it is stated that the survey was planned 'as a research *per se*, for a better understanding of the region and not to locate new sites for future excavations' and that the project was envisaged as an experiment to help determine the relationship between intensive survey coverage, cost investment and the actual results achieved. The project is part of the investigation of the wider area of the Siteia Gulf, which is on-going and consists of small projects undertaken by the Ephoreia, but also foreign scholars, and which use archaeological excavation, extensive and intensive survey, and geological investigations. The plan has

been the intensive coverage of some selected areas over an extended region, presumably in order to collect a greater amount of information about the archaeology of these areas so that ultimately the combination of archaeological and physical-landscape data may propose a more illuminating picture of the area's history; no specific questions have been set for which intensive survey would seek answers.

Planning was decided upon practical factors of finances and personnel and thus, an area of 4, 05 km² defined by archaeological and geographical criteria was intensively investigated by 20 people over a period of 3 weeks, under the direction of M. Tsipopoulou. Coverage was complete with a sampling interval of 1-1.5m, and the procedure was to count sherds and collect 70% of the diagnostics and all small finds and stone tools. Architecture and landuse were also recorded in detail in notebooks, with an attempt to standardize the procedure. The survey units walked were called *fields*, even though they did not actually coincide with agricultural fields or private properties. Their size and boundaries were decided on a day-to-day basis while walking, allowing flexibility in the execution of the project, however, we do not know what criteria were used to define their size.

Presentation / Relocatability

The topographical maps used were at a scale of 1:5000, but presentation consists of a contour map with the survey boundary and units walked at a scale of 1:12,500 and a couple of sketch maps which show the geographical location of the area, and the horizontal relationships between some of the archaeology. Some of the units are shaded, representing a higher pottery density, which is discussed in the text explaining which groups of them are taken as a site, but site boundaries are not shown on the map. The surface is thus represented in terms of where archaeological material was denser, but variability of density is not shown. Pottery drawings and object photos including walls and other finds, present the material recovered and landscape photos allow a vivid visualisation of the area. Relocatability is not a problem because the area surveyed is small with known sites and scales of the maps are pretty good.

Density per area / period

	area surveyed (km²)	Total site no	PH	GR	BVT	Modern	Unknown
	4,05	10	10	5	2	1	0
Or:	1,038 (map area)		10	5	2	1	0
Densities per km² (target and sampled)		2,469	2,469	1,234	0,493	0,246	

Site definition: Target and sampled populations coincide. The discussion relating to the site definition explains the problems in interpreting the surface record and the variable situation between sites and between plain and hill. More specifically, only two sites had surviving architecture, while higher sherd density was not always related to sites, e.g. at the excavated site on top of the hill of Kouphota, some surface walls were visible, but not a great number of sherds. In the end, they defined a site upon the presence of at least 30 sherds per 10 m² for the plain, whereas on the hill even a few sherds were considered to be due to human activity.

Interpretative Framework

Intensive survey is treated as one of the methods used in the archaeological exploration of the area. It was regarded as complimentary to the excavation undertaken on a hill within its boundaries, which in combination with other excavation work and archaeological research over the century had already supplied researchers with an idea of settlement in the wider area around the plain. The choice of the area was thus based on the results of

previous researches, and at the same time on the fact that the geographical location of the area – the fact that it was a plain nearby the coast – was considered as a crucial factor to the development of settlement and human activity.

Site-discussion in text form includes description of the evidence observed for all chronological periods and explains the line of thought between sherd quantity, type, chronology and interpretation in terms of site function in the relevant period. Pottery in particular receives great attention and it is described in detail through tables, adopting Rutter's suggestions in recording pottery from surface surveys (Rutter 1983). Geography and topography as well as modern landuse of the site are also described.

This project is in fact one of several in the area, both excavations and surveys, as the principle researcher works in the relevant Ephoreia and has thus investigated the region extensively, both through her own field-work and by incorporating the results of all previous archaeological work undertaken. As the survey did not aim to answer any specific questions about settlement and activity in the area, but to collect information and 'then see what may result out of it', focus lies on presenting the archaeological record and interpreting it in terms of site definition, chronology and function, but not so much in discussing site interrelationships and social questions, which partly shows the perspective of a field as opposed to a theoretical archaeologist. Instead, attention is paid to the difficulty of interpreting the surface record. However, a historical narrative for all the sub-periods of the Bronze Age is constructed and there are questions about the movement and character of the communities in the plain. Changes observed in the use of the same site (e.g. Kouphota hill) are explained in terms of population changes. A brief mention to activity of all periods up to the present (noting archaeological and tourist activity) shows a general diachronic interest in the history of the area.

Influential sources: The work of all previous researchers / excavators, both Greek and foreign has been investigated and problem orientation lies within the same framework. Regarding the methodology of surface survey, the project follows the main works of the 'New Wave' surveys, e.g. Plog, Plog and Wait 1978, Shennan 1985, Keller and Rupp 1983, Gallant 1986, Bintliff and Snodgrass1988a.

Summary Assessment

Strengths: Reflection on survey problems, clear record of processes and circumstances. Much comparative material from excavations has promoted accuracy in pottery interpretations.
Weaknesses: not a broad interpretative framework regarding site interrelationships from both survey and excavations. No site sampling.
Evaluation of data and Interpretation: finds are presented in detail and interpretations are specific, but we are not given a complete discussion of the relationships between data recorded, which have been both landscape and material.
Knowledge acquired: loci of activity, which contribute towards a narrative of the use of the area over time.
Integrability: high
Publication: completed.

The main archaeological work undertaken in the area has been based on excavations, and thus survey has been implemented to acquire more data that could be compared with information already known. Being able to study a lot of excavated material in relation to surface surveys is an invaluable tool in understanding the surface-subsurface relationship. It is worth noting the statement that the purpose of the survey was not to find new sites, but to understand the history of the area and the excavations, even though the results of the project involve basically a list of sites. A second statement is that the excavations were found to assist the survey (in defining the boundaries and interpreting the finds), but not the reverse, as no sites related to the excavated ones were found, therefore it is clear that survey is considered as a secondary, additional methodological tool after excavation. These statements are rather baffling, because understanding of the area around an excavated site undeniably helps towards its better understanding, and this is not only related to the discovery of relevant

sites. Moreover, even though the surface survey was planned as a 'a research per se, and the surface-subsurface relationship as well as the relationships between intensive coverage and cost investment have been considered, it is not clear what came out of it.

On another line, the publication is not always clear about the researcher's thoughts, although the importance of publishing survey results in a way that others understand and are able to use is much stressed. Mentions to surveys in Petras, Siteia airport and in general the Siteia golf, refer to rather intensive archaeological explorations, but in the sense of intensive systematic walking (Tsipopoulou 1986). Thus, a catalogue of 12 sites in the wider area of the Siteia golf is included, result of many years' explorations and excavations in the area. A few additional sites mentioned later on are not numbered and therefore, the distinction among the various loci noted as sites is not clear. There are also a few questions raised regarding field methodology, e.g. how were field units defined, how was the frequency of artefacts and the 70% (which was collected) estimated, if not actually measured, and how could 20 people have walked 4,05km² in 18 days (usually on average they could have covered about 0, 72km² and that is with at least 2m sampling interval). Besides that, the area was formally revisited twice (after torrential rainfalls which caused alterations on the soil surface and after the pottery study was complete), but results of these resurveys are not explicitly discussed, even though it is stated that intensive systematic survey is explored as a tool.

On the other hand, the fact that the main researcher has been working in the Ephoreia is a great asset, as she has been able to gain the best possible experience in archaeological material and the area in general. Her long acquaintance with the field is obvious in the importance she gives to archaeological material and its detailed recording. She reflects on the problems of comparability between different survey projects and she stresses the importance of publishing results and criteria as clearly as possible. Thus, it is very helpful that the circumstances within which the survey took place are explained and the sincerity on the weaknesses of the project due to financial restrictions is appreciable, e.g. geomorphological work is thought necessary in order to understand the ancient sea-shore, but could not be undertaken at that point. Also, it is acknowledged that the pottery was studied only by one person who could not be an expert in all periods, even though they were interested in the diachronic history of the area. The problems of defining a site were discussed and these were attributed to the intensiveness of the research that made the recognition of higher densities difficult, the disappearance of architecture due to the long cultivation of the plain, surface-subsurface inconsistencies (tested in the excavated sites), but also the possible sherd movement down slope and the effects of erosion.

Landscape approach: the landscape is viewed as the spatial context of archaeological loci which represent human activity over time. Interest lies in the location of archaeological remains and their location is explained mainly in terms of the geographical characteristics of the area.

3.6.8 Survey id: Pseira

Problem Orientation: aims and methods

The goals of this project directed by R.Hope Simpson, Ph.Betancourt, and K.Davaras are defined as 1) to place the Minoan settlement within its environmental and historical context and 2) to perform a systematic investigation of the island itself (no further explanation on what is to be investigated). The important settlement excavated in 1906-07 played a determinant role in the questions set and the clear focus on the Minoan period; interest was on the interactions between settlement and its landscape and it was stated that 'the general history of the periods of habitation on the island was necessary so that the site's history could contribute to the larger pattern of cultural development in eastern Crete'. Previously expressed hypotheses were also tested via survey, in specific the beginning and the end of settlement activity, and the capacity or not of the island to support the population.

A fully diachronic approach was followed and the whole island of about 1,75km² was systematically surveyed between 1985 and 1989. Field-teams consisted of 3-5 people. The strategy is declared to have been based on climate, topography, previous work and general information. As the aim was to understand

when and how people lived and interacted with the specific landscape, investigations focused on the physical environment and explored the natural resources and the possibilities for subsistence. Research followed the following stages: 1) analysis of earlier work, 2) study of the natural landscape, 3) intensive archaeological survey, 4) excavation of selected sites, 5) laboratory analysis of soils etc, 6) interpretation and coordination with nearby regions. Archaeological survey lasted for 5 seasons and involved walking over the whole island at a spacing of about 5-10m, collecting all material found and recording locations of material culture as sites. The cemetery area was surveyed on the basis of a 5m grid in order to study the chronology of pottery distributions in detail and define its extents and periods of use. In short, the survey aimed at a diachronic understanding of the history of human activity and its interaction with the environment, a typical goal of projects in the Landscape Tradition.

Presentation / Relocatability

Site pottery data are reported in great detail through tables and text descriptions. Additional tables and graphs present statistical analyses used in interpretation. 20m- contour maps display the distribution of sites per period at a scale of about 1:11,500 and geology is presented in relation to the wider area of Crete, but also through a map of 1:10,000. The cemetery survey is published through plan views of the grid showing locations of pottery per period and the relevant tables for all grid squares. Sites are all published with their map coordinates; therefore most could be fairly easily relocated within such a small surface, even though in reality locations of 1 or a few sherds are problematic. Presentation includes of course landscape and object photos, drawings and architectural plans.

Density per area/period

	area surveyed (km²)	Total site no	PH	GR	BVT	Modern	Unknown
	1,75	314	305	9	156	15	
Or:	2,163 (map area)		305	9	156	14	
Densities per km² (target and sampled)		179,428	174,285	5,142	89,142	8,571	

Site definition: any location with pottery or other evidence of human activity. Sites may be the location of 1 sherd, usually in combination with a terrace. Locations of different parts of a site, e.g. a farm, are recorded as separate sites and so are locations of eroded material. An extreme example is the beach of the town, which forms a site with 2 eroded Minoan sherds and 1 Byzantine.

Interpretative Framework

Results were seen in the light of various other survey and excavation projects in the NE coast of Crete, while surveys from the wider Aegean area and also outside it were consulted in relation to terracing, manuring and crops, themes that are quite extensively discussed. Ecological studies played a crucial role in the project's interpretative framework and several publications on ecological issues, soils, terraces etc have in fact preceded the volumes of the surface survey. Palaeoenvironmental research combined vegetation, climatic and landuse studies to help define the natural environment and the use of the landscape by people for their subsistence. Soil analysis in combination with the surface record determined agricultural potential and revealed the landuse pattern. The resulted picture was one of intensive agricultural use through terracing for most of the Minoan

period, and more specifically during the Protopalatial and in particular the Neopalatial times. Crops included cereals, grapes, olives and pulses and the integration of excavation and survey evidence verified a diversified landuse combining mixed farming and animal husbandry, suitable to the marginal character of the island.

Ethnography also played an important role in trying to understand subsistence in such a marginal landscape. Analogy is considered useful in expressing likely hypotheses on the ground of geographical similarities, as these may trigger similar human responses to environmental conditions, even if patterns can not really be proven. Ethnological studies were used in issues concerning crops adopted; advantages of various crops, time investment and agricultural practices are discussed extensively, portraying a picture of island subsistence through various practices. In this framework, Peter Day studies pottery not just as an item of everyday use but he tries to reveal social relationships through the study of in-built meaning relating to identity, movement and even marriage observed in potters' communities in the ethnographic record. Indeed, social meaning can be discerned in pottery, as in all material artefacts if one attempts to look at it.

The reconstruction of the island's settlement history verifies habitation for the first time in FN with evidence from the town, the survey and the cemetery. From EM I the island started being increasingly exploited for agriculture and by MM, land management through terraces and manuring was extensive and provided the necessary goods from mixed farming to support the population of the 2 settlements. In LM I we have evidence for population rise and intensification of agriculture with more terraces and the building of dams to manage watering. Even though trade is a justifiable thought for the development of the town in Pseira, survey proved that the economic life of the island was based on agriculture. LM II and LM III produced little evidence and after the LM IIIB destruction of the town, Pseira is abandoned following an island-wide pattern of a movement inland, attested at the end of the Bronze Age. Evidence for the 1st millennium B.C. is sparse and only in the Early Byzantine period do we have again a rural population with 2 farms and permanent constructions in the fields (the Byzantine period in this project is starts from the 5th century A.D.). The island has been uninhabited since 900 A.D. and has only seasonally been used to graze animals.

Pottery is the stronger interpretative tool in survey and it is used to explore various questions regarding human activity, society and relationships with the outside world. In particular, pottery statistics in combination with soil studies made enlightening revelations. Internal statistics (where pots of the same period and fabric are compared) seem quite consistent between pottery from the excavation and the survey. Surface pottery did not reveal loci of specific function, but its wide variety showed that it was settlement debris used as manure in the fields and the same secondary use was concluded for all materials (stone, obsidian etc). This result concerns MM and LM I which were the periods of the highest agricultural intensity involving an enormous effort to cultivate the land through the construction of terraces and the fertilization of the soil. In particular for LM I there seems to be the greater intensification of agricultural landuse matched with the population increase shown in the excavation data. In this period there is a much higher proportion of sherds from cooking vessels, which is explained as the pots being used to prepare a hot meal in the field, painting a vivid picture of the mode of living.

Furthermore, researchers contribute to general discussions about Minoan society and archaeological evidence is used to verify variation and similarities with other places on the island. Thus, conical drinking cups attested elsewhere and linked to an elite rising in Prepalatial and Protopalatial times are missing from Pseira, indicating that it functioned on a remote basis outside island-wide developments. MM II had a violent end as elsewhere in Crete, a phenomenon that is thought to testify social changes that brought peace to the region and led to the great prosperity of LM. LM I Knossian influences in connection with the assumed foreign expertise in dam engineering put the island on socio-political developments of a greater scale. The brief interpretative comments on Minoan society, hint to a cultural evolutionary framework, rather characteristic for Minoan archaeology.

Influential sources: field methodology was formulated within the influential framework of surface survey developments, but Binford's ideas on cultural systems seem to have played a strategic role; it is stated that 'the methodology had to ensure the collection of as much data as possible, to determine whether the island

was sufficiently self-sustaining to suggest such a cultural system'. Interpretation of the off-site record took into account Bintliff and Snodgrass's work in Boeotia.

Summary Assessment

Strengths: interdisciplinarity and interesting interpretative framework.
Weaknesses: data recording does not allow the visualisation of the density of activities on the surface.
Evaluation of data and Interpretation: the quality of the data acquired is very good, but the surface can not be visualised as a continuum of cultural activity but as loci of finds, whose definition is as usual unclear.
Knowledge acquired: very interesting insights into Pseiran socio-economic organisation and therefore we learn more about Minoan society as a whole.
Integrability: medium low.
Publication: completed.

This is a very important survey project as it investigates the little known theme of agricultural practices and reveals vital information about Minoan life. As declared, the area was advantageous, with definable limits, excellent preservation due to little activity after Minoan times, good visibility and the possibility of selective excavation. The excavated settlement and the possibility to also excavate additional selected sites in combination with the surface survey is a rare and ideal situation and have helped immensely the interpretation of surface data, allowing the dating of terraces. Moreover, Betancourt's long experience and expertise in Minoan pottery allowed extensive and very informative use of the pottery collected. Thus, even though survey found most of Sieger's conclusions correct, intensive work allowed the correction of previous beliefs for example it was concluded that subsistence was based on agriculture while trade was hardly evidenced, agriculture was intensive enough to support the population of the town and habitation was attested from FN as opposed to Pendlebury and Warren's belief that the island was first inhabited in EM II. On a methodological basis, the combination of survey with excavation highlighted inherent survey problems, in particular the difficulty in distinguishing between a terrace and a habitation only from pottery data, since both cases may be represented on the surface with similar numbers and type of ceramics. Hope Simpson once again stresses the weaknesses of survey in comparison to excavation even though survey was considered imperative in the case of the eroded and unpublished area of the cemetery. Based on the minimal relationship between surface and buried data at excavated terraces, he draws attention to the fact that many sites identified as farms in Cretan surveys, may be nothing more than agricultural plots. However, despite the considerable difficulty in distinguishing between permanent and seasonal sites or the variability of landscape activities in general, survey weaknesses are not only subject to the restrictions of the surface record, but also to our methodology, definitions and presentation.

In this framework, by rejecting scatters, off-site material and sampling, in effect they walked the landscape looking for sites, but site definition was at a much higher resolution than in most surveys. One wonders whether it is helpful or confusing to treat pottery concentrations from 'very thick' (1sherd / 10m²) to 'very sparse' (1 sherd / 200m²) in the same manner, as 'sites'. In my opinion it is not correct to have maps and a site catalogue that treat space of definable activity and large extent (e.g. the settlement) in the same way as loci with 1 or 2 sherds, often clearly eroded from elsewhere. Resolution becomes even more mixed with loci catalogued as separate sites, but which may constitute a settlement or farm/habitation, which would be considered as one site in other surveys.

Due to site definition, as well as the small size and preserved character of the island, site densities on Pseira are naturally unprecedented and make comparisons with site densities of other surveys totally meaningless. Pseira offers the extraordinary situation of getting to know a little changed landscape since the Minoan times, but the 'sites' it records are mainly agricultural terraces and not the usual 'habitation', 'burial' or 'ritual' sites of other projects. Site reports are exemplary in presenting all the data found, but sites are usually

not given a chronological and function interpretation in terms of defining the type of human activity evidenced; the vast majority of them are interpreted as loci of agricultural practice and feed the final construction of the island's historical development. In fact, it is not really understood why data are grouped into separate sites; a sherd density map would be more helpful in visualising variable intensity of human activity in the area and would allow us to view the landscape as a continuum and not as loci of activity, whose differences are obliterated in dot maps.

Landscape Approach: landscape is approached as a spatial entity with specific environment, which consists of loci of human activity. Interrelationships between environment and people are explored and the cultural shaping of the environment is stressed.

3.6.9 Survey id: Vrokastro

Problem Orientation: aims and methods

The main aim of this project, directed by J. Moody and B. Hayden, was to place the Late Bronze / Early Iron Age settlement of Vrokastro 'within its regional context in order to understand better how it functioned and related to its environment'. Although it was a context survey studying the regional environment around a main site it was fully diachronic and settlement patterns were explored from the earliest evidence of human activity till the end of the Turkish period (1898). The goals of the project were thus twofold, to study the little known transitional period of Late Bronze / Early Iron Age, and also to study the settlement and environmental history of a typically rural area of the southern Aegean. Sampling was systematic, stratified upon defined ecological zones, which took into account geology, slope, topography and elevation. Thus, 13 eco-zones were selected within which to interpret archaeological data (site location, size, density and perhaps function in relation to eco-systems).

A pre-survey on the coastal zone was performed in the first season (1986) with 100% coverage at 10-45m walking interval and 2m-radius vacuum circles performed every 100m. The rest of the area received 50% coverage and a 10% on cliffs and steep slopes, at a 10-20m walking interval. The landscape was divided into transects 50m wide and every other transect was walked by 2-4 people, performing 2m-radius vacuum circles every 50m. In the end, an 80% sampling fraction was achieved and the area actually seen was at a level of 8-16% precision. The sizes of settlements recovered were 1,3 hectares, 0,39 hectares and 0,13 hectares, so even the smallest settlement of 0,13 hectares would have been successfully recovered with a walking interval of 20m at most. However, habitation or other sites of smaller dimensions e.g. PH habitations of 10x10 (GN1) may have been totally missed during fieldwalking.

Survey methodology focused on the collection of a wide and sufficient amount of landscape data so as to attempt the reconstruction of the cultural - ecological history of the area. A conscious goal, as with most regional intensive survey projects was to compare results with other projects and thus detect similarities and differences in settlement patterns.

Presentation / Relocatability

The presentation of this project includes geological maps, toponyms and sites for different chronological periods in relation to contours, sketch maps, transects walked, the environmental zones identified as well as object drawings, graphs and tables. There is a great interest in the spatial distribution of various classes of data considered important for the understanding of settlement patterns, e.g. threshing floors, springs, wells, chapels and grain mills. Map scales vary from 1:50:000 to 1:10.000 and sites are assigned map coordinates. Great importance is given to associations between site-location and topography as well as geology, and graphs show the relationship between numbers of sites and geology over time. Regarding relocatability, since the sites are only viewed in relation to contours, relocation is not easy inland, where the landscape is extremely broken, in particular as far as small sites and scatters are concerned. The recorded condition and size of the sites may be indicative of what to expect when trying to find them, but in any case, maps that show the sites in relation to

modern features of landuse would be necessary for relocation purposes as well as for an understanding of the present landscape. The very good scale, in which sites are presented, though, shows the importance that this project gives to location in relation to topography.

Density per area / period

	area surveyed (km²)	Total site no	PH	GR	BVT	Modern	Unknown
	50km²	195	124	110	106	49	0
Or:	40.90 (map area)		123	107	98	48	
Densities per km² (target population)		3,9	2,48	2,2	2,12	0,98	
Densities per km² (sampled population)	20	9,75	6,2	5,5	5,3	2,45	

Site definition: in the publication of the project it is stated: 'The term "site" is used in this publication to denote a collection of artefacts, primarily sherds, occasionally accompanied by chipped and ground stone, metal, glass, and architectural remains'. Site sizes vary; interpretations are based on density and spread of material (influenced by many factors) as well as ecological features. However, there is not always a clear distinction between site functions in particular between settlement and habitation, which are supposed to reflect site hierarchy. Moreover, sites of the same description are interpreted as habitation sites for PH and as agropastoral activity sites for the BVT, since field houses, terraces and relevant landuse features are often well preserved. Clearer definitions of site function characterisations would certainly be desirable.

There is also a problem with multi-period settlements, as there is often no function variation for all periods present on site. Thus, when only a few sherds of a period e.g. PH have been found on a GR settlement, and depending on what they say on their site description, the site may be given the attribute 'habitation' or 'unknown activity' for PH in the database, even if the general function is 'settlement'. Regarding densities, given the fact that they recovered sites down to a size of 10x10m, but most sites were much larger, the precision they used was adequate to recover sites of 0,01 hectares, at probably a pretty good accuracy.

Interpretative Framework

Interpretation of the settlement history of the Vrokastro area unravels through arguments and hypotheses about communities, their subsistence, interrelationships of power and control, mobility (mainly due to social changes) and longevity of sites, based on a synthesis of site interpretations. Sites are studied in relation to chronology, function, geology, soil, vegetation, landuse, topography including elevation and distance to the sea, architectural and historical evidence and although observed correlations are not always explained, an explanatory approach is pursued even when a pattern does not fit the norm. Each site record includes site-size, chronology and function per period (even though the last not consistently), as well as landuse observations.

Archaeological, environmental and landuse data is all used in site interpretations in order to arrive at an appropriate chronological and functional definition. Environmental studies aimed not only at providing a context for the sites, but it is claimed that they also sought an understanding of the surface record so as to assess recoverability of surface finds. Geological and geomorphological studies in particular sought the elucidation of settlement changes due to river changes effects. The general conceptual framework follows a clear cultural-ecological approach putting a lot of emphasis on environmental and landuse observations.

Thus, settlement patterns of observed nucleation or dispersal are viewed in terms of subsistence potential and environmental history, routes, hierarchy and socio-political factors. Spatial relationships between sites, site size, function as well as the permanent or seasonal character of an occupation site are explored in order to reveal the economic, social and political systems operating and changing through time focusing on and thus interpreting patterns from a perspective of power relationships.

The reconstruction of demographic trends over time is expectedly of great interest but particularly difficult especially for early periods due to low recoverability of relevant ceramics and material culture in general, the unavoidable field techniques biases and the fact that multi-period sites make difficult to assess site size per period. However, the establishment of a hierarchy is of primary importance as in all intensive survey projects, as it is believed to elucidate both issues of demography and the socio-political situations of the periods in question. It is important to note that continuity and change play an important role in their effort to understand the ecological history of the area.

Finally, this project does not operate in a vacuum, but seeks to compare its data and interpretations with those of other survey projects in view of reconstructing and understanding the history of the Cretan island as a whole. There is thus, a strong relationship with other survey projects undertaken on the island. Within this framework they seek similarities and differences, acknowledging the fact that local topographical, environmental, and historical circumstances and resources play a significant role in economic and social processes.

Influential References and Sources: This project lies within the tradition of New Wave Surveys and has used a wide bibliography of archaeological work undertaken in Crete and the rest of Greece. Travellers, historical sources, Greek researchers and first archaeologists have been widely referenced throughout the publication. Survey methodology was influenced by developments of the 80's and 90's, and the whole project gave emphasis to environmental studies, landuse and ethnoarchaeology. Theoretical considerations concern landuse and palaeoeconomy, the emergence of state societies and complexity, ranking, resources and exchange.

Summary Assessment

Strengths: sophisticated methodological and interpretative framework, multidisciplinarity and assessment of surface record recoverability; examination of the environmental history of the area, detailed recording and published methodology.
Weaknesses: deficiencies in definitions, classifications and presentation of data.
Evaluation of data and Interpretation: interpretation develops around issues of population fluctuations and settlement patterns (nucleated versus dispersed) relative to ecological and socio-political circumstances. Variability and definitions of site functions in combination with use of landscape data in interpretations allow a high degree of confidence in interpretative suggestions. However there are problems of ambiguity, e.g. in multi-period sites, where we don't understand whether the same function is assumed for all periods.
Knowledge acquired: Environmental and human activity history through time.
Integrability: high.
Publication: completed

One of the great assets of this project is its interdisciplinary nature and its explanatory framework, usually separating data from interpretations and taking into account knowledge acquired from other researchers even though this is not really assessed (as is usually the case). Researchers provide us with some of the most complete site records, trying to be consistent in the presentation of data recorded, combining raw data with a literary text. Statements regarding the methodology followed, the interpretative problems encountered and the desire to combine data with those of other projects, reveal the 'proper' archaeological discourse of this tradition that seeks to be explicit in observations and explanatory in interpretations.

Sampling and field-methods are similar to other survey projects in which Jennifer Moody was involved, among which inter-comparability is probably easier to achieve. Analysis of densities per period is mainly conducted in relation to environmental zones; however, we would need better precision in area sizes walked as well as a discussion of the relationships between densities and environmental characteristics of the zones studied. If presentation included site sizes per period, patterns of recoverability, hierarchy etc would be better understood. A clearer and well defined classification of site functions would also be desirable so that correlations of sites enhance understanding of the settlement patterns observed. For example, in the PH period, both kinds of isolated structures, (big with megalithic walls and smaller with rubble walls) are interpreted as 'habitations' even though it is implied that they may play a different role in hierarchy. Besides that, in multi-period sites there is often no distinction of function variability between periods; however, even unknown activity should form a class in the classificatory system so that it is clear what interpretations exist per period. Although data are presented in support of interpretations, there are not always clear correlations between the two. An additional problem relates to relocatability, especially for small sites, as their presentation only in relation to contours is certainly not adequate. Maps with modern landscape features in relation to the archaeology are necessary, both for relocatability purposes and in order to achieve an in depth understanding of the present landscape and its historical development. For example, a map of the Ottoman sites' distribution should include landscape features found on topographical maps as well as those recorded during the survey (e.g. kalderimia or dromoi). However, it has to be stated that the above comments relate to weaknesses observed in almost all survey projects.

Overall, this is one of the most complete landscape research projects within the tradition of regional intensive surveys, following a cultural-ecological approach and choosing methods that reflect the problem orientation towards the reconstruction of the landscape ecology over time. The fact that the project has actually reached final publication is of great importance for the study of Cretan history and archaeology, and hopefully publication of other projects will soon follow so that integration and comparison of research is actually feasible. The problem that still remains, of course and which is responsible for most weaknesses in landscape research is the lack of standards in survey work and in particularly as far as publication is concerned.

Landscape approach: landscape is the spatial framework of changing man-environment interrelationships. Environment is seen not only as a background to human activity, but as the enabling factor for human choice and behavioural strategies, which in turn shape the landscape.

3.6.10 Survey id: Sphakia

Problem Orientation: aims and methods

Sphakia Survey started in 1987 by J. Moody and L. Nixon with the collaboration of O. Rackam and S. Price, and falls within the tradition of Landscape Archaeology. As well as trying to establish the regional settlement history over time, research gives great importance to environmental studies and tries to understand 'the sequence of human interaction with the environment'. Questions include contacts with other areas, landuse and subsistence systems, relationships between coast and inland. Sphakia had received little attention from archaeologists; it demonstrates an outstanding environmental variability and still now keeps an isolated character both geographically and culturally. All these factors made Sphakia an appealing ground for inter-disciplinary research of how man lived in the specific settings and how landscape has changed and why.

Field methods combined extensive judgmental and intensive stratified sampling, based on 8 environmental zones identified in the area, and which represent different potential for human exploitation. As the survey area was huge (470 sq. km), it was divided in 8 regions, each one consisting of more than one environmental zone. Different percentages (sampling fractions) were taken from each region at a range of 10-100%; the coastal areas were examined more intensively, since they offer better opportunities for human exploitation and have thus been the focus of cultural activity throughout history.

The methodological framework of research and fieldwork design was influenced by the Boeotia and Montarrenti Surveys (Bintliff and Snodgrass 1985; Barker and Symonds 1984). Survey sampling and recording changed through field seasons adjusting to the needs of the project. The first pilot survey involved line and contour transects recording *all artefacts* and vacuum circles every 100 paces (77m). Later, the area was walked through line transects at 10-15m interval spacing, which provided a precision of 13-20%. Teams were small consisting of 3-4 people. On site a special collection additional to the line transects took place, in order to enrich data. By 'special collection' the researchers mean a smaller sampling interval between vacuum circles (every 5-10m), sometimes additional diagonal transects from the notional site centre, and grab sampling from the quadrants formed. Dating was based on the coarse-ware chronology built by Moody for north-western Crete (Moody 1985). Interdisciplinary studies included Historical Ecology, Geomorphology and Social Anthropology.

Presentation / Relocatability

This project focuses on presenting its methodology and data through a series of publications including a web site, which contains a site catalogue, graphs, tables, and a big number of landscape and object photos. However, maps are rare. A 'site' is defined as the 'area of significant human activity' and thus we have a great variability of sites including 'a set of ancient terraces or the area around a spring'. The use of detailed maps down to 1: 5000 would support quite a high probability of site recovery, except for sites with no distinct material remains; In any case, site-maps are not published yet except for an example in the Anopolis plain, where we have a topographical map of 1:66.666 with contours every 200 meters and a few dots representing site locations. The rough and wild landscape of most of the area would definitely be a problem in site relocation and thus although many sites are well-known already, many others could only be relocated upon small scale mapping and good presentation including modern features. A hand-held GPS is believed to have been used, and in this case both mapping and relocatability will be greatly enhanced. However, we need to await the project's full publication.

Density per area / period

	area surveyed (km²)	Total site no	PH	GR	BVT	Modern	Unknown
	470	339	127	167	197	103	4
Or:			125	162	194	103	4
Densities per km² (target population)		0,721	0,270	0,355	0,419	0,219	
Densities per km² (sampled population)	23,5km²	14,425	5,404	7,106	8,382	4,382	

Site definition: any locality with significant human activity. Sites are found through normal fieldwalking but usually are revisited for further sampling. Scatter sizes are also stated in many cases, the term 'scatter' being a class among others in site descriptions (e.g. settlement, farmstead etc). A problem occurring when we want to compare site densities with those of other projects is that not everybody would give 'site status' to all Sphakia sites. In the Internet database for example, under the function class 'beehives' there is a GR 'site' where only 3 fragments of a GR beehive were found. In other occasions although the presence of a period's pottery is stated, this period is not included in the site's chronological characterisation, perhaps because pottery is not considered adequate. In the above table however, total site numbers include these few sites. It should also be

noted that in some cases a settlement consisting of several distinct areas of activity is not included in their database as 1 site, but each distinguished area gets a site number (e.g. Phoinix-Loutro). Thus, although the sites numbered in their catalogue amounts to 339, they state that they recovered about 312 sites (Nixon *et al.* 1999). Differences in site definitions, demonstrate clearly the necessity of publishing site maps which distinguish between different functions, dates, sizes and appearance as well as confidence on characterisations.

Interpretative Framework

Survey techniques allowed the study of site size, function and chronological variation, while the combination of historical and anthropological evidence set a strong base for the interpretation of archaeological data and offered a better understanding of the environment. The quantity and quality of data recorded within the diachronic and multi-disciplinary scope of the project, allowed in the end interpretations relevant to the questions set regarding landscape use and change over time.

Settlement patterns were based on pottery densities and spread, although mainly on architecture and historical sources for BVT. The study of site size, character and number led to the identification of specific patterns; for example in the BVT period the pattern is one of both 'nucleated' and 'dispersed' villages, while the quantity of Venetian-Turkish sites is taken to indicate that the area was capable of supporting much larger populations than it does now. The extensive presence of prehistoric pottery is seen as proof of the extensive use of the landscape, while the presence of sherds in the Madhares, as either a route through the high mountains or use of the area as summer pasturage like now. Archaeological data are in general treated with respect to surface survey theoretical considerations regarding the recoverability and understanding of the surface record, e.g. problems of visibility and pottery recognition for specific periods (LM III) are recognised as playing an important role to the identification of sites.

Sphakia survey sheds light into issues such as itinerant sites (sites that move in space through time – Bintliff and Snodgrass 1988b), connections with other areas (fabric analysis, obsidian), diachronic pastoralism, variability of subsistence strategies and their impact with the environment. Hierarchy is among the favourite themes explored, as in most projects of the same tradition, not only so as to understand social circumstances per period, but also as a means of comparing settlement patterns diachronically (Nixon *et al.* 1999).

Regarding patterns of man-environment interrelationships, altitude is the main factor according to which site location is categorised and characterises one of the many correlative models used in the project, for example that LN / EM sites tend to be located at 600-800m altitude whereas coastal areas are preferred in later prehistory. Patterns between settlement and environmental factors include landscape potential such as proximity to sea and fertile land and are used to elucidate socio-economic circumstances. An explanatory approach is generally pursued via the integration of a variety of data accumulated within the interdisciplinary framework of the project and the consideration of site formation processes in trying to understand a site's history.

Summing up, the interpretative framework of Sphakia survey is based on the notion that human activity in the landscape is only understood when studied diachronically, inter-disciplinarily and in relation to the environment and its potential, making use of historical sources and ethnography to shed light even to little known periods such as the BVT times. A strong cultural-ecological perspective is evident throughout research and interpretation.

Influential References and Sources: Hood, Travellers, as well as Greek archaeologists who worked in the area were used as information-historical sources and their interpretations were taken into account. Barker and Symonds (1984), Bintliff and Snodgrass (1985), D.Keller and D.W.Rupp (1983) played an influential role in the methodology of the survey project.

Summary Assessment

Strengths: interdisciplinary and diachronic framework, detailed landscape history, synthetic interpretative approach, man-environment interactions, pottery fabrics.
Weaknesses: we need more information on sampling methods (e.g. sample size) and better presentation, but no full publication yet.
Evaluation of data and Interpretation: a large and diverse amount of data in combination with a strong theoretical framework, allowed interesting interpretations regarding cultural expression within a specific landscape; however, information is a bit general for the whole area. Diachronic comparisons of the variability in environmental and occupational history would be valuable. Environmental, site function and chronology maps will hopefully appear with the full publication.
Knowledge acquired: Environmental and cultural history.
Integrability: medium-high.
Publication: not completed, but many preliminary articles.

Sphakia survey is one of the most recent and complete landscape research projects. The results are relevant to the questions asked and the methodology chosen, and interpretations are based on a complex theoretical framework of man-environment interrelationships over time. The outcome is a history of cultural expression in the specific settings over specific time periods. The project's strong ethnographical character promotes reflections on the mode of human living relative to environmental potential and constraints, but within different social settings in different periods. Interdisciplinarity promotes understanding of landscape ecology through time, and it includes environmental studies, geomorphology, IT, but also historical texts, which in combination with field survey helped shed light into the little known period of VT times.

Surface survey methodology takes into account recent theoretical questions on appropriate techniques, site formation processes and recoverability biases and tries to recover sites of a large range of functions throughout history. An interesting statement is that prehistoric pottery found in sites with long occupational phases in historical times is more significant than when found on its own, because the prevailing R / LR phases tend to obscure earlier settlement phases. The opposite view however, supports that many PH sites are only discovered at a secondary stage during site sampling and would not have been recovered if concentrations of the more distinguishable historical periods had not been noticed by fieldwalkers in the first place.

One of the most important declared aims is the comparison of Sphakia data and results with those of other survey projects, thus, researchers make an effort for consistency, which as stated allows comparability. Publication, in the spectrum of which IT has also been recruited, has received great attention and indeed, dissemination of theory and methods, and the ability to compare survey results are among the most important criteria for a project's value. The project is one of the most well published at a preliminary level; however, there are still questions that can not be answered upon the currently published information. These concern sampling techniques in relation to the region's size, the criteria upon which field-methods varied, and the decision process regarding classifications of function and chronology. For example, sometimes chronological periods appear in the text documentation of a site, but not in the summary description as if they don't represent an important enough period, however there are cases where only 3 sherds assign a chronological and functional description. Survey publication should present clearly raw data and interpretations that are based on fully described analyses, a process which can greatly be enhanced by the application of IT.

Landscape Approach: Perception is based on what we see, which includes both environmental and human elements. Changes are studied within the man-environment interdependent relationship. Landscape use is explored from an economic point of view, namely its subsistence potential and ways of exploitation through time, but its symbolic character is also acknowledged occasionally, for example xoklisia are seen as marking important features of the landscape.

3.6.11 Survey id: Kavousi

Problem Orientation: aims and methods

Kavousi-Thriphti survey was undertaken by D. Haggis in the process of his PhD research, between 1988 and 1990. The aim was 'to provide a regional archaeological context for the LM IIIC / PG excavated sites of Vronda and Kastro by reconstructing the history of the region and its settlement patterns and by evaluating the archaeological evidence for the transition form the Bronze Age to the Early Iron Age'. Moreover, the study of the physical environment and topography aimed at providing a context for the study of the faunal remains from the excavations. A third focus of interest is claimed to be the study of the periods prior to and during the appearance of Minoan palaces and the Greek city states which represent crucial stages in the development of complex societies. Within the theoretical framework of Landscape Archaeology after the break of New Wave Surveys, much attention is given to the diversity of cultural responses to local topography and environment for which local micro-regional topographical and cultural studies are believed to be a prerequisite. The search of environmental and cultural criteria in order to test historical and archaeological models of human activity is characteristic of Landscape Tradition at the time. Local circumstances are also taken to elucidate island-wide effects of the palatial and polis systems in particular when inter-comparability of similar studies is established. The periods that received detailed archaeological study were from Neolithic to Roman whereas the post Roman periods were only partly recorded and not really studied.

Methodology took into account the environmental disparity of the regions studied. Field walking was based on the division of the landscape upon topographical units, within which landscape transects up to 500m long were defined. These were divided in 50m segments on which field-records were based. 1-3 fieldwalkers walked the area at a space interval varying from 5m on the mountains where they walked contour lines, to 25m in the plain where they walked transects. The sampled area which coincided with the target population of the modern district of Kavousi was thus a stratified sample based on topographical variability and fieldwalking methods were applied accordingly. Archaeological material was not allowed to be collected and thus off-site material was only recorded, in order to define loci of interest which were revisited at a secondary stage.

Site sampling consisted of two perpendicular transects extending from a notional centre which were divided in units 2m wide and 5m long. Sherd counts and collection was based on these transects but were also augmented by a 'grab sample' from the quadrants. The borders of the site were defined at cardinal points where less than 2 sherds were counted at two contiguous units and the borders between transects were explored for any irregularities. The purpose was to define the size and boundaries of the site, and the range of periods and functions represented by coarse and fine wares as well as architecture. The chronological range of a site was determined by the range of diagnostic fine wares and the relative proportion of the coarse fabric types and vessel shapes. Surface scatters recovered were at a size of 25-100m², whereas other major projects, which were more intensive (Mesara, Nemea, Kea, Boeotia and the southern Argolid) recovered surface scatters as small as 12m². However, installations (e.g. graves) down to 10-25m² were also found.

The methodology employed to answer the questions / aims of the project, was based on a multi-disciplinary approach, which involved aerial photography and mapping, environmental studies and fabrics analysis. Environmental studies included some geomorphological work to assess the effect of alluvial deposits in the plain which, however, did not appear to be important.

Presentation / Relocatability

Aerial photographs and Greek Army Maps were used at a scale of 1:5000, which certainly allows good mapping of landscape observations. However, the scales in which site maps are presented are 1:85,000-1:91,000 and as usual only in relation to contours. Presentation includes site maps per period, graphs, tables, architectural plans and object-drawings and photos. Maps also present site clusters discussed in the text, so in a way there is an attempt to present visually the interpretations suggested. Sketch maps show a close-up view of specific sites, with architecture and landscape features. Site records include text descriptions of

locations. Landscape descriptions and distances from known points such as roads or other sites seem to aim at helping relocation, but also at providing a picture of the immediate surroundings and sometimes the spatial relationships among different sites. Without, however, more accurate visual representations and geographical information, relocation remains problematic.

Density per area / period

	area surveyed (km²)	Total site no	PH	GR	BVT	Modern	Unknown
	21	91	80	34	20	14	0
Or:			77	33	18	14	
Densities per km² (target and sampled)		4,333	3,809	1,619	0,952	0,666	

Site definition: 'the identification of 'farmhouse' (<0.10 ha.) and 'hamlet' (0.10-0.60 ha) remains largely impressionistic. 'Farmhouse' sites have discernible architecture that suggests no more than three units; pottery consists of a presumably domestic assemblage of storage and cooking vessels and jugs, amphoras, and cups. Site-size definition is based on an estimate of the number of possible houses / households extrapolated from the agglomerate plans and spatial extent of EM II Myrtos-Phournou Koriphi, LM IIIC Vronda, and 20th century Trapeza (Avgo valley, Kavousi): Myrtos: 0.24 ha (5-6 households); Vronda: 0.60 ha (12-16 households); Trapeza: 0.375 ha (10-20 households)'.

Locus: a locus was any area of any size that required further investigation after primary field walking. The criteria used were the anomalous increase in artefacts (or discreet deposit) noticed either while walking or after plotting the densities on a map. Thus, loci were usually high-density concentrations with detectable spatial limits. A locus could be secondarily defined as one or more sites or not be given a site status at all.
Note: Post Roman sites have not been recorded consistently and have not been studied.

Interpretative Framework
This survey was part of a much larger project (Kavousi project started in 1979) which aimed to study and publish known sites and artefacts from the early 20th century excavations in the area as well as continuing excavation work in important EIA sites. The work of all previous archaeologists has been used as information material and has also guided interpretations. The results of the survey are thus, viewed within a context of archaeological knowledge presented through a historical overview of the rich archaeological research undertaken in the area.

The characteristics explored and used in defining the settlement pattern over time were the number and size of sites as an expression of population density, their spatial linkages expressing a nucleated, clustered or dispersed habitation pattern and their location in relation to geography and subsistence potential. The relationship between the above is discussed as indicative of specific economic and social articulations of each epoch in a specific landscape. For example, the relatively low off-site density in comparison with the results of surveys such as Mesara, Nemea, Boeotia and Keos is taken as an indication of less dense exploitation and discontinuous habitation. Periods with less but larger sites are interpreted as exhibiting a different socio-economic organisation than periods with small, dispersed or clustered sites. In the same way, locational choice is considered in relation to proximity to arable land and water sources, but also to the sea, communication and trade routes, in order to study socio-economic behaviour.

Focus lies on a micro-regional level of local socio-economic organisation, but although there is a strong emphasis on regionalism and local distinctiveness, the Kavousi region is analysed in relation to socio-

political and economic circumstances in neighbouring areas and the rest of the island, based on available excavation and survey data. Divergence from general patterns is seen as local responses to island-wide phenomena such as the rise of 'palaces' and later the Greek polis. The study of local trajectories is believed to allow a more in-depth understanding of such island-wide structures.

Discussions of settlement patterns are of course always based upon the interpretation of material scatters. Site size is generally the basic criterion used for the characterisation of a site as a farmstead, hamlet or settlement. Thus, the MM I-II landscape is dotted with small sites (0,02 ha – 0,10 ha) which are interpreted as farmsteads or small hamlets as opposed to the EM I-II landscape, which exhibits fewer, nucleated and larger sites. Hierarchy, being one of the most fashionable issues explored via survey, is discussed not only through site size, but also through sites' spatial structure (e.g. nucleated or clustered patterns) and building variations within a site. Thus, the appearance of megalithic farmsteads in the Protopalatial period, often in the centre of site clusters, which is attested throughout the island is interpreted as indicative of a social organisation at the time based on 'family units'. The change from the dispersed MM II pattern to the more nucleated one of LM I, when towns are larger and large country houses are associated with agricultural organisation and economic routes, is interpreted as a shift from a household economy towards a town (and in Kavousi port) economy, related to economic structures connected with palace formation. Settlement patterns' changes are thus, seen within a wider spatial framework than the region studied and a wider chronological context than an isolated period. Along the same lines the rise of the Greek city-states is explained as a result of a pre-existing complex social organisation with clan units developing strong identities in stable and discrete topographical entities.

Changes in the spatial arrangement of settlement patterns are interpreted as the result of changes in economic behaviour, which result to changes in socioeconomic structures. Thus, MM I-II and LM IIIC-Archaic site clustering shows dependence on agricultural sources. In Protopalatial times we have a dispersed pattern of farms and hamlets in clusters, but from LM IIIC we have nucleation in terms of larger site size, but in reality the pattern is similar to that of Protopalatial times and should be described as dispersed and in clusters. Both periods have sites in the same locations, show population rise, communal burials, and intra-regional distribution of pottery. Nucleation is taken as indicative of social structure in clan units, low population levels, need for good arable land and water, whereas dispersal shows population rise, family units, dependency on agricultural and pastoral land.

Overall, interpretative discussion develops around the burning issues of contemporary Minoan archaeology such as 'state', 'territory', spheres of influence, complexity, socioeconomic change. Cultural ecology perspectives have had a leading role in guiding interpretation; the resulting similarities between different periods, namely site clustering in MM I-II, LM IIIC-Archaic and Modern times are explained in terms of the local topographical exigencies. Divergence from this pattern however, notably in Neopalatial and recent times is explained in terms of island-wide economic and political systems.

Influential References and Sources: major survey projects in the Aegean, but also elsewhere, regarding theoretical and methodological framework, but also interpretations; General archaeological theory e.g. M.B. Schiffer (1987); Interpretative framework of contemporary Minoan Archaeology; Previous researchers e.g. Hood, Faure, Alexiou etc; J. Moody (1985) for the use of coarse wares in dating.

Summary Assessment

Strengths: explicitness in definitions such as site function interpretations; wide interpretative framework; social explanation over time, exploring in depth human-landscape interactions; inter-disciplinarity.
Weaknesses: no consistency in post-Roman data recording and presentation, not fully diachronic. Site function interpretations not always clear.
Evaluation of data and Interpretation: since off-site material was not collected and sites were not grid-sampled, important data and information might have been lost. However, the level of methodological and theoretical approaches is high, and even though data can not be assessed, interpretations are an important contribution to our approaching the past.
Knowledge acquired: socio-economic trajectories of the region of Kavousi from Prehistory up to Roman times, in particular regarding periods well attested in the surface record, namely Protopalatial, Neopalatial, Early Iron Age and Roman.
Integrability: high.
Publication: not completed (?), but many relevant publications and PhD thesis.

A strong theoretical framework supports both methodology and interpretation and explicit definitions and explanations clarify choices and results. The preference of an arbitrary boundary, as opposed to a hypothetical territory of a central place, is sustained with the discussion of the diversity of spatial structures in different periods and areas (Cherry 1983): '... the size and complexity of cultural systems tend to not remain the same over time'. Besides that, it is stressed that it is important to analyse numerous forms of societal organization, which may not be dependent on a hierarchical model. The methodology chosen as well as the interpretative analysis follow the questions declared to be of interest and which concern the periods of transition to palatial and EIA societies.

Fieldwork was designed in relation to questions set and the practical issues involved, like time and people available. A stratified sample upon topographical / environmental criteria and flexibility in field-methods seem to have allowed a satisfactory study of the region, while loci revisits allow a well-thought site definition and interpretation. The purpose of site sampling was to determine size, density and chronology. Recording only along two axes however, even though in combination with diagnostics' grab sampling, is not precise enough to assess the density of different ceramics and therefore neither the relationship between fine and coarse wares. Nonetheless, a relative idea of the chronology via both fine and coarse ware studies has been achieved. Methodology stressed the importance of studying stratified deposits and the excavations carried out by the Kavousi project has allowed the study of local coarse wares, which is stated to have resulted in the implementation of an effective chronology for Bronze and Early Iron Ages. Indeed, coarse ware studies have been proved a powerful and essential tool in survey and are now applied in most regional survey projects.

One of the main strengths of this survey is that it is relatively well published and important definitions of site function interpretations as well as good documentation of field-methods and relative records demonstrate the weight given to explicitness and the willingness to communicate results and interpretations. However, the lack of publication standards has resulted in this case also, in the omission of important information and sometimes the ambiguity of interpretations. Many basic questions remain unanswered, for example we do not know site density variation per period or what portion of the area was actually walked since the fieldwalking interval was variable and some areas were excluded. Besides that, the fact that no off-site diagnostics were collected, even though it could not be avoided, means that we do not have a picture of off-site landscape activity over time. For the high level of this project, some assessment of precision and biases would be expected.

Interpretation, as always in landscape archaeological studies, is based on the identification of settlement patterns, which describe the structure of sites' location, size and density in identifiable periods and are believed to express specific economic and social systems. Cultural reconstruction in Kavousi-Thriphti

survey is not restricted to the search of the origin or the diachronic discontinuity between apparent settlement patterns in distinct periods; special attention is paid to transitional periods and the question of how such patterns functioned. Kavousi survey focuses on socio-economic variability over time and the observation of the relationships between sites as well as sites and the landscape. Most interesting explanations constitute the models of 'integration' and 'connectedness,' which represent heterarchical and hierarchical patterns of cultural expression respectively; Haggis, (2002) defines integration as 'the quantity of lines and points of horizontal interconnection, the density and diversity of lattices of intercommunication and interaction – social, religious and economic –across the landscape. It is the measurement of the diversity of links between sites, usually of equal rank, and between sites and the physical landscape itself'. Connectedness 'presupposes singular, unilateral, hierarchical and intensive links to a limited number of selected sites, and extensive and often specialised agricultural and pastoral activities'. The change between periods observed in settlement patterns, and traditionally believed to be caused by changes in socio-political circumstances and invasions (e.g. LM IIIC), has in general attracted much interest in Minoan archaeology theoretical discussions.

Finally, local environmental factors are considered crucial in assessing hierarchy. Haggis does not try to identify an island-wide pattern, but recognises local trajectories and regional differences which, however, he sees in relation to what is happening in the rest of the island. It is supported that small-scale surveys help assess the effect of island wide political and economic changes by analysing regional responses through the study of settlement patterns changes. It is true that micro-regional studies allow greater detail in the understanding of social processes through the analysis of man-environment interrelationships and the development of site hierarchies and inter-site spatial structures. Thus, the region is not seen in a vacuum but in relation to a wider spatial and chronological context. Processes in the rest of the island and the Aegean in general are considered, and the profound social structures of palatial Crete and the Greek city-states are explained in relation to pre-existing socio-economic organization. It is evident that there is a strong interest in the circumstances that led to specific social structures which promotes explanation as opposed to plain description.

Landscape approach: landscape is the geographical, topographical and environmental context within which cultural behaviour is formulated. Its study in relation to human activity allows insights into past socio-economic structures.

3.6.12 Survey id: Malia

Problem Orientation: aims and methods

This is a project directed by the French S. Muller, and the aims declared consist of the discovery of all archaeological remains in the Malia plain and the construction of a map of occupation for all periods. More specific goals include: 1) the definition of the extents of the Minoan town around the palace, 2) the discovery of other habitation centres related to the palace but also pre- and post-palatial ones, 3) the location of the necropolises of the second palace, the harbour and the quarries, 4) the understanding of the water sources and their use from the palace, 5) the discovery of circulation routes and 6) the definition of the mode of occupation in Byzantine times. Some of these aims are stated to be the objective of other researchers involved with the site. The project is in fact part of the overall study of the palace and its spatial context, but within a landscape archaeology framework a diachronic perspective of the history of occupation in the area is pursued.

Survey methodology followed Bintliff and Snodgrass's methods in Boeotia (1985), dividing the non-cultivated area into 50x50m grid squares, which were walked at intervals of 10m. The cultivated areas were walked as fields identified first in the aerial photographs, presumably also in 10m intervals. The objective was to record pottery densities and architectural remains in detail. The urban survey, which lasted for about 11 weeks over 3 seasons starting in 1989, was followed by a survey of the wider area of about 40km². Boundaries and units were defined upon geographical and topographical criteria. The aim was to locate secondary sites and every place of human activity in general. Time available was only 2 weeks for 10 walkers in 1995 and 3

weeks with 8 walkers in 1996, when they tried to obtain an idea of the whole plain and record the sites found and their location. Multi-disciplinarity involved aerial photographs, sedimentology, topographical mapping, architectural studies and IT. The survey has also a strong rescue character, as Malia is a very fast developing tourist location.

Presentation / Relocatability

The urban survey covered basically zone A, namely the area where the Minoan town around the palace is expected to lie. Maps used were at a scale of 1:1000. Density maps of the areas walked are presented at 1:17.391, while the overall survey boundary is shown on a topographic map of 1:94.340. Density maps are presented as separate sketch plans and they are not integrated in topographical maps. In the form of sketch maps we also have the areas surveyed per year and the location of architectural remains. Relocatability should be at a good level since topographical mapping was of primary importance, but at the moment we only have descriptive accounts of some of the sites. Most figures in the reports are object and landscape photographs.

Density per area / period

	area surveyed (km²)	Total site no	PH	GR	BVT	Modern	Unknown
	40	85					
Or:							
Densities per km² (target population)		2,125					

Site definition: no explicit site definition; we only know that the landscape survey around the site of Malia seeks to record every place of human activity. We do not have a site catalogue, but we are given the final number of sites recovered.

Interpretative Framework

The major problem of the urban survey was to define the extents of the town. In some cases, e.g. to the N and E of the palace it was difficult to conclude on whether buildings discovered belonged to the town or were isolated. Pottery concentrations, which as expected are higher around the palace, have in general been the principal evidence of new habitation quarters, but empty spaces may also be considered as habitation areas in the light of geomorphological changes. For example the area with very bad visibility NW of the palace which is empty of finds but connects the palace with traces of houses and a road, is thought to be a huge suburb. Both fieldwork and aerial photographs were used in order to trace features, whether house remains, terraces or routes, which are then interpreted regarding their relationship to the urban area. In other words, the location of architectural features and pottery concentrations form the evidence of the extents of the various habitation quarters of the town.

Intensive landscape survey in the plain but also extensive work in surrounding areas and neighbouring hills, show an effort to understand the site within its immediate spatial context and in particular, habitation in the plain of Malia. Most of the sites found in the landscape survey of the plain are habitation sites and interpretation focuses on describing their pattern. Three habitation zones are observed: by the coast, in the plain just under the 20m contours and at the foot of mount Selena, around 100-150m altitude. The identified pattern is said to allow an intuition for the existence of sites that have disappeared. The majority of the pottery belongs to LM III and LR, while presence from LM IIIB till LR was only sparse. MM II is represented in

almost all sites showing a dispersed pattern, while LM I is observed only in a few sites which are generally bigger, a sign of nucleation around big sites. This pattern is observed to be similar with the one reported in Mesara and contradictory to the one in Vrokastro.

In general, problem orientation focuses on the reconstruction of ancient topography and landuse. Terraces observed around the palace are thought to correspond to quarters of the Minoan town and Minoan routes are seen to divide currently cultivated fields according to the organisation of the territory in Minoan times. Routes are not explored systematically, but they were recorded, as their function is considered important for the understanding of the site and its relationship with space around.

Landscape observations and geomorphological considerations, in combination with information regarding traditional agricultural practices, were used to enlighten past landuse e.g. the utilisation of cisterns in terrace-agriculture nowadays is seen as evidence of a tradition lasting since the Minoan times and quarries were studied in a diachronic framework. Moreover, an independent palaeo-ecological study using evidence from hydrography and soil degradation aims at assessing the possibilities of autarchy in Minoan Malia. However, data synthesis is as yet rather descriptive; we are not given explanatory suggestions as to the relationship between spread of material culture and socio-political circumstances.

Influential sources: New-Wave surveys and their landscape approach, in particular the Boeotia project. As always, all excavation work undertaken in the area.

Summary Assessment

Strengths: good site survey techniques.
Weaknesses: not published
Evaluation of data and Interpretation: methods are trustworthy, but as publication is not complete we can not assess gaps neither in methodology nor in interpretation.
Knowledge acquired: a picture of past remains in the area, especially regarding the structure of the Minoan town and the surrounding landscape.
Integrability: low
Publication: not completed.

Malia survey is published up to now in the form of reports in the BCH series. Publications consist mainly of descriptive accounts of what the research team did and what was found at certain locations. Survey techniques are modern and the landscape approach seems promising and enlightening, revealing ancient landscape organisation under current landscape observations. Intensive study has also led to the correction of previous hypotheses e.g. the line of walls on the coast is not part of a fortification, but belong to a series of buildings. Multidisciplinarity is expected to allow multivariate analyses and lead to instructive conclusions regarding the history of landscape development in the area. Moreover, the rescue character of the project gives it an additional value, as it undertakes an active role in the sad and complex issue of the fast and irreversible destruction of ancient landscapes.

However, with the present state of publication, project understanding remains low. We acquire an idea of human activity in the area in particular regarding the Minoan times, but this is not viewed in a socio-political and economic context. As we do not have density maps of the whole area and there are no results as yet regarding functional and chronological variability, it is difficult to understand the spatial structure of the town, and the lack of a site catalogue of the landscape survey does not allow us understanding of the surrounding area over time either. Hopefully the historical development of the Malia site and plain will be clear in the future.

Landscape Approach: landscape is approached as the spatial context of human activity, but also as the physical environment which people use and subscribe social action (use and organisation of space).

3.6.13 Survey id: Aghios Vasilios Valley

Problem Orientation: aims and methods

This project headed by J. Moody, A. Peatfield, and S. Markoulaki took place in 1991 and was designed to explore the relationship between the PH settlement pattern and the peak sanctuary of Atsipadhes, so as to test A.Peatfield's hypothesis (1983) regarding PK function in Minoan Society. According to this the role of most Peak Sanctuaries changed in the Protopalatial period, from being local sacred places to most of them going out of use in the Neopalatial except for those that were linked to administrative centres. Excavation at the peak sanctuary of Atsipadhes was thus complemented by landscape research of the wider area (10 km² around it) including intensive surface collection. Although this was a surface survey around a site of interest and the main focus lied in the Minoan period, data collection included all periods up to now.

The field methods used were similar to those adopted in Chania-Akroteri, Sphakia and Vrokastro survey projects because the same person was either the main field director or co-director in all of them (Jennifer Moody). More specifically, the landscape was divided in km², then in quadrants of 500mx500m and each quadrant in 50x50m units. The 10 km² walked were divided into 50m-wide landscape transects and every other transect was walked by 3 fieldwalkers at a space interval of 16m, making the sample size 50% of the target population. Diagnostics were collected throughout the transect lines and detailed environmental and archaeological records were made every 50m, where 1m-radius vacuum circles were performed. Detailed recording and mapping in map units, as well as keeping pace numbers, aimed at locational accuracy, which is indeed necessary when revisits are to take place. Revisits were actually an important part of the project, especially regarding Bronze Age material due to its rarity; places where even 1 Minoan sherd was found were revisited for a second more thorough inspection. A place of interest was often designated as site only after a revisit. Sites were sampled at this secondary stage of exploration.

Presentation / Relocatability

The maps used were the British Army maps of WW II at a scale of 1:50.000 and a relevant grid was laid across the valley, shown in a figure that presents the sampling strategy. Presentation of the methodology is supplemented by an example of field forms. Another figure presents a sketch of the stratigraphy of the main site of Hagios Georgios. The survey boundary and some of the sites (possible Bronze Age scatters and revisited scatters) are presented in 2 contour maps of 1:50.000, but for the moment not even a site catalogue is published and presentation is in fact poor. Presumably locational information including map co-ordinates will be included in future publications, but the usual problem of relocating small sites especially if not related to modern land features will probably remain. Overall, presentation up to now focuses on methodology and a general 2 dimensional view of sites in relation to contours.

Density per area / period

	area surveyed (km²)	Total site no	PH	GR	BVT	Modern	Unknown
	20	380+	88				
Or:							
Densities per km² (target population)		19	4,4				
Densities per km² (sampled population)	12	31,666	7,333				

Site definition: Presumably the same as in Sphakia and Vrokastro, where site was any locality with significant human activity. Bronze Age scatters could be of much lower densities comparatively to other periods, because of scarcity of material. Judging by the fact that a similar methodology as the above mentioned projects was followed, the precision used seems adequate to recover sites of down to 0.02 hectares at a good accuracy.

Interpretative Framework

The theoretical framework of the project reflects the 90's in landscape archaeology, when questions developed around issues of socio-political life and human ecology, exploring hierarchy, nucleation and dispersal of settlements over time, as well as the relationships between human activity and environment in a diachronic perspective. Surface record biases were taken into account and the environmental record was studied in detail so as to understand both the geomorphological history and its impact to site recoverability, as well as man-environment interrelationships in the valley. Interpretation took into account previous archaeological work in the area and operated within a framework of data comparison with other landscape research projects. Thus, the Neopalatial dispersed settlement pattern, which contradicts evidence from other surveys (Kavousi, Vrokastro etc), was linked to the MM II abandonment of Monasteraki and Apodoulou. The chronology of the Peak Sanctuary was in agreement with survey data and A. Peatfield's model of peak sanctuaries, suggesting that only those related to major centres survived in the Neo-palatial period, was supported by survey results. Indeed, in the case of Atsipadhes the Peak Sanctuary was abandoned and no nucleation around a major centre was attested.

Spatial patterning is explored in relation to subsistence potential and as an indicator of socio-political situations, an approach that in landscape archaeology has become a consistent component of methodology and interpretative framework since the impact of New Archaeology. However, the fact that only preliminary and brief reports have actually been published does not allow us an in-depth understanding of the project.

Influential References and Sources: The Province of Hagios Vasilios had been previously explored by Hood and Warren (1966) and their report was used as a source of information. Regarding methodology, it lays within the development of the New-Wave surface surveys. Interpretative framework is typical of Minoan landscape archaeology since the 90's, concerned with changes in settlement patterns, nucleation, dispersal and hierarchy, in an effort to understand the socio-political and economic characteristics of a complex society.

Summary Assessment

Strengths: the project operates within the methodological and interpretative framework of the Landscape Tradition; it is concerned with surface record recoverability, environmental history of the area, detailed recording and published methodology.
Weaknesses: very fragmentary publication up to now; no data can be used.
Evaluation of data and Interpretation: Interpretation as yet kept to a minimum. It develops around issues of population fluctuations and settlement patterns (nucleated versus dispersed). Data are not published and therefore can not be assessed.
Knowledge acquired: Basics of environmental and human activity history through time.
Integrability: estimated high, but no full publication as yet.
Publication: not completed

Current publications give us a summary of the environmental history of the area, an account of the methods used, and a summary of their interpretations regarding settlement patterns. It is one of the most recent and detailed surface survey projects, which adopted clear and well tested field techniques, although site sampling on the basis of 2 perpendicular axes does not give adequate information so as to quantify pottery variability and estimate site extents in different periods. It is certainly an asset that the field director pursued comparability with other surface survey projects and although this was expected since she was involved in

all of them, it is important that the point of comparability is stressed. The environmental study undertaken includes more than just a background of vegetation and land potential, and is used to understand surface biases. Explanatory models are sought in relation to site recovery and in this framework it is concluded that the settlement pattern must have been affected by 3 flush-flood episodes as opposed to consistent erosion. However, the interrelationships with human activity are not really understood.

The main problem with this survey is inadequate publication up to the present, fact that prohibits understanding and assessment. Moreover, we have no information whatsoever about historical periods. Nevertheless, it appears to be well-thought with specific questions and methods able to answer these questions. Results are expected to be of a high degree of confidence.

Landscape approach: environmental history and topography so that we understand better human activity in the area. As yet we don't have an explanatory framework discussing economic and socio-political issues over time.

3.6.14 Survey id: Gournia

Problem Orientation: aims and methods

Gournia survey, undertaken by V. Watrous, K. Davaras, and H. Blitzer, aimed to document the natural environment and history of settlement around the Minoan town of Gournia prior to the reopening of the excavations, and it was one of several survey and re-excavation projects in eastern Crete, as a result of the Greek Ministry's encouragement to foreign schools in the early 80's to refocus on their old excavations. Questions formulated along themes of environment and subsistence, population and settlements, economic relations and the town's role in the political organization of the region.

The area surveyed was about 24km² and fieldwork lasted for 3 seasons (1994-96). Fieldwalking was performed in 100m transects at a space interval of 10m and all sherds seen were collected. Research methodology involved geomorphology and ethnography as principal tools; the first so as to study changes in the physical landscape and in particular the coastline and drainage systems. Ethnography in turn, explored issues of local land use, agriculture, traditional industries and water management.

Presentation / Relocatability

The current publications focus on the presentation of site maps at 1:17.241, 1:57.142 and 1:86.956. An interesting map shows the spread of pottery through symbols representing type and quantity of sherds. Presentation is expected to be along the same lines as most intensive survey projects.

Density per area / period

	area surveyed (km²)	Total site no	PH	GR	BVT	Modern	Unknown
	24	156 (new sites)					
Or:							
Densities per km² (target population)		6,5					
Densities per km² (sampled population)							

Site definition: no site definition. Presumably peaks of artefact densities, since off-site pottery is counted.

Interpretative Framework

Gournia survey is a typical project of the Landscape Tradition, focusing on themes of regional social complexity and using multidisciplinarity as an important guide in the interpretative process of the data collected. Environmental studies provide the necessary information to approach issues of subsistence and the role of environment in socio-economic structures. For example, the fact that the Gournia River was probably perennial in antiquity is seen as a possible explanation for the location of Gournia, whose settlers seem to have preferred easy access to water than a more strategic location at the mouth of the isthmus. Geology was used to understand landuse and issues of agriculture; moreover, the fact that the region of Gournia has a unique outcropping of grano-diorite, which has been used in pottery and can be easily traced, was used as a tool to trace ceramics' movement, elucidating issues of trade and ceramics production. Ethnography on the other hand, has also played a leading role to interpretation. The ethnographic record is stated to form the best background to understanding regional data. Blitzer's work showed that people before the 1920 did not cultivate the valley floor, because water was only seasonal and the soil did not respond well to dry farming. An interesting short discussion on the use of terraces, opposes Moody and Rackham's view on terraces, who explain their construction in relation to specific crops and as a means to avoid erosion. Instead, it is supported that people's stories do not link terrace morphology to specific crops, but to time and energy available in connection with the need to increase yields. However, their 'social' need to increase cultivable land does not contradict the 'ecological' concern of preventing erosion; the two are interlinked.

Preliminary results published up to now offer a brief description of the settlement history over time according to the main aims of the project and indeed all regional surveys. The basic themes explored concern numbers of settlements per period translated into settlement expansion / reduction, which in turn corresponds to population increase / decrease and economic life; e.g. a dispersed pattern usually represents family farmsteads and agrarian economy (EM II, MM IA-MM II), while the slight decrease of settlement in MM III – LM I is explained as the result of the eruption of Thera and nucleation in Gournia. Increase in the size of settlements (e.g. Gournia in MM IB-II), in combination with imported goods and burial display is explained as evidence of the rise of an elite. Moreover, correlations between settlements and environmental factors such as soil are used as indication of subsistence economy, e.g. dry farming versus well-watered grazing land. Geographical location is also linked to economic and social conditions, e.g. coastal settlements in connection with imports are evidence of commercial industries, while habitation of remote hills (EM IIB – MM IA) shows a need for defence. The description of settlement patterns over time refers to a sharp population drop in LM IIIA – B and hilltop sites of LM IIIC, the largest of which in Profitis Elias developed to the city-state of Larisa. The lack of settlement in the Hellenistic period is related to the historical sources referring to continuous warfare in the area at the time, while the Roman period sees an expansion of settlement, which lasted until the 9th A.D. Settlement reduction is evidenced again in the middle Byzantine period, and from Venetian times it picks up again.

Overall, there is a clear link between data (pottery and environmental) and explanation: site ceramic assemblages are seen as a direct reflection of subsistence strategies, and regarding the LM I period they highlight the use of dry farming and dependence on a mixture of cereals, vines, legumes, livestock and kitchen gardens. The lack of off-site pottery – which is a sign of agricultural activity– on the valley floor, is explained as a result of the dry soil, which is unsuitable for dry farming. Off-site pottery is studied and interpreted as an indication of manuring following the framework of several other survey projects, and a practice supported by the ethnographical record as well.

Influential Sources: survey projects worldwide; the history of Minoan archaeological research. Bintliff and Snodgrass (1988a) on off-site pottery distributions.

Summary Assessment

Strengths: multidisciplinarity and interesting interpretative framework.
Weaknesses: not fully published
Evaluation of data and Interpretation: data can not be assessed with the current publications, but a multi-disciplinary methodology and explanatory framework promise interesting interpretative suggestions.
Knowledge acquired: an illuminating picture of settlement patterns and population increase / decrease over time; explanatory suggestions regarding subsistence; socio-economic insights.
Integrability: low
Publication: not completed

This project belongs to the Landscape Tradition and in particular the so-called New-Wave surveys and could be described as an offspring of New Archaeology developments, demonstrating a strong relationship between the data observed and the interpretative schemes proposed focusing on economy, subsistence and social hierarchy. Multi-disciplinarity is a strong methodological and interpretative tool and analogy both in space and time plays an important role in interpretation. Results were seen in relation to data and interpretations from neighbouring regional surveys, and even preliminary publications enhance our understanding of Minoan society in the area. The underlying conceptual framework is influenced by cultural evolutionary concepts of state formation; it studies the rise of a palace society and links population fluctuations with economic practices and the rise of social hierarchies. Interpretative suggestions within this framework are very interesting; however, they may at times be debatable. For example the nucleation at the site of Gournia in MM III – LM I is commended upon 'as a sign that Gournia had established a system of local tribute which required a more nucleated population, farming relatively larger areas'. Nonetheless, it is not necessary that there is a direct relationship between urbanism and larger schemes of agricultural exploitation under the power of elite. Urbanism and economic development can also be related to horizontal social relationships where a larger amount of the population profits from trade or exploits his land from the city. In an effort to reconstruct social hierarchy, Gournia is proposed to be a second order administrative centre controlling its immediate region, but functioning under the influence of a larger centre, which may have been situated at Ierapetra (where no palatial centre is as yet identified), Malia or even Knossos.

Survey methodology is not explained adequately, it seems however that it follows basic standards of the New-Wave surveys, involving off-site collections and site-sampling, which equals to a large body of regional and site information valuable for the reconstruction of the history of the area. Surface record biases seem to have been taken into account. It was a full-coverage survey, where all the sherds seen were collected, and it is astonishing that virtually all of them were dated, as it is suggested. No site catalogue is of course published except for a few sites at the journal of Archaiologikon Deltion and in general publication is as yet at a very preliminary stage. Therefore, results can not be assessed and integrated in inter-regional analyses.

Landscape Approach: the landscape is approached as an environmentally determined spatial context of human activity, where social evolution is based on interactions between people and environment.

3.6.15 Survey id: Gavdos

Problem Orientation: aims and methods

Gavdos survey directed by K. Kopaka, started in 1992 and falls within the general theoretical and methodological framework of intensive surface survey and modern landscape research. The researchers are interested in the development, extent and density of human settlement in an insular landscape over time and seek to approach patterns of settlement, landuse, communication routes, environmental and man-made disturbances and changes. The ultimate aim is claimed to be the construction of an as complete as possible picture of the history of space in which various human communities have lived over time.

In such a task, clear theoretical planning and inter-disciplinarity are stated to be a prerequisite. Thus, environmental and social sciences have been employed in a continuous interplay, structuring methodology upon an interdisciplinary framework of studying the history of Gavdos culture and landscape. In particular, geomorphology, hydrology, historical ecology, social anthropology, ethnography, history and archaeology have guided research at various levels of intensity. Walking has been extensive and intensive, extensive being used in order to define areas of archaeological interest that should receive intensive research and for areas that can not be intensively covered.

Presentation / Relocatability

A map of 1:666,666 shows the location of the island of Gavdos, in relation to the other islands around Crete and Crete itself, in a framework of island archaeology. No site maps published as yet, but it is stated that topographical maps of 1:5000 were used. The only map presented is based on the 1:50000 topographical maps from (GYS). Presentation includes object drawings and photos, in particular photos of architecture, but also of an everyday life theme, namely the arrival at the small harbour. This relates to the importance given in ethnography and the character of a small remote island.

Density per area / period

No site catalogue published as yet. However, it is stated that up to 1996, 80 sites were found.
Site definition: an archaeological unit, either isolated (tomb, kiln etc) or more complex (farm, cemetery, settlement etc). The identification and the boundaries of a site are decided upon the quantitative and qualitative character of the finds in relation to the wider shaping of the landscape. The site catalogue includes all monuments recovered till the end of the 19th century, whereas monuments of the 20th century are recorded but not included in the catalogue.

Interpretative Framework

The project is presented in a close relationship with older landscape research traditions, such as Travellers, antiquarians and other archaeologists, in that they all share a common problem orientation of identifying and recording natural and man-made landscape monuments. Human Geography and historical topography are claimed to have always been the principle goals of cultural landscape exploration and we note a reflective approach on the historical background of landscape research with insights into theory and methodology. Encompassing traits of Human Geography, Culture-History archaeology and a traveller's look, its most important characteristic that shapes its whole conceptual framework is its emphasis on multi-disciplinarity. To introduce the reader to the spatial entity of the island, they give us a geographical description with co-ordinates and distances from surrounding places. Toponyms are studied consistently and photos aim at initiating us to the general landscape of the island.

Aims and interpretation develop around the identification of settlement patterns in terms of site density and locational preferences over time. Preliminary results show that the island had been inhabited since the Final Neolithic, putting Gavdos among the islands fist settled. Human activity seemed more intense during the EBA, MBA, Hellenistic, Roman and Late Roman / Early Byzantine periods, a pattern also observed in Crete and elsewhere. Habitation during these periods seemed dense and exploitation was rather intensive in both the coast and the hinterland. It is stated that the study of finds and the synthetic mapping of zones of archaeological interest will be used to reveal the chronology, organisation and function of settlements over different periods of occupation, the general networks of settlement and economic activity and the diachronic relationship between Gavdos, Crete and other areas of the Aegean and the Mediterranean.

This project is a typical product of the last decade of landscape research tradition, focusing on questions of landscape history and ecology and using archaeology as its major tool, but only one among others. The questions set do not seek to produce site maps per period, but to understand and reveal the dynamics of

a particular landscape (that of an island) over time. Furthermore, this idiosyncratic landscape is considered in relation to other islands within a framework of intensified archaeological interest towards island cultures.

Influential References / sources: theoretical and methodological framework of systematic intensive surveys.

Summary Assessment

Strengths: clear aims and theoretical framework as well as an inter-disciplinary framework of research.
Weaknesses: not adequate preliminary publication.
Evaluation of data and Interpretation: not much data available as yet.
Knowledge acquired: a general idea about the cultural history of the island, its landscape and the history of research. The particularity of such an insular landscape is emphasised.
Integrability: low.
Publication: not completed.

Unfortunately publication of this project is very limited, therefore almost nothing can be said on the results acquired, both data and interpretations. Although there seems to be a clear problem orientation and the application of recent theoretical and methodological tools allows us to expect interesting answers to the questions set, in reality, neither methodology nor results can be assessed. Information given is rather general and we lack even basic information. Site definition and designation of boundaries are not as clear and explicit as it would be desired and the use and results of interdisciplinarity for the understanding of historical landscape ecology not really lucid. Naturally, the on-going teaching component of the project probably dictates a high degree of variability in field-methods and in fact fieldwork still takes place. It remains to be clear how methods relate to results and how the teaching character of the project is incorporated with its research framework.

On the other hand, the diachronic landscape reconstruction pursued and the studies of man-environment interrelationships, which elucidate the idiosyncratic character of the societies evolving in an insular island landscape, delineate a significant research goal. Archaeological research within the Landscape Tradition goes beyond correlative relationships and the interest in site location, to seeking understanding of historical landscape ecology. The fact that Gavdos is a small island enforces and facilitates such an approach. Co-operation with other disciplines seems to exceed multi-disciplinarity and reach an inter-disciplinary level, which is in fact essential if the goals are so complex and aim this high. Natural and social sciences need to work hand-in-hand so as to approach understanding of the particularity of such an island landscape in its totality.

Landscape Approach: landscape is seen as an entity that forms the playground of natural and cultural interplay.

3.6.16 Survey id: Praisos

Problem Orientation: aims and methods

The aim of this landscape project, directed by J. Whitley, was ‘to provide a history of settlement in the immediate area of the city of Praisos and thus to place this ancient city into some kind of local context’. The chronological periods that receive most attention in the preliminary publications are from LM IIIB through the end of the Archaic. Even though Praisos was the core of research, being a major city-state until its destruction by Hierapytna in 143 B.C., there is a great focus on the transition from Bronze to Iron Age, with Kypia as the major LM IIIC site.

Field study consisted of topographic work, a regional intensive survey following the Keos Survey example and an urban survey following the Phlius Survey example. Small teams of 2-5 walkers walked field tracts at an interval of 15m (12-15 fieldwalkers altogether) recording diagnostics, visibility, vegetation and

landuse. Locations of catalogued activity consisted of sites and features, the latter not necessarily providing a higher pottery density comparing to surrounding areas, but considered important enough to be recorded (e.g. terrace walls and roads).

On-site sampling involved four transects/axes extended at right angles from the notional centre of the site, along which samples were taken in the form of 1-m vacuum-circles at 5m intervals. In between them transects were walked as during off-site, and diagnostic material was collected. Additional grab sampling in the quadrants allowed supplementary information especially in dating. Survey took place over 1993-94 & 1998 while in 1992 & 1994 a topographical survey was also completed.

Presentation / Relocatability

Maps published in the main preliminary report (James Whitley *et al.*. 1999) are of a pretty good scale of 1:25.000. They show the survey boundary and a general view of sites in relation to contours, streams, some cliff faces and one road, but the area is remote and the lack of modern features hinders relocation. Coordinates are available on the maps presenting the survey boundary and the sites, site symbols however cover too big an area and the scale used seems to aim at a general picture of sites in space rather than relocatability, which seems to be a general characteristic of projects belonging to this tradition. Moreover, site location and numbers do not always agree between maps. On the other hand, some sites are presented through detailed topographic plans that relate topography with material culture, and operate as 'close-ups' of these relationships. Architectural plans and object drawings are also included, and one example of walked field tracts portrays the field sampling methodology. Finally, an aerial photo taken in 1943 by RAF, allows a pragmatic visualisation of the Praisos landscape. Overall, focus lies on the topographical characteristics of sites, evident as much in plans and maps as in the text descriptions of the site catalogue.

Density per area/period

	area surveyed (km²)	Total site no	PH	GR	BVT	Modern	Unknown
	9	83	28	39	14	19	28
Or:			23	29	12	18	28
Densities per km² (target population)		9,222	3,111	4,333	1,555	2,111	3,111
Densities per km² (sampled population)	5	16,6	5,6	7,8	2,8	3,8	5,6

Site definition: a site is defined as a locality, which was the focus of major human activity, i.e. settlement, cult or burial, usually demonstrating architecture and a high pottery density. However, landscape features such as terraces, roads, springs and wells are also recorded and catalogued, given a 'no site number' characterisation.

Interpretative Framework

As most landscape projects, Praisos survey also looked to identify locations of defined human activity, observe their characteristics such as pottery density, function and location and try to explain their variation over time. Interpretation regarding what is a site partly occurred already at the time of fieldwalking. Observations and interpretation of site density and location explored issues of subsistence, defence, urbanisation, and territoriality. More specifically, habitation in the area is noted from Neolithic until modern times at different densities per period and variation is explained in terms of centralisation, nucleation, and rural expansion. The

pattern of location observed for FN/EM times favours the idea that people seemed to have preferred naturally defensive localities even at the cost of lack of environmental protection, phenomenon which implies social troubles. In Protopalatial times though, the locational pattern seems to have been guided by subsistence factors. Not all patterns could of course be explained and in some cases comparisons with results from other surveys are used in order to suggest analogous interpretations (e.g. the fact that only little Neopalatial evidence was noted is related to the similar situation in the Kavousi area where the pattern is explained as a sign of urbanisation). In other instances, comparisons with data from other surveys emphasise the differences of patterns, e.g. LM III in eastern Crete is a time of abandonment of coastal towns whereas in the Praisos area a settlement expansion is noted (the two phenomena seem to be interrelated, since Praisos is in the hinterland). Interpretations, however, are not always explanatory suggestions but often just statements of patterns observed.

A self-critical approach is an important characteristic of the theoretical and interpretative framework of the project. The objectivity of results is questioned, stressing problems of recoverability and the ability to date sites within a fine chronological framework. Modern landscape destruction is emphasised as responsible for the constant change of the surface record, diminishing our potential to recover past landscapes. Archaeological problems such as our deficiencies in dating pottery, in particular regarding the Greco-Roman times, are also stated. Moreover, features like megalithic walls that were in use for long periods of time, are recognised as hard to date and excavation is proposed as a solution.

Influential references and sources: Keos and Phlius surveys served as the main influential examples regarding off-site and on-site field methodology respectively. Previous archaeological investigations and excavations in the area were of course also used, mainly as information sources. Interpretation takes into account other landscape work in Crete.

Summary Assessment

Strengths: More light into the little known period of LM IIIC and the beginnings of the Greek cities. A critical approach was adopted. Good scale topographical maps of some sites.

Weaknesses: Criteria for site definition are not clear. Examination of patterns regarding site densities and location, but also data comparison with other areas are not consistent. Patterns are not always explained and observations are not always consistent e.g. land potential for all periods.

Evaluation of data and Interpretation: multi-disciplinarity and cautiousness in interpretation suggest quite a high confidence on site patterns. However, landscape features recorded are not sufficiently and clearly integrated in interpretation.

Knowledge acquired: an idea of site density in the area through time and relevant possible explanations. Characteristics of the SM / G period.

Integrability: medium-high

Publication: not completed.

This is one of the latest surveys in Crete and field methods were intensive and comparative to other big survey projects. However, as in all other survey projects we lack detailed information regarding sampling and there are also problems regarding site definition. The relationship between data observed and interpretations is rather ambiguous. For example while they differentiate between ‘sites’ and ‘landscape features’, criteria used do not seem to have the desired consistency, as sometimes the same description fits both their ‘sites’ and ‘landscape features’. It is not clear why definite sites are not included in the ‘site record’ as for example a tholos tomb probably of LM III-G or churches probably of Venetian date. A ‘probable’ tomb on the other hand of unknown date (site 54) is called a site. Also, landscape features, some of which would be called sites in other surveys, are sometimes assigned separate descriptions (with the prefix ‘no site number) and in other occasions they are included as additive information in site descriptions. Common among them are megalithic walls and terraces, which as they provide important information regarding landscape use, we should be able to include them in

our analyses, if not always with known date and function, at least taking into account their characteristics and spatial distribution. As it is, we lack ability to study them comparatively with the sites and among themselves.

Visualisation is also rather weak for the moment, as sites are only seen as dots in relation to contours and also, not all of the sites discussed are noted on the map. Function and chronological variability are not presented and environmental studies are not clearly combined with survey data, and certainly not in a diachronic framework, even though this is a common weakness among surveys. Furthermore, as most sites are not assigned a specific function, it is not very clear on what data the proposed narrative of settlement patterns is based.

In any case, the project provides us with a good picture of site density in the area, and focusing on the refuge site of Kypia and the Greek city of Praisos it sheds light to these little known eras in Crete. Very important is also the critique offered regarding recoverability and fine dating, emphasising the need for a national sites and monuments record, which would indeed give greater potential to survey data.

Landscape approach: Landscape seems to be perceived as both the physical and artificial environment of the area. There is a focus on topography and landscape features such as natural routes and terraces, but environmental studies for the moment serve more as background information rather than as part of a real man-environment interpretative framework.

3.6.17 Survey ids: Katelionas and Lamnoni (Ziros Survey)

Problem Orientation: aims and methods

This project, headed by K. Branigan, was an intensive survey in the two upland areas of Lamnoni and Katelionas in the area of Ziros, eastern Crete. The main aim was to explore the 'history and nature of human occupation and exploitation' up to the Arab conquest (9th century A.D.) and complement other survey work undertaken in eastern Crete (Praisos, Minoan Roads, Nowicki and Schlager). A secondary and more specific objective was to study 'the changing patterns of orientation in the upland communities through their acquisition of pottery supplies', in other words to identify different sites over time that exercised an economic and maybe political control over Ziros. These, would be major centres such as Zakros, Xerokampos and Gournia for the Minoan period, or Ierapetra, Praisos and Itanos for the Greco-Roman period.

The first objective was approached by field-walking the two areas in 100m grid squares at 10m intervals, each walker collecting all material found in a 2-meter wide swath, acquiring, thus, a 20% sample of each square. Fieldwork took place over 1 month in 1994 involving 10 fieldwalkers; the choice of the grid squares, although not explicitly explained, seems to have been based upon preliminary extensive field-walking that aimed at locating areas more likely to have sites and avoiding inaccessible ones. At Katelionas they covered 14.2 km² and at Lamnoni 6.4 km².

The second objective required petrographic analysis, which has not been completed or even partly published as yet. Environmental studies, although planned, were not completed due to time restrictions and we are given a basic environmental background (mainly geomorphological and geological) in which to view the results. As in the vast majority of archaeological landscape projects the discovery of sites was the main goal and architecture was the major factor in identifying them, but pottery densities were studied, allowing a more detailed understanding of the surface record and revealing activity areas and sites of the lower scale of hierarchy.

Sites that had been noted before off-site field-walking, were field-walked at a later stage (although there was not time for all of them), in either of the following methods: using a 5m grid, sampling at 2m intervals along two transects at right angles, or a second set of 10m transects at right angle with the original ones (40% sample). The criteria upon which site sampling is decided are not stated, but presumably it depended on site size and interest, for example a prehistoric site of manageable size was probably sampled through a 5m grid.

Presentation / Relocatability

The topographical maps published by this project are at scales from about 1:1666 to 1:14.285 and present the location of grid squares with their relevant pottery densities in relation to contours, but also sites-dots (the interpretation of tract densities) classified into basic functions. As a typical project of the Landscape Tradition much importance is given to the presentation of the data and this includes maps of sampling strategy, basic topography and examples of soil stratigraphy, but also tables and of course object-drawings. Density maps are certainly a very good means of presenting the spread of material culture on the surface and there is an explicit effort to explain and display interpretations. Landscape photos add a realistic representation of the sites discussed and contribute to relocatability. Relocatability would profit from the very good scale of the maps in conjunction with the additional help of descriptive details, however, the fact that there are no topographical features such as roads or known locations, is a factor of great difficulty. Besides that, the grid squares were laid out 100x100m in the landscape, but presented also as perfect squares in a plan view on the map, which does not take into account slope and topography and thus the squares can not be related to the contours with accuracy. Moreover, site-sampling often involved total clearance of the site material. Sites with no architecture would most probably allow little chances to be relocated.

Density per area/period

	area surveyed (km^2)	Total site no	PH	GR	BVT	Modern	Unknown
Lamnoni	0,65	11	10	4	1		
Densities per km^2 (target and sampled)		16,923	15,384	6,153	1,538		
Katelionas	1,42	15	10	6			
Densities per km^2 (target and sampled)		10,563	7,042	4,225			

Site definition: based on architecture in relation to pottery concentrations, but also on pottery densities. There are also occasions where they describe activity places or a site's halo, which may not be given site status.

Interpretative Framework

This landscape project took place within the intensive survey tradition (landscape archaeology), studying pottery densities and the off-site record in order to interpret extents and type of human activity. A theme that receives attention is methodology, with special reference to sampling, precision, and visibility; its influential role on interpretation is obvious in the presentation, which includes tables with proportions of material and their relationships. The well-known tactic of looking for architectural traces accompanied by pottery concentrations typical in an extensive survey context, was certainly part of the project, but the discussion of material densities even if not the leading factor in finding a site, shows that they have been taken into account in the interpretative process. The number and type of sites found in a project depends to a large degree on interpretation, and as in many cases, here as well, a density of material that is not accompanied by architecture and that is not evidently related to densities interpreted as sites, may or may not be given site status. Field 5 is an example, where density is thought to reveal activity not related to another site and could therefore be interpreted as a site, was not treated it as a site because it could not be assigned a typical function of occupational, burial or religious character.

The history of human occupation in the area is approached by studying correlations of data observed, concerning site size and possible function, topographic location, density, spread and character of material.

Relationships between occupation, religious and burial sites are also sought, as they are considered to represent the cultural character of the communities studied. Nucleation and dispersal of settlement are the main interpretative observations concerning human activity, but what this might mean in socio-economic terms is not much discussed. Settlement patterns are compared with areas that were the focus of other intensive survey projects, with which there are certainly similarities in interpretative approaches.

Chronological gaps in their data occur in the EM period and from the end of the Bronze Age till Hellenistic times. These can not be explained, but the idea favoured is the seasonal exploitation of the area during these times. As the researcher's main interest lies in the Bronze Age, the GR period is not discussed in as much detail, but we are given a historical background of the wider area, in which to view the survey's results concerning human occupation. Other themes explored concern population estimates and carrying capacity of the two basins, but also issues of site recoverability; the fact that no Neolithic or much Minoan material was found on the valley floor was justified as the valley being kept for agriculture and not due to erosion masking activity sites.

Influential References and Sources: Concurrent research has naturally played an important influential role in both methodology and interpretative approaches. For example the suggestion forwarded P. Waren and Y. Tzedakis (1974) regarding the probable seasonal character of some settlements, was also adopted by Ziros survey in trying to explain the recovery of 2-3 pieces of obsidian found off-site and so as to fill in the chronological gaps in the occupational history suggested by the data. A discussion of the environment is considered necessary (since the work of Higgs and Vita Finzi, Bintliff etc in the 1970's), even if archaeological data are not consistently explained in relation to the environmental history of the area (a weakness in most landscape archaeological projects). Regarding survey methodological, but also interpretative considerations, the survey work in Mesara, Boeotia, Keos, Lefkas and Melos is quoted.

Summary Assessment

Strengths: the effort in being 'methodologically correct' results in giving us a good idea of data acquired; off-site densities are discussed.
Weaknesses: environmental studies not really integrated. Site definition is not always clear. Not fully diachronic and the GR period is not adequately reported (studied?).
Evaluation of data and Interpretation: the relationship between data and interpretations is quite clear. Data appears to be quite good.
Knowledge acquired: sites and their probable relationship.
ntegrability: quite high
Publication: completed (?)

Ziros survey offers a picture of the occupational history of this very little explored area. Among the main assets of the project and its report, is the fact that density data are discussed separately and so as to lead to the site interpretations suggested. Discussion of the dispersal of material is very helpful, for two main reasons: 1) we understand better the interpretations proposed regarding the intensity of landscape use and the socio-economic character of the societies studied, (urban vs. rural settlement, self-sufficient vs. dependent, the relationship between sites of different size and location). Besides that, the character of material spread in the landscape allows us to study also cultural traits, such as the relationships between occupation areas and religious or burial areas, 2) recovered material is relevant to surface conditions and recoverability; therefore, studying concentration or dispersal, may help us understand how representative the archaeological picture may be of a particular period. It is self-explanatory that sharing such information is very important if we want to compare archaeological data of different areas.

There are some questions raised by the fact that sites were not sampled during off-site field-walking, but at a later stage through on-site field techniques described above. Thus, we understand that site recognition

was based on architecture and pottery concentrations, but it is confusing how they decided on a site's extents before walking it and how off-site with on-site data was combined. It is said that on-site data is somehow adjusted before added to the field's densities, but how this is done is not explained.

The basic environmental report gives us some important information about erosion, hydrology, surface conditions and soils. However, it is not linked to the archaeological data, something that is very often the case in intensive survey projects. It would be useful to have environmental data acquired at the same time as material collection, so that both co-relative and explanatory models could be proposed, regarding the location of sites, but also the recovery of material.

Landscape approach: landscape seems to be perceived as a special unity with specific environmental characteristics, where human activity spreads in a continuous record. Sites are shown as dots in relation to their topography, but also through their pottery densities.

3.7 Discussion of 'Interpretations' Database

3.7.1 Culture History Tradition

Site records consist of descriptions of material culture observed, often in relation to descriptions of the physical landscape. However, there is no consistency in the kind of information presented, which seems to reflect lack of consistency in data observations as well. Sometimes landscape observations seem to influence interpretations, but they are generally not considered in a consistent manner and they are not often linked to specific function characterisations. They form rather a 'proper discourse' aiming at providing an adequate record of archaeological locations. At times there are estimates of the area size, but pottery counts are based on estimates and general descriptions such as a few, many, most, some etc. In general, there are usually rather weak links between the data observed and site interpretations, which are often the result of a rather intuitive approach. In fact, observations may not always be accompanied by interpretations, especially regarding periods of less interest, e.g. 'a few Medieval sherds were noted' – no further comment.

Doubts are often expressed, usually in the form of hypothetical tenses and verbs of uncertainty, e.g. 'most sherds appear to be Roman' or 'there might have been a Minoan settlement here'. Quite often, however, a site may be described as of uncertain data, but referred to as of certain interpretation. As a result, it is unclear whether researchers are certain of a site's chronology and function, or not. An additional problem is lack of clarity in chronological and especially functional terms used. The term 'site' is often used instead of 'settlement', but not always. In general there is not a clear difference between 'occupation', 'settlement', 'habitation', 'hamlet' 'farmstead' and 'site' and there are certainly not clear correlations between specific data and different interpretations. As a result, we cannot take interpretations for granted, even though researchers of this tradition often describe sites of substantial material culture and in general are very well trained in PH pottery. However, quite often we would need to re-examine data, in order to extract more usable definitions of chronology and function.

3.7.2 Landscape Tradition

Overall, projects of the Landscape Tradition usually provide an organised structure of site presentation; In this case the most typical data observed include landuse observations, topographical / environmental characteristics such as altitude, distance from the sea, vegetation and geology, but also datable pottery, architecture, area size and density. However, landuse and environmental observations are not always linked with specific interpretations, but aim primarily at offering additional information that aid site understanding. In reality it is pottery and secondarily architecture that define a site's chronology and function. For instance terrace walls or a threshing floor are going to be interpreted as an agricultural site of a specific period, if datable pottery is also present. There are cases where e.g. a threshing floor will be noted, but not taken to represent even a possible BVT/Modern agricultural site if there is not relevant pottery. This relates to the traditional priority given to the identification of the chronology of a site rather than its function, which is a much more complex issue

and often based only on hypotheses. Thus, usually a site description includes all the chronological periods identified and the major function, but there is no functional differentiation between periods; the same function is either assumed or implied, although in fact it is usually not clear how the site's function is interpreted in the different periods identified. 'Unknown function' is not treated as a viable class.

Pottery is usually (but not always) recorded in terms of count, weight and density, and area – size of spread is also recorded; however, both pottery quantity and area-size are not recorded per period identified, but in total. As a result there is no direct relationship between these characteristics and the definition of a specific function for the various periods. In other words, we do not know what ranges of pottery counts/weights and densities define an EM I, MM III, Classical or Roman (etc) settlement, habitation etc. For example, since a Roman site requires a higher number of sherds to be called a settlement than a Minoan one, it would be helpful to know ranges and differences, both in density counts and in area sizes. The reason why such clarifications are of great importance is that social reconstructions are based on site-hierarchy, which in turn is extrapolated from site-size. A related problem is that the meaning of the same terms may vary from period to period. A field house for example, is clearly interpreted as habitation in the PH, but in the BVT its agricultural character is stressed instead. Even though there is an overall clearer relationship between data observed and interpretations, than in the Culture-History tradition, it is often very difficult to understand what observations define specific interpretations and assess whether we agree or not because presentation maintains an obscure relationship between data and interpretations.

4. Analytical Approaches towards the Study of intra-Tradition Variability and inter-Tradition Comparisons.

KEY:
CH = Culture History, HG = Human Geography, LT = Landscape Tradition, TT = Topographic Tradition, PH = Prehistoric, GR = Greco-Roman, BVT = Byzantine, Venetian, Turkish

4.1 Spatial and Temporal spread of Landscape Projects

This section presents the areas of Crete that different archaeological landscape projects explored over time and allows us to visualise the spatial and temporal spread of archaeological landscape research on the island. Pictures linked to the various projects on figures 4.1.1 – 4.1.5 present samples of maps published by the relevant projects and aim to enhance understanding of their conceptual framework, evident in themes and means of presentation.

4.1.1 Travellers Tradition

The Travellers have traditionally explored the whole island (or the biggest part of it) and tried to present a picture of Crete as a new undiscovered geographical and cultural world. They present maps of ancient Crete based on previous and their own researches but also art paintings of monuments and everyday life themes.

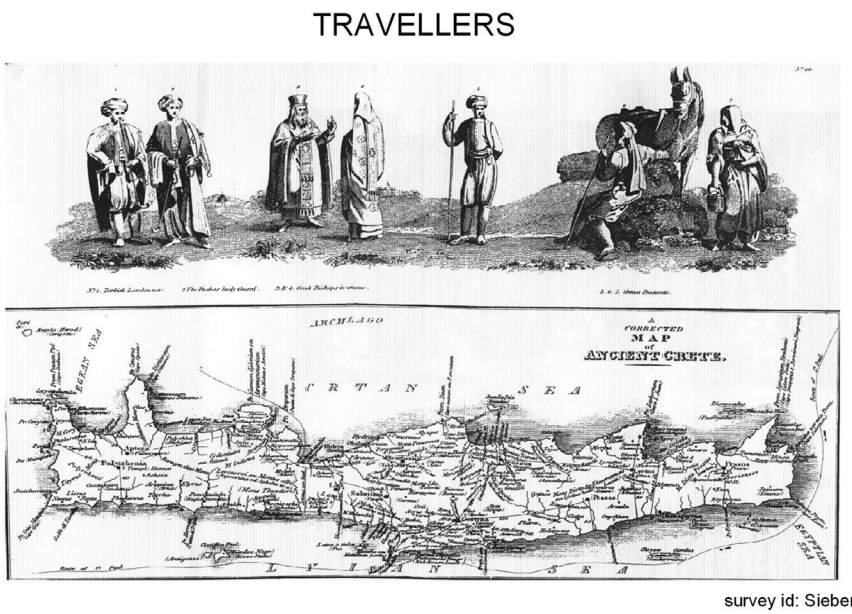


Fig. 4.1.1 Typical presentation themes in Travellers' books.

4.1.2 Culture History Tradition

CH has been the leading paradigm of archaeological landscape research on the island and includes many more researches that could not have been included in the current study. Central and in particular eastern Crete, have

attracted most attention from the very beginnings of archaeology, but over time interest expanded towards the discovery of the archaeological past throughout the island. The purpose of finding new sites is quite obvious in the maps presented, where sites/dots are shown in a 2-dimensional space, occasionally in relation to basic contours and routes. It is quite interesting that as time went by, research interests tend to focus on smaller areas and thus, densities increase. It is of course a norm that research areas overlap and that the same area may be explored in various resolutions even by the same researcher. A more general study of a large area and the presentation of a site index may be followed by a more detailed study of fewer sites in smaller areas.

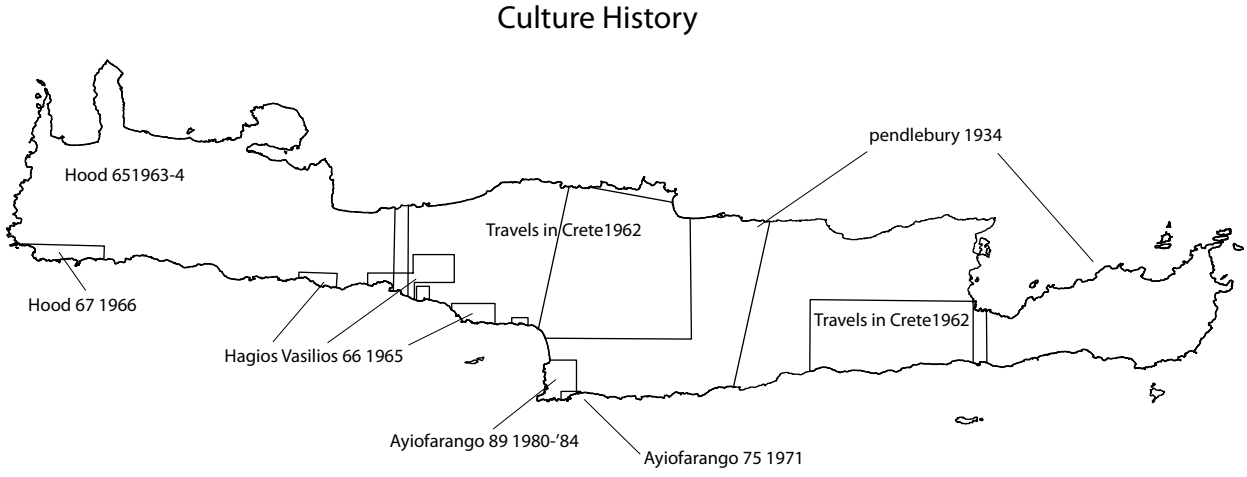


Fig. 4.1.2 Areas covered by CH projects over time and across the island.

4.1.3 Human Geography

Projects of HG focus on large areas and are often interested in island-wide patterns. Again we note an earlier and primary focus on eastern Crete. Lehmann and Wroncka are the most characteristic examples of this tradition, studying and mapping settlement location in relation to specific geographical factors within a Landeskunde framework. Their research concerns eastern Crete and overlaps. Faure explored the island extensively over many years, also focusing on specific site-types and geography; the map given as an example shows villages and towns of the mountains and divides the island in regions extensively discussed in his text. Nowicki is also interested in the whole island. The example-map presents peak sanctuaries and zones of influence throughout Crete, corresponding to specific research questions relevant to geographical factors.

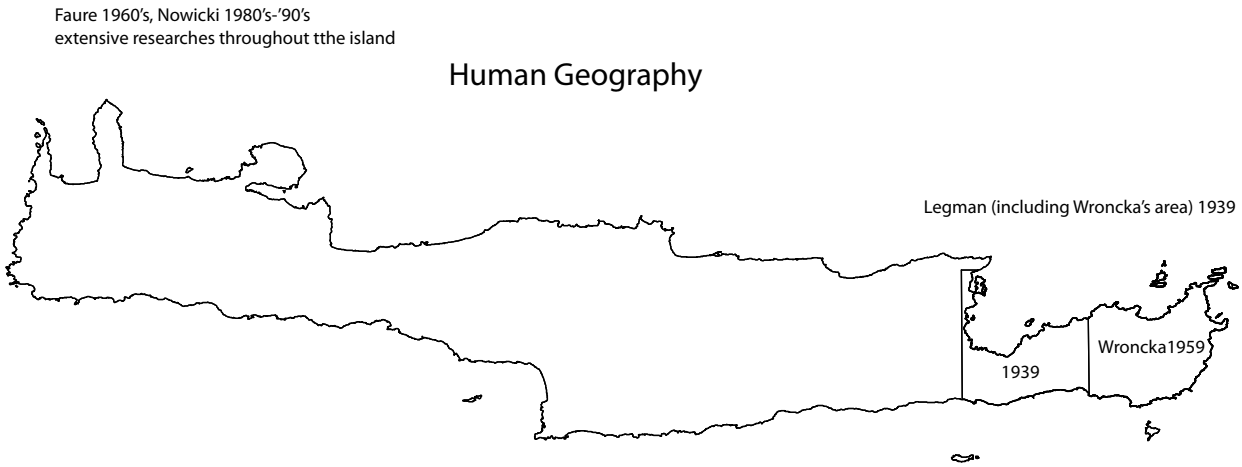


Fig. 4.1.3 Areas covered by HG projects. Faure and Nowicki have explored the whole island, while Wroncka studies part of the area covered by Lehmann.

4.1.4 Topographic Tradition

Projects that belong exclusively in TT as defined in the current study have not been numerous, even though most landscape projects on the island have a topographical component and strong bonds with the tradition. Again eastern Crete has received most attention and Knossos has been the focus of a most important project, with the mapping of a great number of loci exhibiting archaeological interest. Plans and sketch-maps of sites in relation to topographical features are the core of archaeological production in this tradition. The fact that this tradition includes current projects, even if in connection with more recent developments, proves the central role it has played in archaeological research.

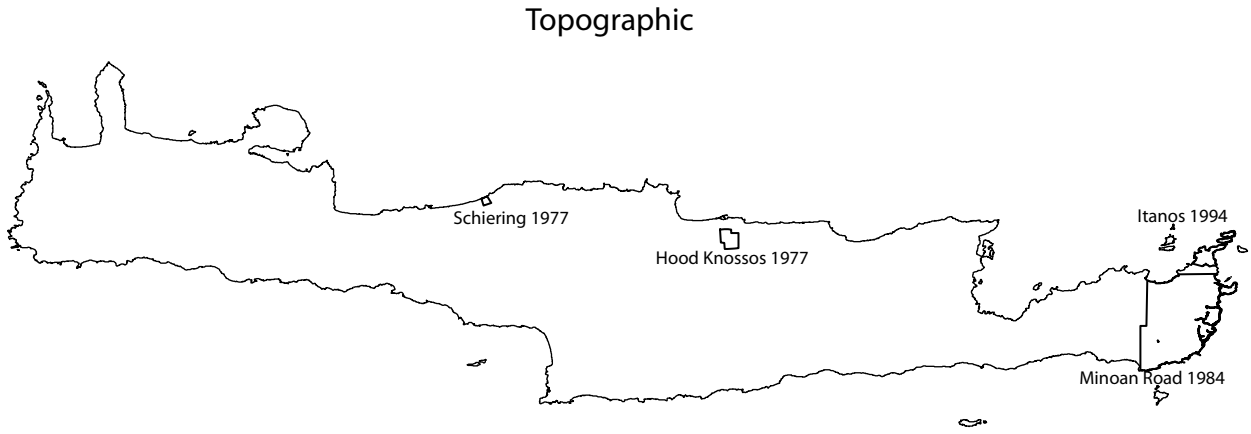


Fig. 4.1.4 Areas covered by projects of the Topographic Tradition over time.

4.1.5 Landscape Tradition

As shown, the island of Crete has been a significant pole of attraction for archaeologists, who the last 35 years have been exploring its landscape with great intensity. Considering the great number of regional surveys, with variable problem orientation and methodology, Crete has in fact been a playground of new methods and theories, even though it should be noted that usually the same archaeologists are involved in more than one project. The established practice of focusing on the eastern part of the island is particularly apparent in LT with the 80's and early 90's being the time of the most intensive landscape exploration, including context, regional and urban intensive surveys. Samples from the maps published, demonstrate the themes considered important to present, and which exhibit great similarities, but also differences among them. Presentation of the survey boundary is a must and the most common maps are ones with sites per period in a background of contours. However, a few may present their data in the form of density variations.

In all traditions, archaeological landscape visualisation is guided by horizontal spatial relationships. Loci of human activity are presented in relation to contours, which represent a measured representation of topography, and secondarily geographical factors may also be mapped in a two-dimensional space. Overall, there has always been a focus on regional, low-resolution spatial visualisation of 'where' archaeology is.

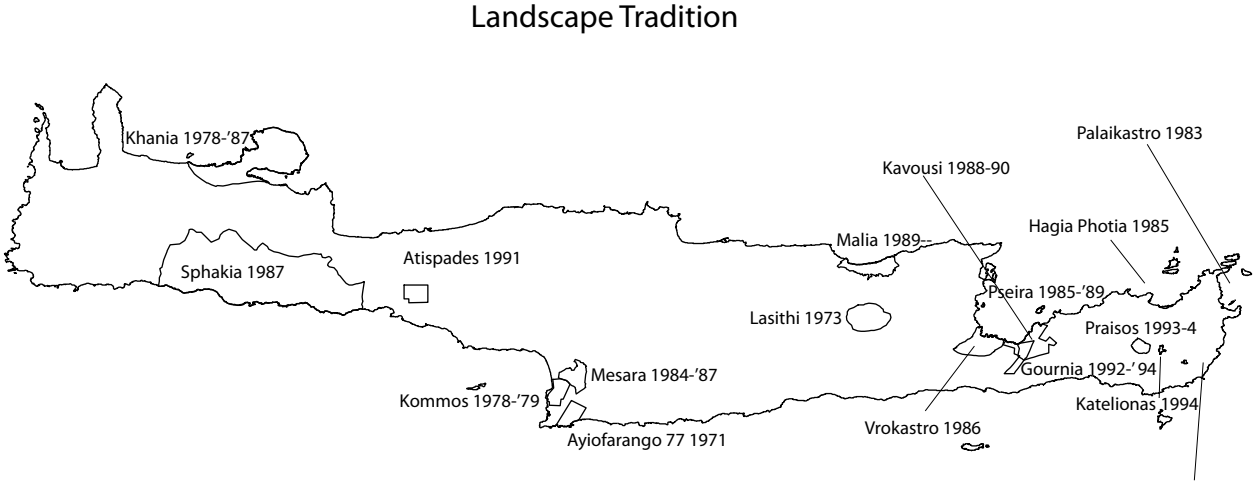


Fig. 4.1.5 Areas intensively surveyed by projects of the LT over time.

4.2 'Surveys' Database Analysis: the Sample

The database allowed the collection and organisation of a rich amount of information about archaeological landscape research projects in Crete, and made possible qualitative and quantitative analysis that promotes understanding and evaluation of the knowledge acquired since the first days of archaeology. *Tables 4.2.1 and 4.2.2* describe the projects studied in the database. Those whose chronological and function interpretations could be classified and allowed quantitative analysis are highlighted. Because of the fact that LT guides archaeological landscape approaches in the present, and has provided the largest amount of sites promoting a desire for comparability, priority has been given to projects of this tradition and therefore almost all of them were included. Naturally, not all projects from all traditions could be analysed as there have been tens of Travellers and hundreds of archaeological reports. However, the sample is believed to be representative of the relevant traditions and achieves its purpose of elucidating relationships between theory, methods and results. At this point, it is important to note that no evaluation of the precision of the analysis can be obtained, and therefore, it is not claimed that the analysis has any statistical value. Statistical calculations have been used on the quantitative data so as to allow basic comparisons among and within traditions and indicate various trends.

survey id	Tradition
Sieber	Travellers
Pashley	Travellers
Pendlebury 1934	Culture History
Travels in Crete	Culture History
Hood 65	Culture History
Hagios Vasilios 66	Culture History
Hood 67	Culture History
Ayiofarango 75	Culture History
Ayiofarango 89	Culture History
Lehmann	Human Geography
Wroncka	Human Geography
Faure	Human Geography
Nowicki	Human Geography
Hood Knossos	Topographic
Schiering	Topographic
Minoan Roads	Topographic
Itanos	Topographic

survey id	tradition
Ayiofarango 77	Landscape Tradition
Lasithi	Landscape Tradition
Kommos	Landscape Tradition
Chania	Landscape Tradition
Palaikastro	Landscape Tradition
Phaistos	Landscape Tradition
Hagia Photia	Landscape Tradition
Pseira	Landscape Tradition
Vrokastro	Landscape Tradition
Sphakia	Landscape Tradition
Kavousi	Landscape Tradition
Malia	Landscape Tradition
Aghios Vasilios Valley	Landscape Tradition
Gournia	Landscape Tradition
Gavdos	Landscape Tradition
Praisos	Landscape Tradition
Katelionas	Landscape Tradition
Lamnoni	Landscape Tradition

Table 4.2.1 Archaeological landscape projects included in the database; the ones that produced site catalogues are highlighted.

Tradition	Surveys studied	Surveys analysed quantitatively	Site numbers
Travellers	2	1	80
Culture History	7	7	388
Human Geography	4	2	264
Topographic	4	3	480
Landscape Tradition	18	13	1691

Table 4.2.2 Survey projects per tradition; number of projects per tradition that produced site catalogues (and were analysed quantitatively); total number of site characterisations per tradition.

4.3 Trends in Aims

Table 4.3 allows us to see the principal aims set by projects of the various traditions and discuss similarities and differences among them. Researchers of the Culture History tradition walk the landscape with the goal of finding new sites or describing archaeological remains of known ones, most often aiming at both. The description of known sites is a goal also set by Schiering, who however, belongs to TT and follows a different approach focusing on mapping and topography. Researchers within TT are usually triggered by interest in an important site or specific site-types. The latter (usually settlements) is the principal goal of HG also, which however asks different questions, focusing on the role of geography. LT differentiates itself with an interest in recovering settlement history at a regional scale, often triggered by interest in a specific site. Urban and context survey are common aims between TT and LT, but of course, the methodological approach differs. Topographic research is however often part of a project within LT. Lastly, the Travellers have a typical aim of describing Crete in general. Overall, a site focus is apparent in CH and TT, while LT and HG have a more

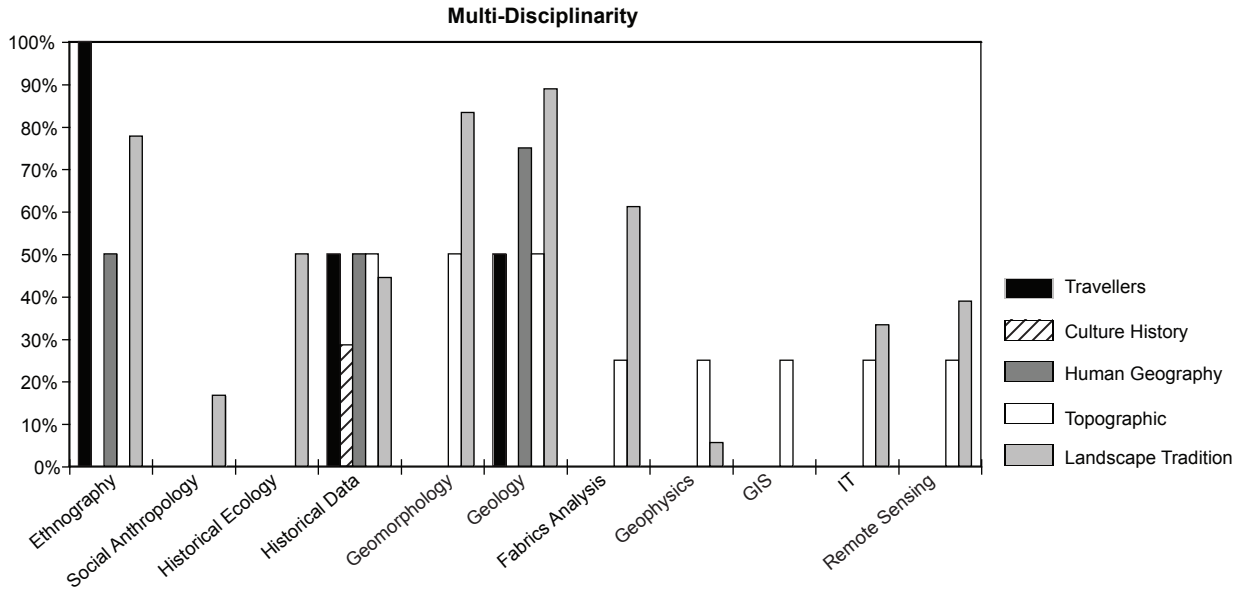
regional approach. Even though aims usually differ from tradition to tradition, at times they are the same, but then methodology is distinctively different.

No of projects	aims	tradition
2	discover new sites	Culture History
4	describe known sites and discover new	Culture History
1	describe known sites	Culture History
2	study specific site-types	Human Geography
2	settlement geography	Human Geography
1	urban survey	Landscape Tradition
2	urban and context survey	Landscape Tradition
6	regional settlement history	Landscape Tradition
9	context survey and regional settlement history	Landscape Tradition
2	urban and context survey	Topographic Tradition
1	study specific site-types	Topographic Tradition
1	describe known sites	Topographic Tradition
2	describe Crete	Travellers

Table 4.3 Numbers of projects per tradition grouped according to their aims.

4.4 Trends in Multi-Disciplinarity

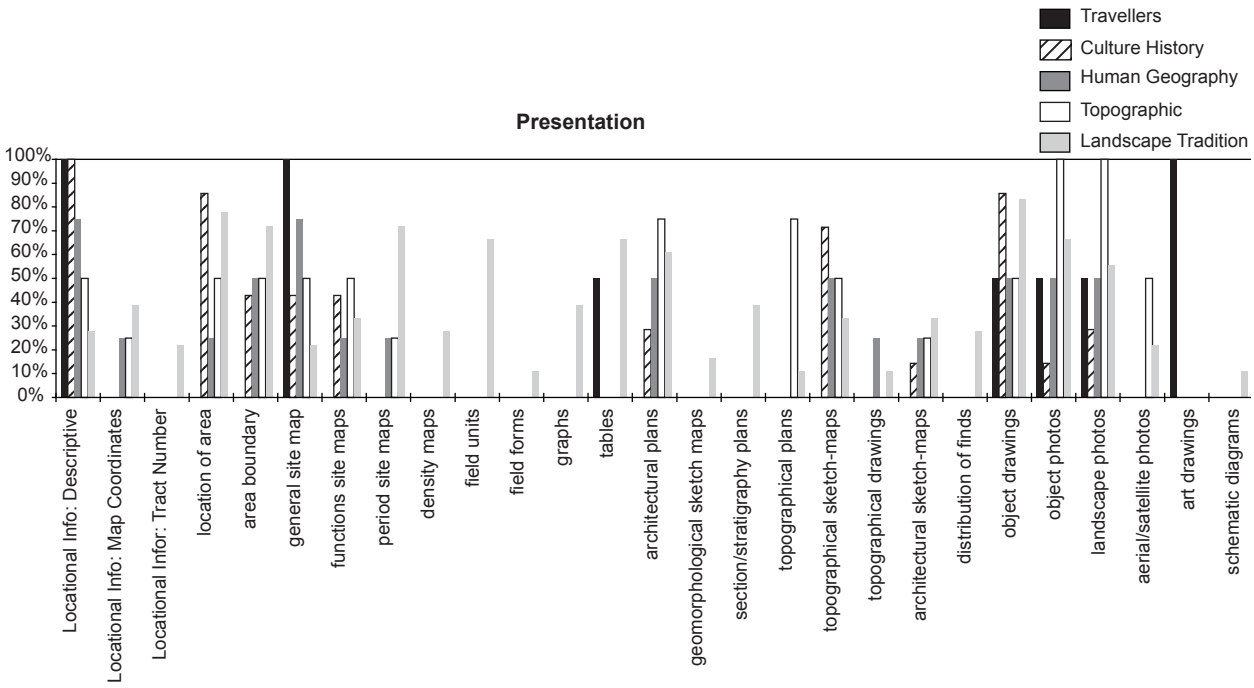
An interesting matter to discuss is the influential background of other disciplines and how this has developed over time and in different traditions. *Graph 4.4* shows the percentage of occurrence of the various fields (x axis) per tradition (how many projects out of the total number of projects per tradition use other disciplines). It aims to describe multi-disciplinarity of the various traditions, which relates to general conceptual framework, and enhance comparison among them, elucidating similarities and differences. A general pattern is the complex multi-disciplinary framework of LT, whose projects use approaches of both human and physical sciences in their effort to record and interpret the surface record. Geology and geomorphology are the most common; the first is related to the traditional links between the two disciplines, the second is the result of methodological concerns regarding the interpretation of the relationship between archaeological data and the evolution of the physical landscape. Ethnography, ceramic fabric analysis, historical ecology and historical data follow, expressing methodological developments in data interpretation (fabrics analysis), a diachronic scope and an acknowledgment of the potential of the ethnographic record in making inferences about the past. TT gives emphasis on detailed recording and its methodology has been more influenced by physical sciences, while HG focuses on geology (environmental record), historical data and ethnography, reflecting its interest in diachronic relationships between man-environment. CH presents the narrowest framework in terms of multi-disciplinarity, focusing on recording and describing archaeological remains, but not on methodology or complex historical reconstructions. Lastly, the Travellers have a general interest in their contemporary society (ethnography) and read ancient writers (historical data), while their attention to geology reflects the importance given to physical sciences at the time. Overall, the stronger link between traditions is their common interest in historical data. Geology has also been of primary importance in archaeological research from the very beginning and ethnography is the third most common interest the various projects share. New technologies are encountered only in LT and a current project of the Topographic Tradition (Itanos).



Graph 4.4 The x axis shows the various disciplines integrated in archaeological landscape projects and the y axis shows the percentage of multi- disciplinarity per tradition (how many projects out of the total number of projects per tradition use the various other disciplines)

4.5 Trends in Presentation

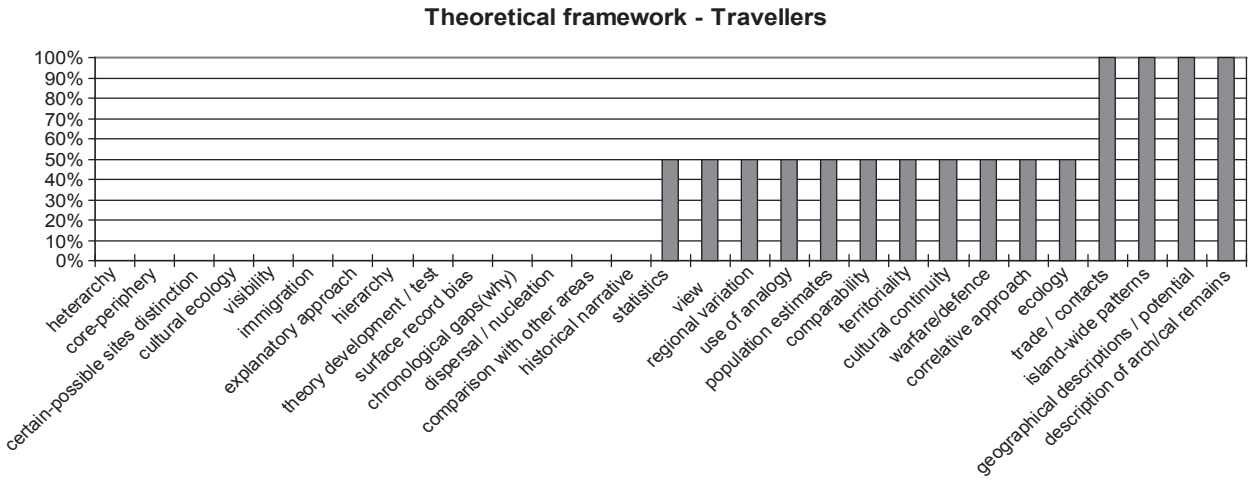
Presentation is a most important part of archaeological research since it is the means of disseminating information and ideas. Moreover, it reflects the conceptual framework within which research is undertaken and highlights what is considered as important information to publish. *Graph 4.5* allows us to make intra-tradition observations as well as inter-tradition comparisons. Site records are of course the principal information published by archaeological projects, and these include descriptions of archaeological remains and descriptions of site-locations. A descriptive account is the only record of site-location for CH and the Travellers and the principal one for HG and TT. This reflects the importance given to relocation, even though accounts may be rather vague and often not helpful enough to actually achieve this purpose. In any case, the answer to the question 'where archaeology is' is considered as proper discourse for all traditions. LT describes locations also, but favours map co-ordinates and at times reference to site location uses tract numbers, which in fact do not assist relocatability whatsoever, but may be used only as intra-project reference points and perhaps site spatial relationships. In general, we note that there is a significant convergence among traditions in what is considered important to present. Except for site location, 'proper' presentation consists of visualisation of the position of the research area within a more general spatial context, and general site maps which are usually accompanied by function legends. Architectural plans, sketch-maps, object drawings and photos reflect the importance of archaeological material records, while landscape photos offer a more pragmatic visualisation of the landscape studied. Topographical sketch-maps are also common among different projects representing the leading role of topography, which even if not explicitly studied and integrated in the interpretation, it is usually recorded. Variation in the above presentation-themes' ratios among traditions reflects of course differences in how important these are considered, but overall we identify a common ideology among projects in what information it is important to publish. LT however, distinguishes itself with a much more variable collection of presentation themes, some of which are noted only in this tradition. More specifically some themes relate to the methodology of LT fieldwork (density maps, field units etc) and analysis (graphs), while period site maps are the result of the principal aim in LT projects of reconstructing settlement patterns over time. The Topographic Tradition focuses on presenting architecture and topography.



Graph 4.5 The x axis shows the various themes of presentation in archaeological landscape projects; the y axis shows how much each theme is represented in each tradition (how many projects out of the total number of projects per tradition use each presentation theme).

4.6 Trends in Theoretical / Interpretative Framework

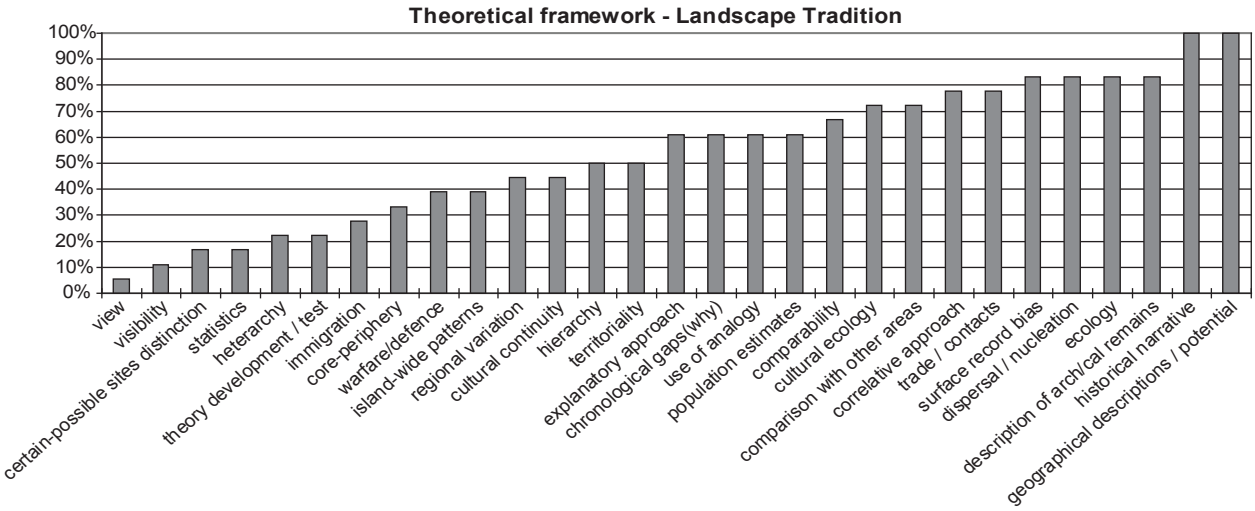
Graphs in this section allow us to visualise the occurrence of theoretical concepts used in interpretative suggestions of each tradition. The x axis presents such concepts and themes discussed, while the y axis shows the extent to which each concept is used in the various traditions (in percentages), in other words, how many projects out of the total number for each tradition use each concept. The Travellers tradition (graph 4.6.1) consists only of two projects, so we can not actually have a picture of any statistical value, but we can see which theoretical themes have been discussed and thus represent their theoretical framework. As observed, even though the Travellers have in general worked within quite an even framework, some may have more diverse interests than others. It is very interesting to note that there are concepts still used in archaeological landscape explorations now, that can be discerned already in landscape study approaches of the 19th century.



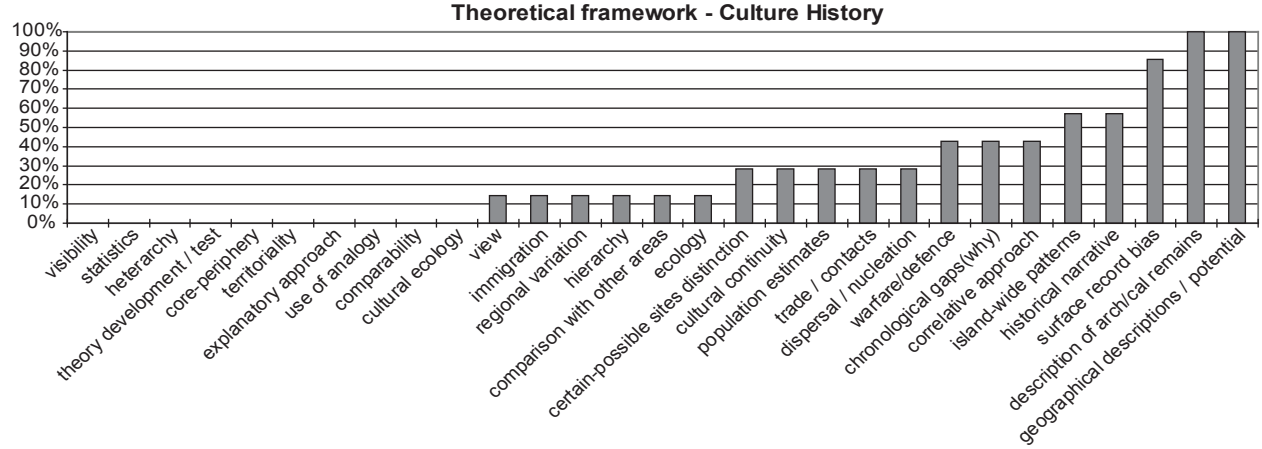
Graph 4.6.1 Theoretical concepts used by Travellers (x axis) and the extent to which these concepts have been used in this tradition (y axis)

The values that represent the highest percentages in graphs 4.6.2 and 4.6.3 show the points of convergence and divergence between LT and CH. The most common characteristic is that all projects observe and describe the geographical context, within which archaeological material exists, evidence of the strong links between the two disciplines. The importance of geography is evident in the relatively high percentages of the correlative approach also, since most correlations concern location and geographical/environmental parameters. The problematic nature of the surface record is noted by most projects, even though the methodology adopted by LT tries by default to deal with relevant biases more consistently (although surface record biases are seldom treated explicitly and in a complete manner). Warfare/defence is also a theme of similar popularity for both traditions and in general most themes discussed by LT, have their roots in CH.

LT however, has a much stronger ecological approach and has developed an interest in complex social issues, such as hierarchy, heterarchy, population fluctuations, and above all, it seeks to explain patterns of nucleation and dispersal of settlement. It presents a much wider theoretical framework within which observations and interpretations take place, and a greater consistency in the ideas explored, as most themes are discussed by the majority of projects within the tradition. The primary concern of LT is to provide a historical narrative, while CH gives priority to the description of archaeological remains, even though both goals are of great importance for both traditions. CH concentrates on the presentation of observations and its focus on cultural identification and description is also evident in the importance given to island-wide patterns.

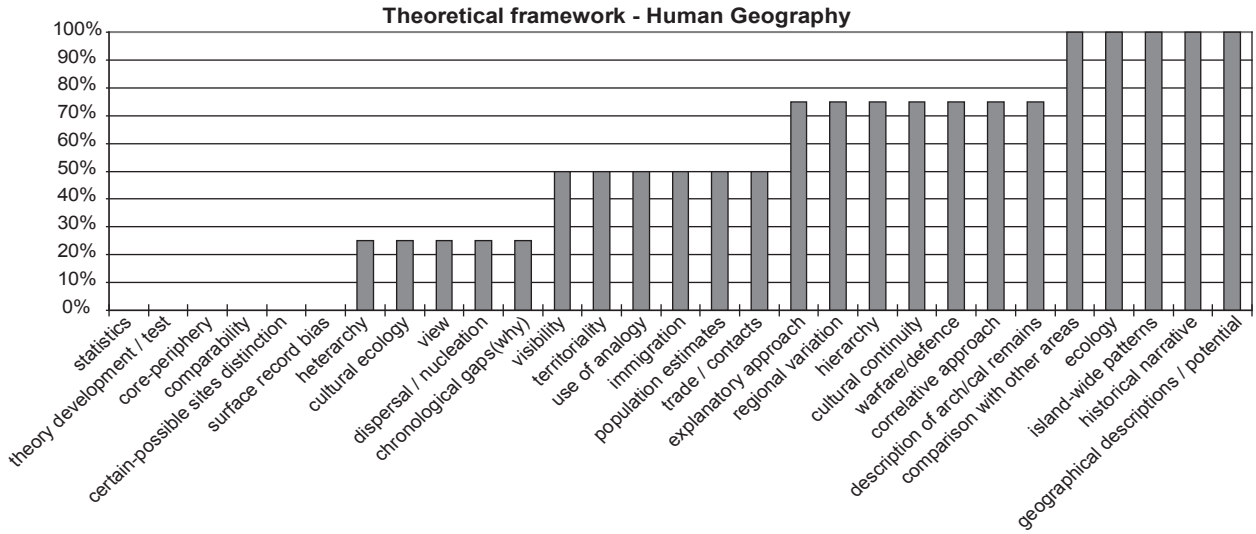


Graph 4.6.2 Theoretical concepts used by projects within LT (x axis) and the extent to which these concepts have been used in this tradition (y axis)

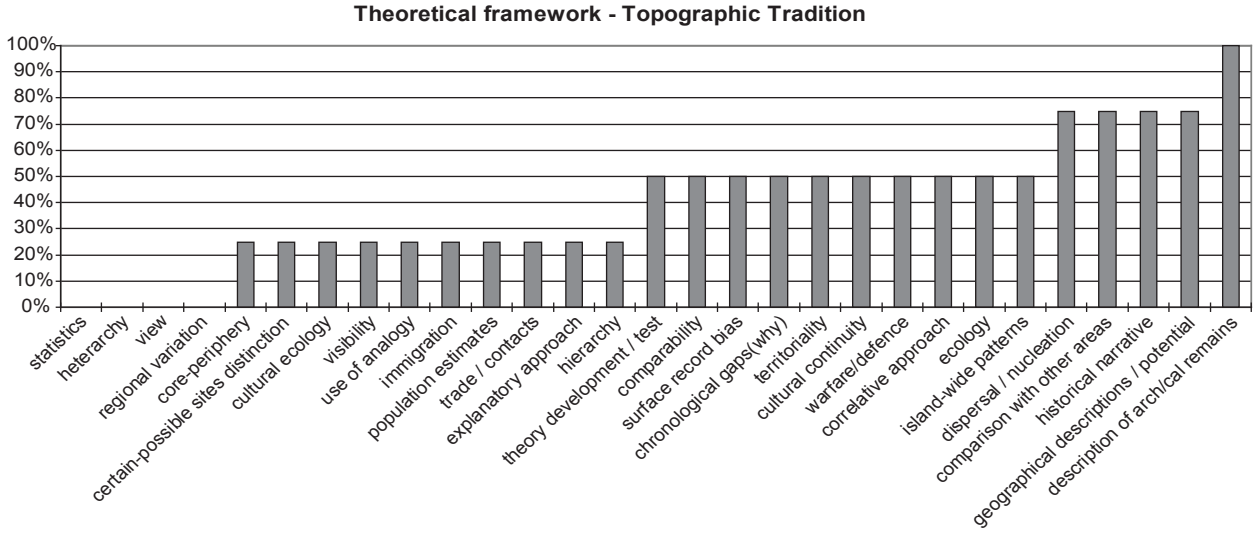


Graph 4.6.3 Theoretical concepts used by projects within CH (x axis) and the extent to which these concepts have been used in this tradition (y axis)

Human Geography (graph 4.6.4) shows clearly the primary interest of the relevant projects to study human settlement in relation to geography and ecology. They have a historical approach and study island-wide patterns as well as regional variation. The social themes explored are discussed within an explanatory framework; these concern mainly hierarchy and warfare, but also other themes common in Cretan (mainly Minoan) archaeology in general. The Topographic Tradition (graph 4.6.5) focuses on describing archaeological material, but in general it has encompassed approaches from all other traditions. Indeed, even though all projects focus on topography and mapping of archaeological remains, some have stronger links with CH (Hood Knossos, Schiering), and others with LT (Itanos), or HG (Minoan Roads).



Graph 4.6.4 Theoretical concepts used by projects within HG (x axis) and the extent to which these concepts have been used in this tradition (y axis)



Graph 4.6.5 Theoretical concepts used by projects within TT (x axis) and the extent to which these concepts have been used in this tradition (y axis)

4.7 Trends and Degree of Confidence in Chronological Characterizations

An interesting issue which the database aimed to enlighten is the possible trends that can be identified in chronological characterizations for the different Landscape Traditions. At the same time, the degree of confidence in those characterizations can also be observed. Interesting questions include: Are there particular periods favoured by different traditions and how do traditions differ regarding the uncertainty declared? Observations are grouped by tradition and major chronological period. The identification of such possible

trends is hoped to elucidate the framework within which the various projects operated and help us understand if there are important differences among their results and why, and perhaps also what to expect.

However, quantitative comparisons based directly on the relevant numbers of sites per project and tradition, are not meaningful given the variation in total numbers of sites discussed by each project, relevant to a project's size and intensity. Thus, comparison is based on the percentage of occurrence of each chronological characterization for every tradition (out of the total number of sites per tradition, how many have a PH, GR or BVT characterization and how many a possible PH, GR or BVT?). The same calculations could of course be made for all chronological classes included in the database, which would give us trends in a finer chronological scale, but here only major trends are discussed.

Table 4.7 shows the percentages of chronological characterisations per tradition. 'Sum' refers to the total number of 'All PH', 'PH?' (etc) site characterisations per tradition; N is the total number of sites. 'All PH' includes characterisations both with a finer resolution within PH and those without. 'PH?' consists of characterisations with a declared doubt, again whether of a finer resolution within PH or not. 'Only PH' contains those characterisations which are not classified in a finer chronological scale (sub-periods) within PH. 'Finer PH' is 'All PH' minus 'only PH', giving us characterisations of a finer chronological scale. The same applies in GR and BVT.

Tradition	All PH: sum / N	PH?: sum / N	only PH: sum / N	Finer PH: sum / N	All GR: sum / N	GR?: sum / N	only GR: sum /N	Finer GR: sum / N
Culture History	63%	8%	7%	56%	44%	4%	10%	34%
Human Geography	81%	14%	2%	80%	20%	2%	0%	20%
Landscape Tradition	68%	2%	14%	54%	38%	2%	1%	37%
Topographic	56%	4%	0%	55%	43%	5%	4%	39%
Travellers	0%	0%	0%	0%	63%	5%	58%	5%

Tradition	All BVT: sum / N	BVT? sum / N	only BVT: sum / N	Finer BVT: sum / N	MOD: sum / N	MOD?: sum / N	unknown: sum / N
Culture History	10%	3%	8%	3%	3%	0%	3%
Human Geography	2%	0%	0%	2%	1%	0%	2%
Landscape Tradition	39%	2%	6%	33%	14%	0%	2%
Topographic	1%	0%	0%	1%	1%	0%	4%
Travellers	21%	0%	5%	16%	25%	0%	4%

Table 4.7 The extent to which various chronological characterisations have been used in the five traditions (in percentages)

Based on the above table a number of graphs show us various trends in the chronological periods favoured by different traditions as well as their degree of confidence: *Graphs 4.7.1 and 4.7.2:* a preference for the PH period is evident in all traditions except of course for the Travellers, who wrote about Crete mainly before the 'discovery' of its prehistoric past. The birth of Minoan Archaeology during the first days of Archaeology itself, and its importance as Europe's own and glorious ancestral civilization, determined archaeological research on the island thereafter and still does, in much the same way as Classical Archaeology elsewhere overshadowed interest in other historical periods (Papadopoulos 2005). GR comes second in popularity and in general, discussion of human activity decreases as antiquity lessens. This is of course a result of archaeological interest,

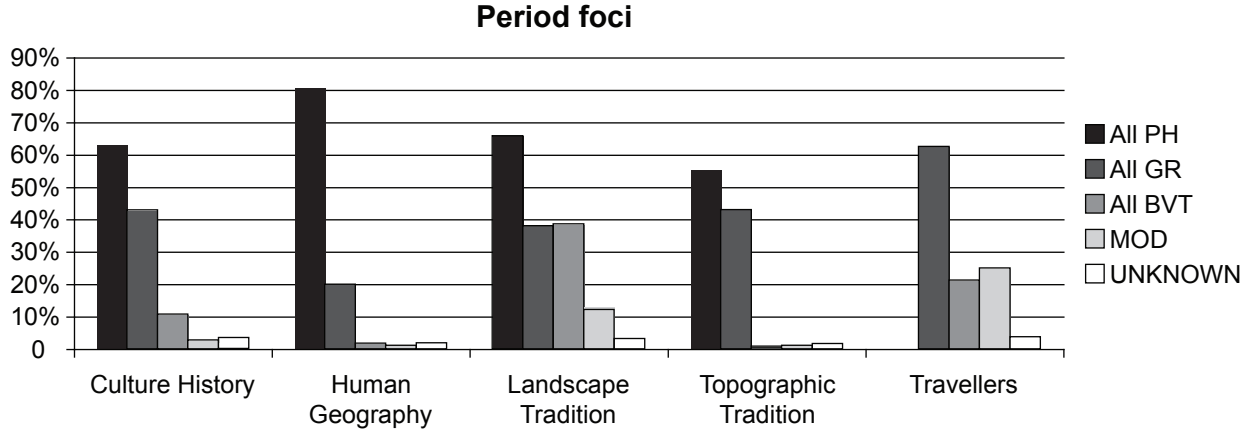
as it is obvious that site characterisations do not represent a realistic picture of sites and therefore cultural density overtime, but rather the variation of significance given to the various periods. The emptiness of the BVT landscape in relation to previous periods represented in most researches is quite impressive.

Looking into each tradition, the Travellers stand out with the highest interest in GR and MOD times. It was the classical past of Greece that brought Travellers to the country and the island of Crete, which apart from mentions in ancient authors, was an unknown cultural and physical space and therefore a rich ground for exploration and new discoveries. Their second interest in their concurrent times represents mainly the description of monasteries, but their concern in describing their present landscape is also responsible for BVT characterisations, as many refer to forts, which formed quite impressive landmarks. It is only with LT, almost a century later that interest in concurrent with the researchers time revives, even if slightly.

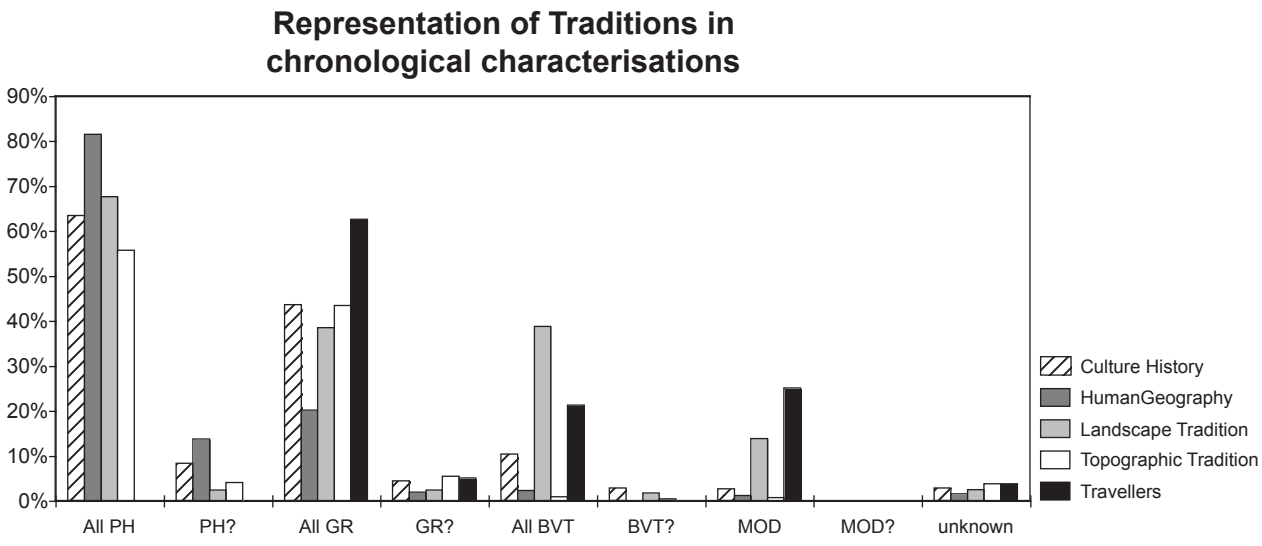
Interestingly enough, LT shows an equal concern for the GR and BVT landscapes; high percentages in all periods express the tradition's research interest in the historical evolution of the landscape. LT's interest in diachronic reconstructions in a way follows CH's tactic of recording the GR consistently and showing some interest for later periods also, according to the requirements of 'proper discourse'. However, LT has developed different methods and a more complex interpretative framework. In any case, CH and LT have only marginal differences in both the PH and GR periods. CH also shows an interesting similarity with TT regarding proportions of the PH and the GR characterisations, but these are due to Hood Knossos, a topographic survey undertaken by one of the most important representatives of CH. TT is usually more concerned with a specific period, and the mapping of its material remains.

Human Geography shows the strongest focus on a specific period (PH), as researchers usually explore specific questions relevant to geography. The two projects analysed quantitatively study chiefly the relationship between locational choice and the environment at that time. However, we should note that other researchers of the same tradition (survey id: Faure and survey id: Lehmann), even though also particularly interested in the PH, they studied the GR period as well, since their primary concern was on recurring patterns of associations between geography and cultural behaviour.

Overall, TT and HG are more period-specific and their questions relate mainly to geography, topography and mapping, while CH and LT aim rather at providing images of human activity over time. Traditions do not differ very much regarding their interest in the PH period, as they all share a comparable interest in Minoan times. Interestingly enough, the proportion of sites of unknown date is also quite similar among traditions.



Graph 4.7.1 The 5 traditions (x axis) and their relevant interest in the main periods, given in percentages of chronological characterisations (y axis).

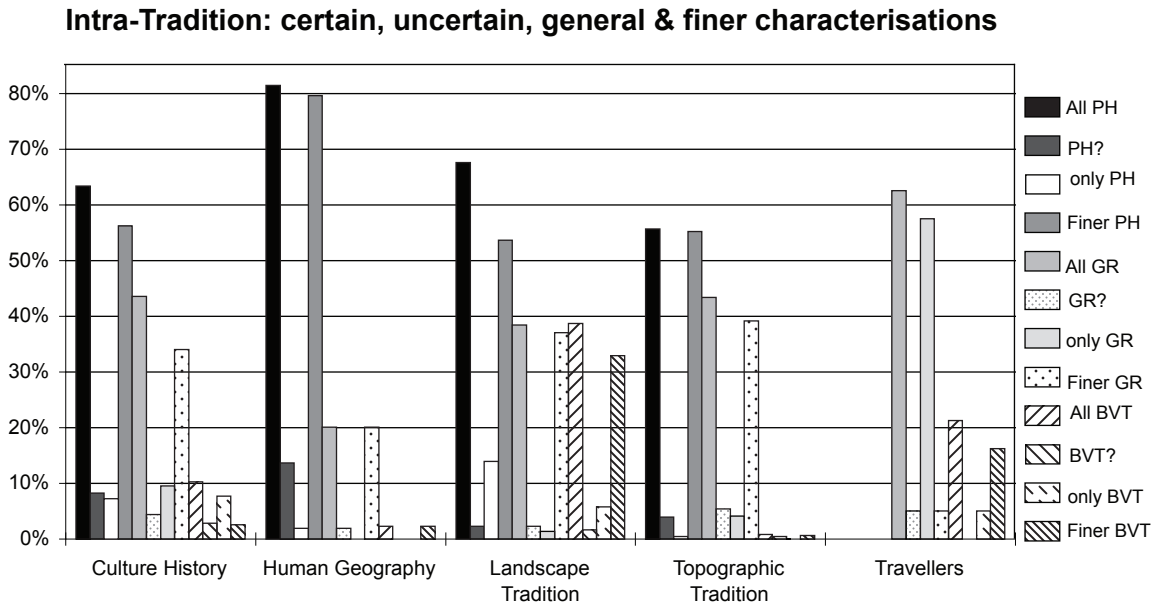


Graph 4.7.2 The main periods of certain and uncertain chronological characterisations (x axis) and the extent to which these are used by the various traditions (y axis).

Graph 4.7.3: When considering trends in chronological periods and uncertainty in assigning a chronological characterisation to a site, it is important to take into account precision as well, in terms of whether a general chronological term (PH, GR and BVT) refers to a sub-period or not. In graph 4.7.3 we can observe the relationship between certain, uncertain, imprecise and fine chronological characterisations used by the different traditions. 'only PH', 'only GR' and 'only BVT' exclude sites with a finer chronology within this period, and reflect only probable and general pictures of large slices of the past since understanding of processes depends on a good chronological resolution.

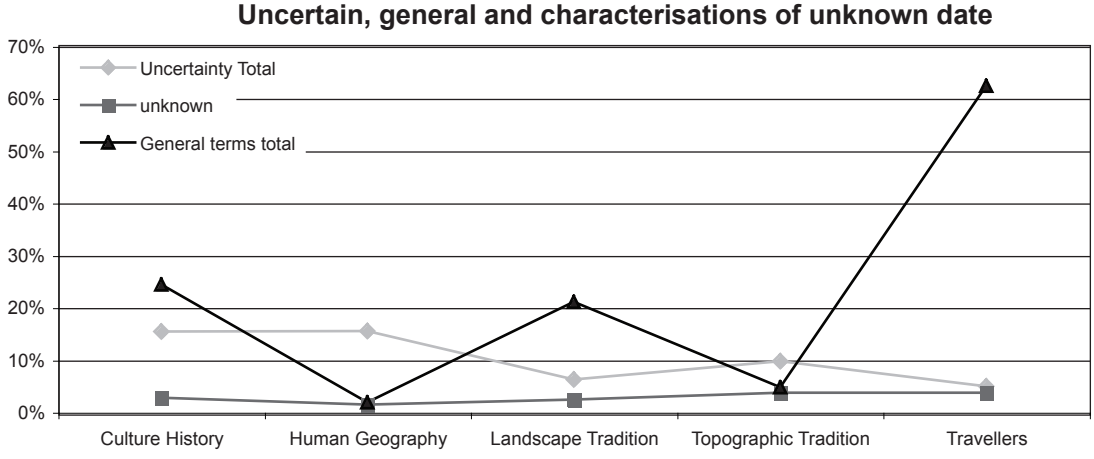
Looking into traditions, HG deals with better dated sites in the PH as it focuses on trying to answer specific questions regarding prehistoric human settlement. Relevant to its highest interest in the PH is the highest proportion of declared PH uncertainty, but general terms are hardly ever used, and this is the case also for the GR, which even though not as much studied, sites discussed are quite well dated. A finer chronology has been achieved also for the BVT, even though periods after late antiquity have been of minimal interest for this tradition.

Comparable are the proportions of fine PH chronology among other traditions studying prehistoric sites and very similar are their proportions of finer GR dating also. CH records more sites of the GR period, but uses quite a larger proportion of uncertain and general terms than the other three. In fact, uncertain and general characterisations are used in all periods, representing the aim of projects within CH to record any activity observed in the landscape. What is most interesting is a similar pattern observed in LT, but its proportions of uncertain and roughly dated sites are less, with a much higher proportion of finer dated BVT sites, and in fact almost as high as the GR. TT shows almost the same lack of interest for periods after late antiquity as HG, but a rather high precision in the periods it studies, while the Travellers describe sites roughly dated in the GR, but distinguish between Byzantine, Venetian and Turkish for most of their BVT sites.



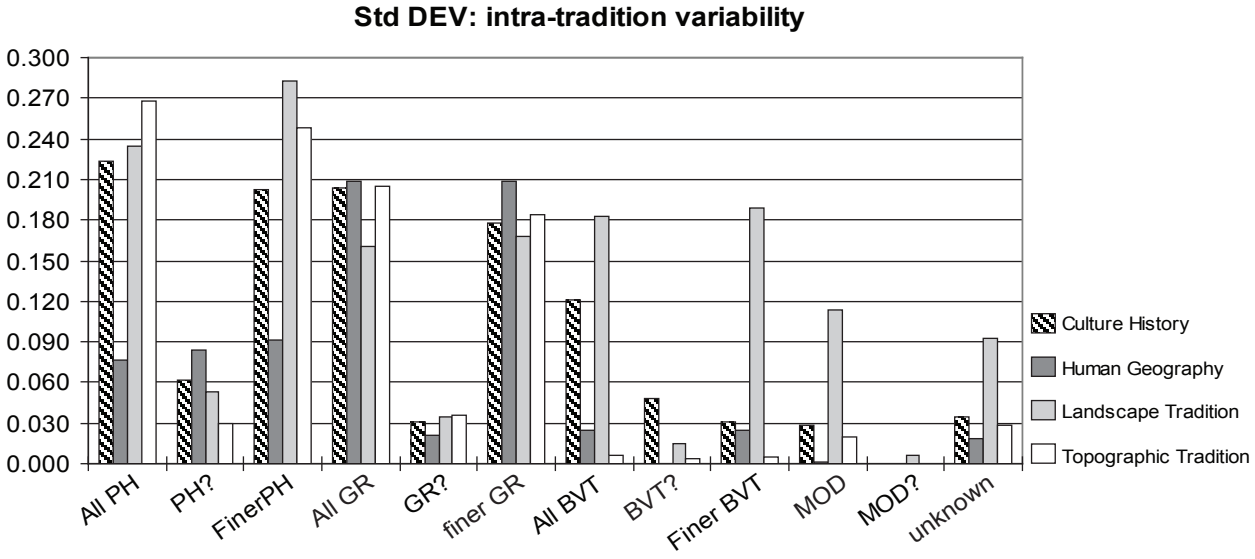
Graph 4.7.3 The y axis represents the percentage of occurrence of certain, uncertain, general and finer chronological characterisations for the three main periods (what is the percentage of All PH, PH? etc out of the total number of chronological characterisations for every tradition).

In *graph 4.7.4* we have an overall picture of uncertain, general and characterisations of unknown date. We can see that CH uses more uncertain and general terms than other traditions. HG discusses sites of uncertain date (mainly PH), but hardly ever of rough or unknown chronology, contrary to LT that observes patterns of general chronology only a little less than CH. The Topographic Tradition includes more sites of uncertain date (and as many of unknown date) than roughly dated ones, while Travellers, expectedly are interested in a general picture of the GR landscape.

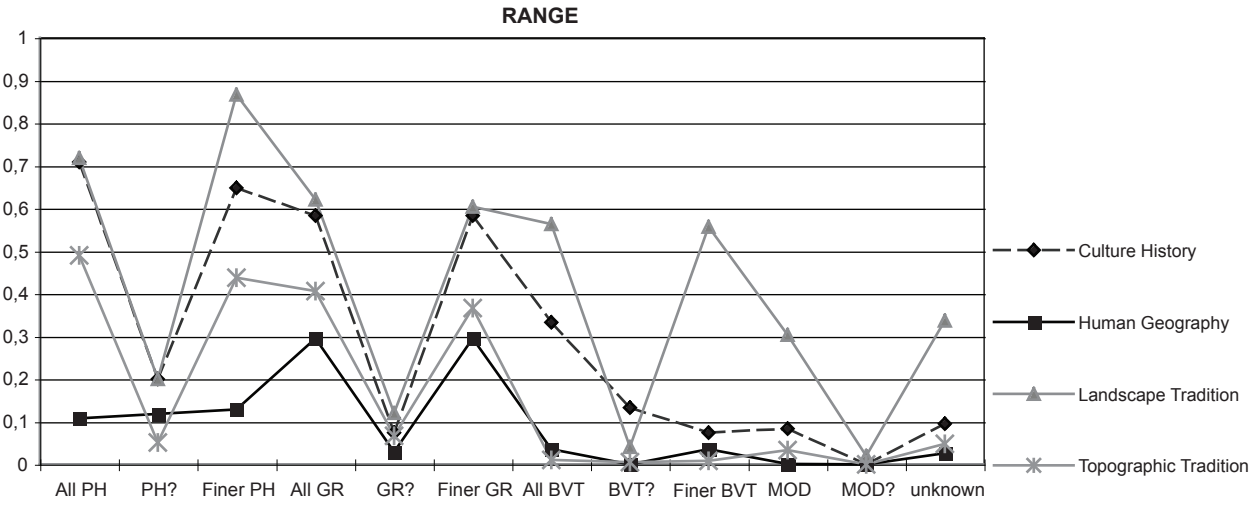


Graph 4.7.4 The extent to which uncertain, general and characterisations of unknown date have been used by the different traditions (in percentages: how many characterisations have a question mark out of the total number of sites per tradition, how many are of unknown date and how many are only general, without including PH, GR and BVT characterisations of a finer scale)

An interesting issue to observe which indicates intra-tradition consistency in the above chronological trends is the variation between projects of the same tradition in discussing various periods. In other words, it is attempted to discern how much different projects converge in assigning chronological characterisations, which are used to describe general trends of the various traditions. It is a fact that not all projects within the same tradition are the same and some have a much stronger impact on a tradition's characteristics. *Graph 4.7.5* presents variability within traditions, which has been calculated on the basis of the Standard Deviation function of Excel. STDEV is again based on the percentages of the relevant characterisations out of the total number of sites for every tradition and does not of course have any statistical value, but is used as an indication of how much projects within the same tradition differ in all their chronological characterisations. Overall, variability is not that great for any tradition, which represents a consistent enough framework within which researchers have worked. However, it is interesting to observe existing variability and try to explain the reasons behind it: LT shows the highest overall diversity; As all but one project (Praisos) have a stronger interest in Minoan times, PH variability might in fact represent a real picture of variability in PH activity among different regions. Also, since almost all of them record a diachronic landscape, diversity in later periods seems to be representative of the real picture as well, but in fact this is also a result of the different importance given to more recent periods. Variability in finer dated periods represents the difference between projects to provide good dating, which may be relevant to whether a project has reached final publication, but it may not. As a result, we need to pay attention when trying to integrate data from different projects, and try to assess how far we can use their results and what questions we can answer. HG has a high STDEV for GR as only one project (Nowicki) discusses sites of this period which are in fact exclusively of the beginning of Iron Age and in general of finer dating. The high STDEV of TT represents the different focus of Hood Knossos which is the only project out of the 3 that records post-Minoan sites consistently, while the other two focus almost exclusively on the PH. In CH, variability reflects the fact that some projects focused exclusively on PH, while others aimed at presenting a picture of the ancient landscape in general. The low STDEV for the BVT and Modern landscapes in most traditions reflects the generally very low interest for these periods, which have in fact been studied only by a few projects of LT.



Graph 4.7.5 Intra-tradition variability (y-axis = STD) in the attribution of chronological characterisations (x-axis). Calculated on the basis of how much projects within the same tradition vary regarding the extent to which they use each chronological characterisation (extent of use = percentage of a chronological characterisation occurrence out of the total number of sites).



Graph 4.7.6 The x-axis shows the various chronological periods, certain, uncertain and finer. The y-axis shows the range of occurrence of each chronological characterisation for every tradition, which is a factor representing how much projects within the same tradition differ regarding the extent to which they use the various x-axis values.

Graph 4.7.6: Range (MAX-MIN) has again been used as an indication of the variation within traditions regarding projects' interest in specific periods. Again, as site numbers may not only reflect a real situation, but also be the result of project differences in research intensity, interest in the various periods is extrapolated not from real site numbers, but from the calculation of the percentage of occurrence of each chronological characterisation. So what is compared is how big a proportion of traditions' interpretations represent the various periods. High Range expresses the difference between projects of the same tradition regarding their interest in the various periods. In fact it is usually a result of some projects focusing on specific periods and others studying a diachronic landscape. When in finer dated periods, it represents the fact that some projects have provided good dating, whereas others have not. Points of small range show a similarity between projects in their lack of interest in more recent periods, (e.g. observe the drop in CH after BVT) and the rather low overall percentage of declared uncertainty. HG seems to have the least variability and LT the highest (chronological focus between projects vary a lot).

4.8 Trends in Function Characterisations

Graphs 4.8.1, 4.8.2 and 4.8.3: in order to understand further landscape archaeology traditions, it has been attempted to trace possible trends also in function characterisations for the three main periods. The y-values represent the proportion (percentages) of specific function characterisations out of the total number of sites, calculated for each project and then grouped by tradition. Observations regarding the extent to which different functions have been used, both intra- and inter-tradition are believed to elucidate further the framework within which archaeological landscape research has operated over time. Moreover, together with studies on chronological preferences, they help us understand better the results produced by the various projects.

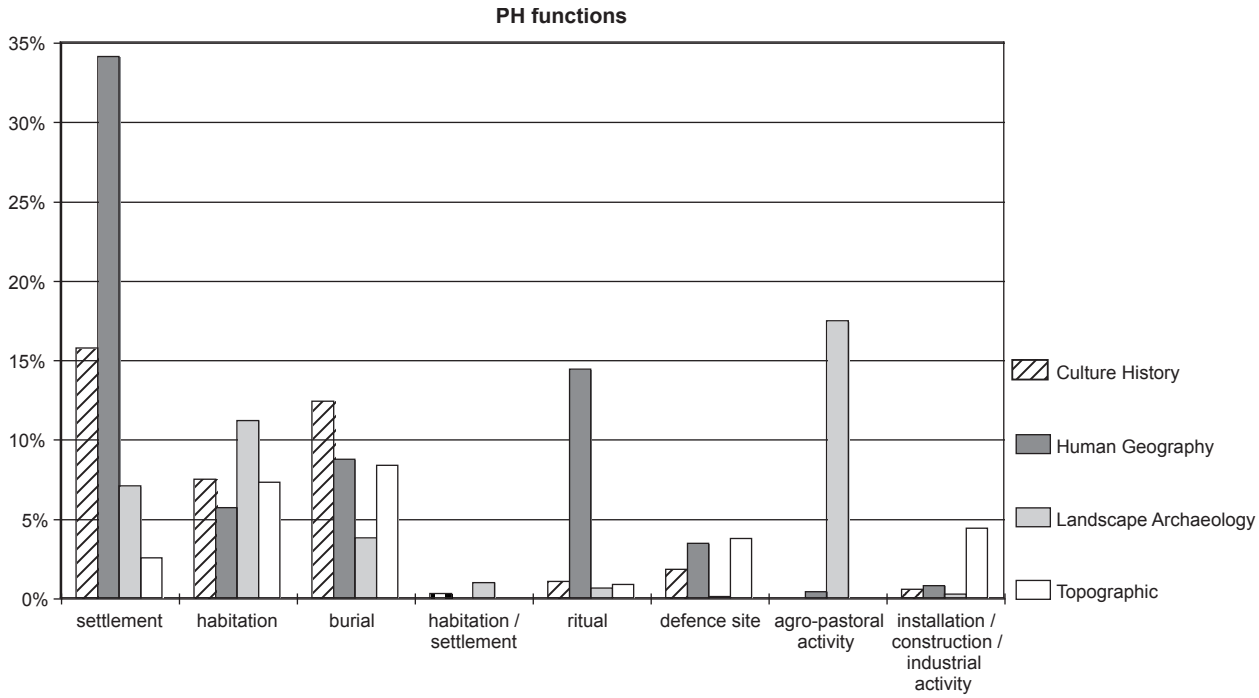
HG has the highest percentage of settlements because of its specific interest in PH settlement activity, a large proportion of which is responsible for the also high percentage of GR settlements as they cover the period of the turn from the Bronze to Iron Age (Nowicki). Religious sites come second in terms of research interest (again mainly due to Nowicki's special interest in PK's), while burials and defensive sites follow, the

last ones studied also in the BVT. PH habitations and burials have been mainly Wroncka's focus. It is evident that projects of this tradition have focused on specific site-types, in particular of the PH period.

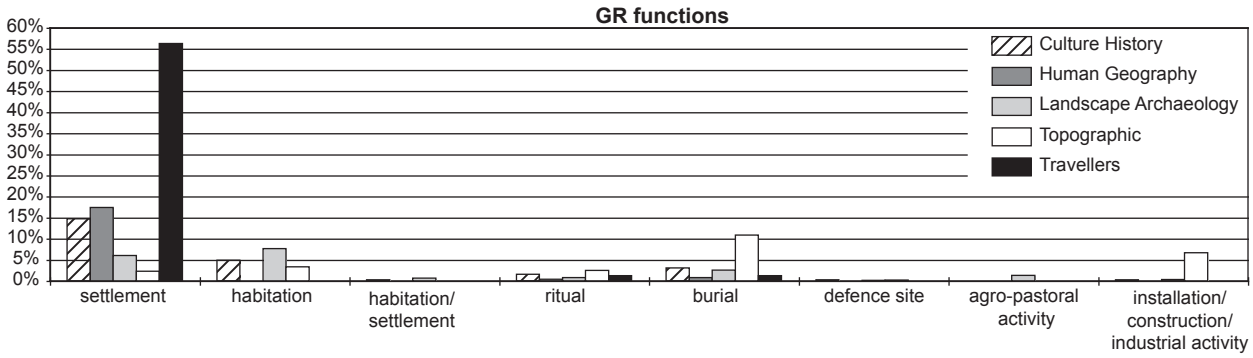
CH also focuses on settlements and habitations and records almost as many burials in the PH. The vast majority of GR characterisations refer to settlements, while in the BVT they focus mainly on ritual sites and forts. A general preference for the PH is also obvious, but we can observe the interest of these projects in recording sites of distinct material culture throughout time. Their interest in specific site-types is not the same for all periods.

TT has a high percentage of PH habitations, burials and sites of industrial activity due to Hood Knossos, which records the same functions also in the GR. Settlements and defensive sites, have been the primary focus of Minoan Roads. Projects of this tradition have also been primarily interested in the PH and almost not at all in later antiquity and show a comparable interest for the same site-types in both PH and GR.

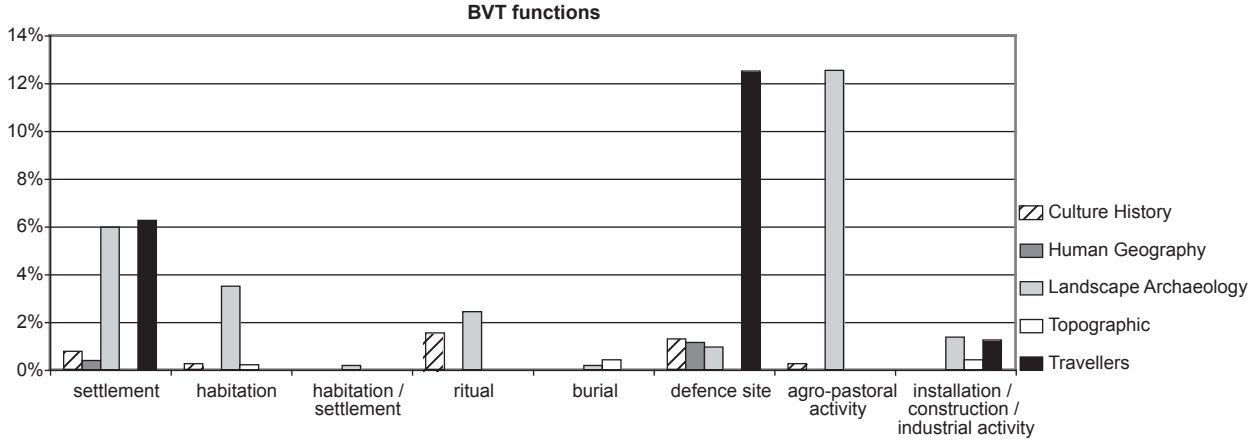
An interesting divergence from the general focus on themes of settlement, burial and religion is the interest of LT in sites interpreted as evidence of agriculture and shepherding, which is of course a natural result of its regional approach and wide interest in variable landscape uses. However, sites of agro-pastoral activity are not explicitly defined, and many noted as field-houses in the BVT would have been called habitation sites in the PH. Settlements and burials form also an important part of the human activity studied; we should note however, the smaller amount of burials in comparison with other traditions, and the higher amount of habitations, which is a result of a more conscious attempt to record settlement hierarchy. An interesting observation is also the evident drop in sites in the GR period, representative of the low interest and relevant lack of knowledge for the GR landscape.



Graph 4.8.1 The x-axis shows common site-function interpretations in the PH period, and the y-axis shows the extent to which they have been used by different traditions, or else the percentage of occurrence of the various functions per tradition.



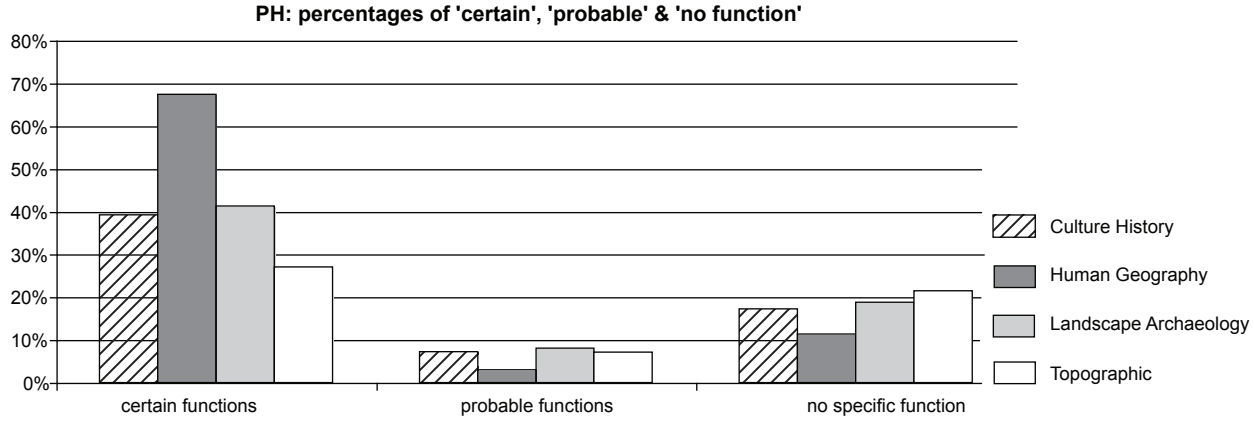
Graph 4.8.2 The x-axis shows common site-function interpretations in the GR period, and the y-axis shows the extent to which they have been used by different traditions, or else the percentage of occurrence of the various functions per tradition.



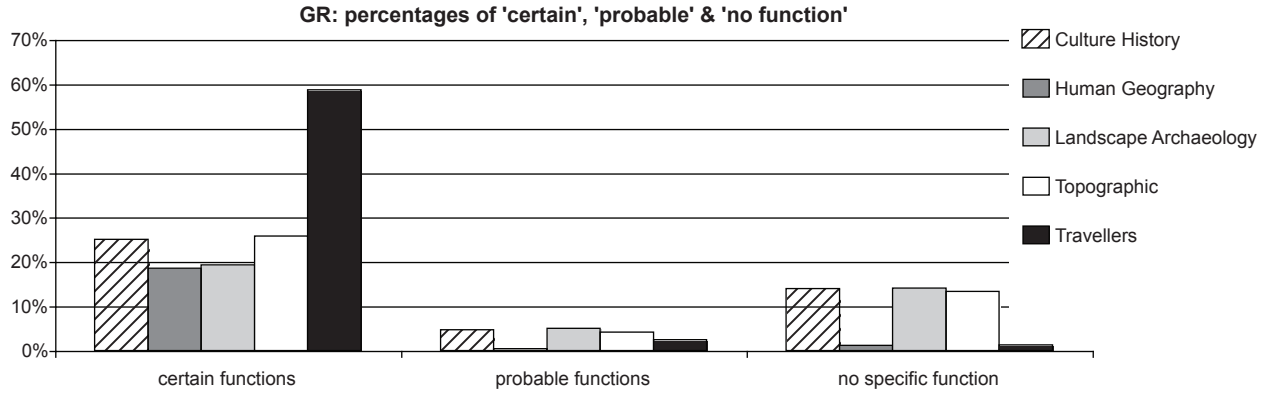
Graph 4.8.3 The x-axis shows common site-function interpretations in the BVT period, and the y-axis shows the extent to which they have been used by different traditions, or else the percentage of occurrence of the various functions per tradition.

Graphs 4.8.4, 4.8.5 and 4.8.6: Interpretations of functions are as important in approaching the past as chronology. The extent to which we can use site interpretations depends also on the usability of function interpretations. Moreover, the relationship between usable and non-usable function characterisations is interesting in terms of studying the various traditions. *Graphs 4.8.4, 4.8.5 and 4.8.6* show the relationship between characterisations of certain, probable and of not defined character, which are basically sites of unknown function or just presence of archaeological remains. Again, percentages have been calculated on the basis of the amount of certain, possible and unknown functions out of the total number of sites for every tradition. As expected, the PH demonstrates a better resolution. However, in general, there is quite a high percentage of interpretations that cannot be used as site data, in terms of understanding human activity in a specific place at a specific time. The GR period seems to be the most problematic in terms of the relationship between the data we have acquired and our capability to interpret it, particularly evident in the Topographic, Landscape and Culture History traditions. Projects within LT and TT seem to prefer to not define function as opposed to proposing a probable one, but this is perhaps also a result of the fact that many projects have not reached final publication. CH also records sites with unknown function, especially in GR and BVT, while HG discusses mainly sites of known function. In *Graph 4.8.7* we can observe what proportion of sites have a defined chronological and function interpretation per tradition and thus, what proportion of site interpretations

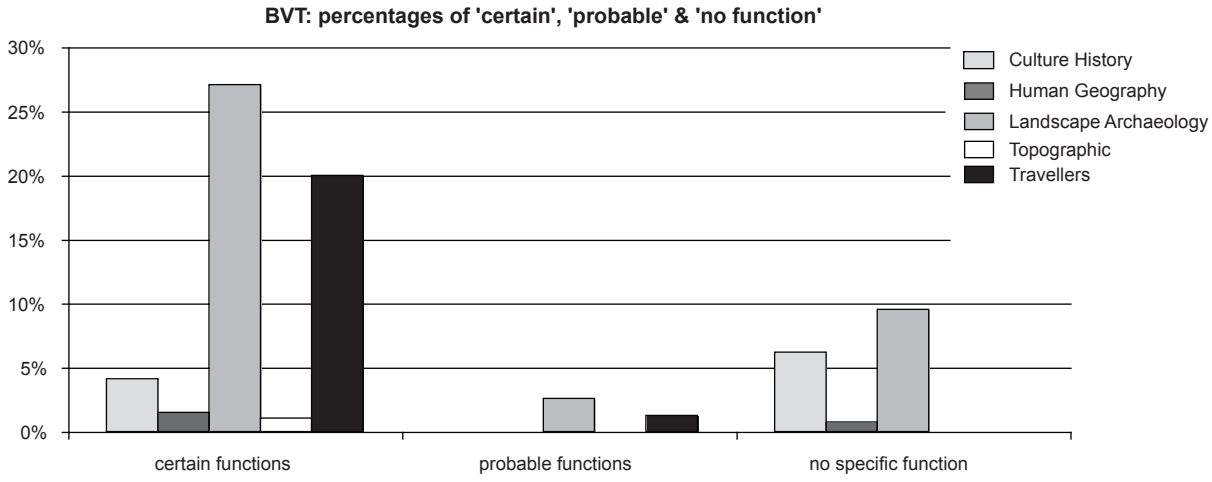
can be meaningfully used to reconstruct past human landscapes and interpret societal structure. It is quite characteristic that even in the much studied PH period, CH and LT allow less than 40% of their data to be meaningfully usable, TT even less, whereas HG deals mainly with sites of defined chronology and function (70%). Percentages of usable interpretations in general decrease in later periods, except for TT, which seems to study both PH and GR equally. It should also be noted that LT defines BVT site interpretations with a very good precision relative to other traditions. Even though projects focus on PH, an interest in diachronic landscapes is apparent.



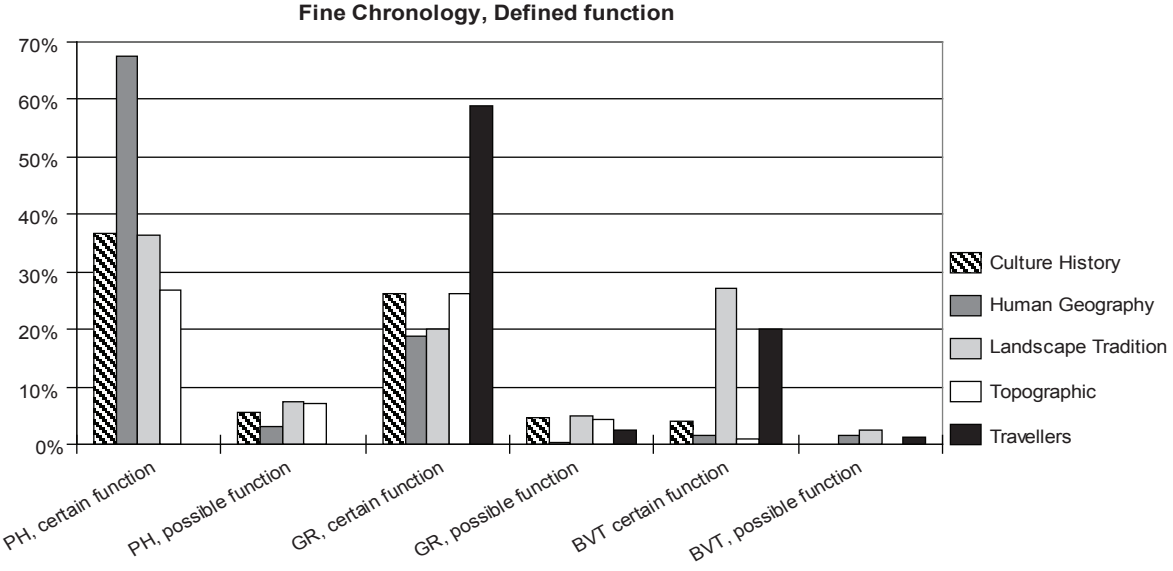
Graph 4.8.4 Relationships between certain, possible and unknown function characterisations in the PH. The y-axis represents the percentage of the above characterisations out of the total number of sites.



Graph 4.8.5 Relationships between certain, possible and unknown function characterisations in the GR. The y-axis represents the percentage of the above characterisations out of the total number of sites



Graph 4.8.6 Relationships between certain, possible and unknown function characterisations in the BVT. The y-axis represents the percentage of the above characterisations out of the total number of sites



Graph 4.8.7 The proportion of sites per tradition that have characterisations of fine chronology and defined function

4.9 Densities

Table 4.9.1 shows the average site density per tradition, based on the projects analysed quantitatively. The area used for LT is the target area declared by each project (the target area of Ayiofarango 77 - 15km² pers.commun. Branigan and Bintliff - is not actually stated in the project and usually an estimate of 20km² has been used by other scholars), whereas areas for the projects of CH as well as for Minoan Roads and Nowicki have been calculated from geo-referenced maps, as there was no relevant information in the publications. HG density is not actually realistic as Nowicki's study area covers the whole island; his densities refer to specific sites and cannot really be compared with site densities of other projects, which record all site-types of all periods. In

fact, site density comparisons have to take into account that project goals may differ in terms of interest in chronological periods and site types and not all archaeological landscape research tries to recover as great a number of sites as possible. Moreover, the site concept may vary according to research interests; therefore, 'general' comparisons of site-densities between projects, and especially if they belong to different traditions, do not actually say much about the intensity of human activity in the past. However, rough estimates of site densities in the various traditions, give us an idea of the amount of area and sites that have been explored and clarify further their framework. The relationship between traditions regarding average site-density per km² is quite expected: CH and HG discuss sites over very large areas, even though from a very different perspective. LT and TT study much smaller spatial grounds. Furthermore, it is interesting to note the immense impact specific projects may have, in this case Pseira and Hood Knossos, as a result of a different concept of site. The problem of integrating site data in inter-regional comparisons is indeed clear. Range is a factor that indicates intra-tradition variability regarding estimates of site densities and gives us also an idea of differences between traditions. It is calculated as the result of MAX– MIN density per tradition. High Range represents the fact that within the same tradition there are projects providing a high site density and projects discussing fewer sites over larger areas (small site density). This may be a result of project scale, but what people call a 'site' also plays an important role.

Tradition	Average site-density in km²	Range
Culture History	0,473	2,216
Human Geography	0,062	0,084
Landscape Tradition	18,776	178,707
LT without Pseira project	5,308	16,202
Topographic Tradition	15,308	36,921
Topographic without Hood Knossos	4,362	8,165
Travellers	0,010	

Table 4.9.1 Average site-density per tradition: sum of projects' densities divided by number of projects within the tradition; Range as a comparative factor of intra-tradition variability (MAX-MIN density per tradition).

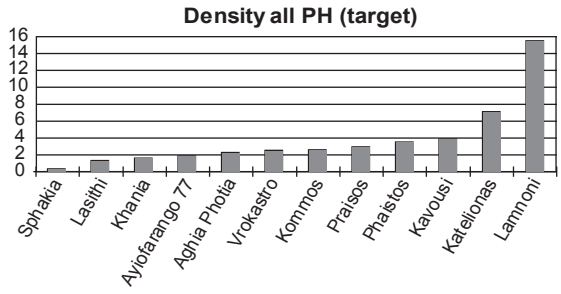
Site-densities are the most important result and interpretative tool of regional surface surveys. They have traditionally been used to support interpretative schemes of social evolution and form the basic theme of comparisons between different periods within the same region, and among projects and therefore regions. However, such comparisons may be extremely problematic; the only way to arrive at meaningful conclusions is to know what densities we compare and to use projects, which have used the term site in similar ways. *Table 4.9.2* shows how different results we may get in inter-regional comparisons of site densities (usually implying population densities) for the PH, depending on what calculations we use. The use of both certain and questionable or just certain chronological characterisations may also influence our conclusions, even if in general, the relationship among most projects remains unchanged. Projects in bold characters highlight differences in their relationship (which project shows a higher density), depending on whether we use only certain definitions or not. However, differences in inter-regional comparisons of habitation intensity are much greater depending on whether we calculate densities upon target population, sampled or the area actually seen. In fact, discrepancies are indeed great, even more so between target population, which is what has been traditionally used, and area actually seen[1], which is what should be used, depending on site-size. Patterns are almost totally different. Pseira of course consistently exhibits the highest density, but in fact its sites often do not consist of concentrations, but they may be the presence of even one sherd, and as it studies a

1 Appendix two, table 'fieldmethods-sampling': it is explained how the area actually seen is estimated.

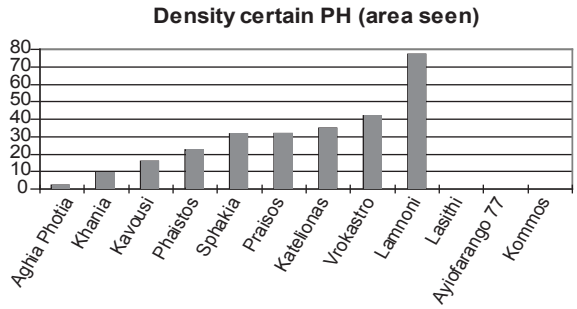
unique agricultural landscape recording every terrace, it can not actually be used for any meaningful density comparisons with other projects. *Graphs 4.9.1 – 4.9.6* show two versions of the relationship between projects in terms of which ones have higher densities. We can compare densities between the most general calculations (both certain and uncertain characterisations for the target population) and the most specific ones (only certain characterisations for the area actually seen) for PH, GR, and BVT. Pseira has not been included in PH and BVT because of its very large number of sites, whereas Lasithi, Ayiofarango and Kommos have not provided the necessary information for the estimation of the area actually seen. In general terms we have enormous discrepancies, e.g. Sphakia. It is evident, thus, that we need to rethink our inter-regional comparisons. In reality of course, the problem of site definition amplifies the problem of inter-regional comparisons even further.

Density all PH (target)		Density certain PH (target)		Density all PH (sampled)		Density certain PH (sampled)	
Sphakia	0,270	Sphakia	0,266	Lasithi	1,271	Lasithi	1,208
Lasithi	1,271	Lasithi	1,208	Ayiofarango 77	1,800	Ayiofarango 77	1,600
Chania	1,550	Chania	1,503	Chania	1,815	Chania	1,760
Ayiofarango 77	1,800	Ayiofarango 77	1,600	Hagia Photia	2,222	Hagia Photia	2,222
Hagia Photia	2,222	Hagia Photia	2,222	**Phaistos**	3,455	**Kommos**	3,314
Vrokastro	2,480	**Kommos**	2,320	**Kommos**	3,600	**Phaistos**	3,409
Kommos	2,520	**Praisos**	2,444	Kavousi	3,810	Kavousi	3,667
Praisos	2,889	**Vrokastro**	2,460	Praisos	5,200	Praisos	4,400
Phaistos	3,455	Phaistos	3,409	Sphakia	5,404	Sphakia	5,319
Kavousi	3,810	Kavousi	3,667	Vrokastro	6,150	Vrokastro	6,150
Katelionas	7,042	Katelionas	7,042	Katelionas	7,042	Katelionas	7,042
Lamnoni	15,385	Lamnoni	15,385	Lamnoni	15,385	Lamnoni	15,385
Pseira	174,286	Pseira	174,286	Pseira	174,286	Pseira	174,286
Density all PH (area seen)				Density certain PH (area seen)			
Lasithi	0,000	Sphakia	32,439	Lasithi	0,000	Sphakia	31,928
Ayiofarango 77	0,000	**Katelionas**	35,211	Ayiofarango 77	0,000	**Praisos**	33,033
Kommos	0,000	**Praisos**	39,039	Kommos	0,000	**Katelionas**	35,211
Hagia Photia	2,222	Vrokastro	41,333	Hagia Photia	2,222	Vrokastro	41,000
Chania	9,412	Lamnoni	76,923	Chania	9,128	Lamnoni	76,923
Kavousi	15,873	Pseira	580,952	Kavousi	15,278	Pseira	580,952
Phaistos	23,030			Phaistos	22,727		

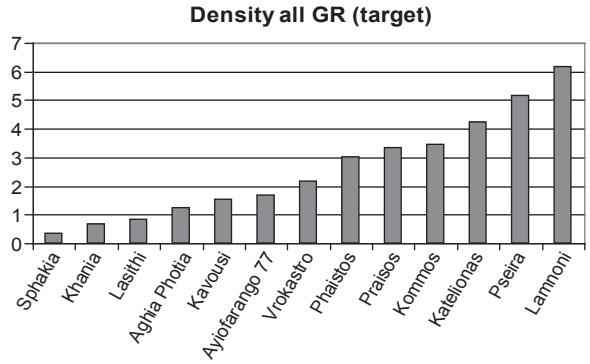
Table 4.9.2 PH site densities per km² of LT projects: the density of a project varies, depending on whether calculated upon target population, sampled population or area seen (compare the order of the projects among the three categories). Site density among projects also varies depending on whether both uncertain and certain chronological characterisations are used (all PH), or only certain ones (certain PH) as shown in projects with bold characters.



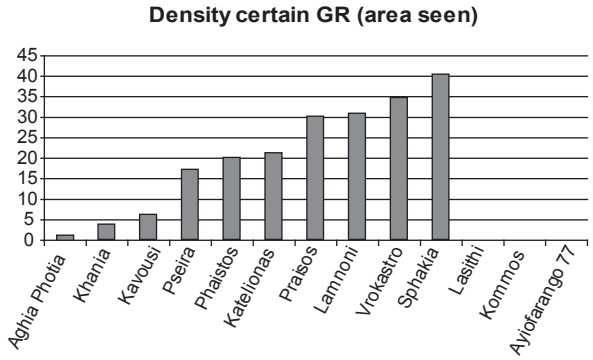
Graph 4.9.1 Site densities of all PH characterisations per project calculated upon the area of the target population



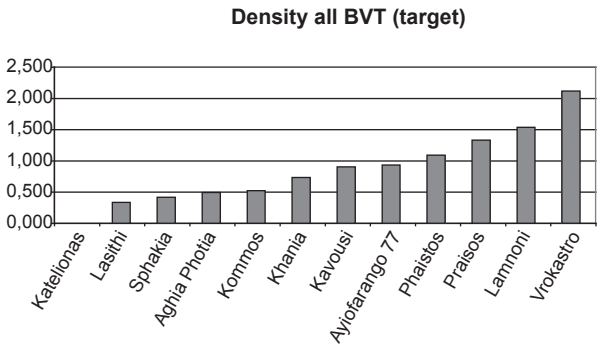
Graph 4.9.2 Site densities of only certain PH characterisations per project calculated upon the area actually seen



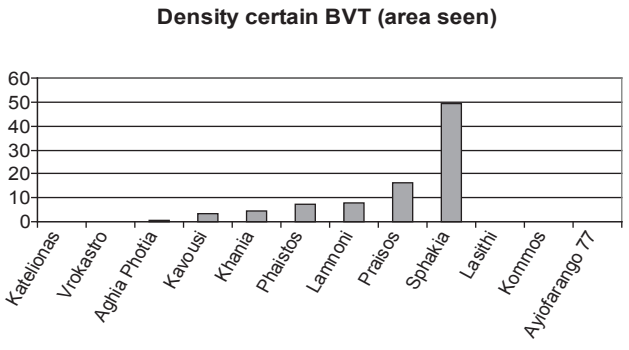
Graph 4.9.3 Site densities of all GR characterisations per project calculated upon the area of the target population.



Graph 4.9.4 Site densities of only certain GR characterisations per project calculated upon the area actually seen



Graph 4.9.5 Site densities of all BVT characterisations per project calculated upon the area of the target population.



Graph 4.9.6 Site densities of only certain BVT characterisations per project calculated upon the area actually seen

4.10 Discussion: Evaluation of Comparability

Based on various analyses, intra- and inter-project comparisons, we can make observations that illuminate the framework of archaeological landscape research on the island of Crete over time. It is apparent, that even though projects have their own identity, we can also identify trends specific to particular traditions. At the same time, there is a remarkable interplay among traditions, as researchers may use a big and variable body of theoretical developments and receive influences from older and contemporary colleagues, whether consciously or unconsciously. Thus, CL and the TT have developed in close association, while HG exhibits important similarities (research themes), but also differences (methods and problem orientation) with both. LT has developed advanced methods in recording the landscape and focuses on ecology and themes of social complexity; however, there are evident roots in a CH framework, which has in fact shaped Cretan archaeology in general. They all share a strong systemic framework, with society studied as a group of subsystems and geography playing a leading role in the study of societal structure. Traditions demonstrate distinctive trends of interpretative and methodological approaches; however, they do not form playgrounds with impenetrable borders.

Furthermore, analysis helps us to assess interpretations and think about the usability of landscape research data. A most important realisation is that functions, as well as chronological characterisations are principally a result of research interests. Patterns of human activity could in fact differ if there was a common and consistent definition of specific functions that would guide interpretation. For example, there is quite a lot of fuzziness between sites of agro-pastoral activity and habitations, and the same is the case between habitations and settlements. Many sites can be of multiple functions even in the same period, and thus the function promoted depends on the researchers' specific interests, e.g. a defence site may at the same time be of permanent habitation, and most farms encompass both a habitation and an agro-pastoral use. Chronological patterns are also representative of the history of archaeological interest and intensity of research, e.g. the finer classification of human activity in the PH period almost by all traditions, is the result of an analogous interest for the Minoan past, which has encouraged relevant studies in greater detail.

Overall, we have a better-dated PH landscape with many settlements and habitations, even though the difference between the two is not always clear. LT stands out with its high percentages of habitations and agro-pastoral sites relevant to its focus on the agricultural landscape and small sites interpreted as 'farms'. The other 3 traditions focus on specific site-types. Human Geography discusses mainly settlements, while all of them show a high percentage of unknown and uncertain function. This is not only due to the difficulty in defining function, but also due to little effort in doing so. The GR landscape is in general less known and almost restricted to site interpretations of settlements by all traditions. The picture acquired for this period includes even a higher percentage of sites with an unknown or uncertain function. The BVT period has been studied mainly by LT, and again it is settlement and agro-pastoral activity that has been of major interest, but a high percentage of sites with an unknown function are also recorded. Doubts as to how successfully we can use chronological and function interpretations are augmented by the inherent ambiguity in talking of a PH, GR, or BVT landscape as these periods are too large slices of time, artificially created. Furthermore, densities, which form the basis for interpretative models, are much debatable as their calculation depends on crucial information, which unfortunately is often omitted from publication.

It is evident that results can not simply be taken as a true representation of the reality of human activity over time in a region, without considering foci of interest and priorities in dating. Some projects offer better possibilities for a meaningful integration of their results, while others provide only general characterisations. Data / interpretations can not be used in the same way, but according to their resolution and precision, as well as accuracy, which has to be evaluated. For example some people may record all ancient remains, but not try to be consistent or are not as interested in recovering a Byzantine landscape. Besides that, we should take into account knowledge gaps in pottery dating, which increase as antiquity lessens. Often, sites from different surveys can not be compared, e.g. Pseira can only be used as a source of information on the specific theme of Minoan agriculture, but its sites can not be compared with those of other surveys in terms

of settlement patterns; Lack of consistent site definitions, explanation of the function terms used and adequate documentation of field methods, make density comparisons rather meaningless. As a consequence, we need to be careful and clear on what data we use for inter-regional comparisons, recognising their potential and weaknesses. Finally, we need to acknowledge the importance of assessing the interpretative value of survey data and pursue publication clarity that will support meaningful integrations of regional and inter-regional data.

5. Historiography of Landscape Research in Crete

5.1 Introduction

To construct the history of archaeological thought in Minoan Landscape Archaeology is not an easy attempt, as Minoan archaeology has followed its own long trajectory, empty of much theory regarding landscape studies. The method of exploring the landscape has always been under the shade of a leading archaeological paradigm and it was just a method, usually self-explanatory, never deserving evaluation of its theoretical component. Based on chapters 3 and in particular 4, however, this chapter discusses the major characteristics of archaeological landscape research within which the various projects undertaken in Crete have taken place. A set structure is followed discussing theoretical background and aims, methods, site definition / relocatability, results, interpretative framework and general assessment. The identification of traditions in the study of the thirty-five projects in Crete is based on grouping together certain distinctive features in the way the past is approached and aims at the elucidation of patterns in their relationships, as elements of knowledge production. The study of such patterns in the way archaeological knowledge has been constructed (to which I refer as traditions), has profited from Tilley's discussion of approaching archaeological knowledge (Tilley 1990). My approach is of course rather historiographical, but the description / discussion of the identified traditions on archaeological landscape research in Crete includes themes such as what is considered to be proper discourse, what patterning is presented and why, what 'statements' are made ('statements' are implicit in themes and ways of presentation), what is disseminated, who writes and how he is related to other researchers. Such an approach is believed to be an indispensable condition for in-depth understanding of the various landscape researches and therefore necessary in order to make assessments and inter-project comparisons.

'Traditions' in a sense relate to Kuhn's paradigms (1962), and indeed they may exhibit strong links with specific time periods since the 19th century; however, the formation of paradigms in Greek archaeologies, has depended greatly on social and political factors, they are not just products of intra-science processes (Morris 1994). 'Traditions' are thus disciplinary frameworks of archaeological practice, formed according to socio-political circumstances and which demonstrate what is considered to be proper archaeological research and discourse over time and depending on theoretical approach. It becomes apparent, however, that they are not the 'magical unit' in which to analyse archaeological knowledge; they are not linked in a time and value evolutionary process and do not consist of homogeneous projects. It would certainly be wrong to use 'traditions' as flags of 'good', 'proper', or 'bad' work, as all approaches have their strengths and weaknesses and have been constantly interacting in multiple and complex ways. On the other hand, the notion of 'traditions' allows us to relate approaches of archaeological work, explore similarities and differences, and view archaeological knowledge production within a context that promotes understanding.

The relationship between knowledge production and its socio-political framework (a two-directional relationship) is not explicitly discussed in the context of this thesis, as the aim has been primarily to describe and assess what we ultimately have from more than a century landscape research in Crete. However, insights into what constitutes proper research and desirable knowledge about the past, allow us to at least suspect respective social, political and economic circumstances. Hopefully, the need to view archaeological results within a complex network of interrelationships that demands self-assessment and a critical approach towards the value and potential of acquired knowledge will be clear and encouraging.

5.2 Travellers Tradition

5.2.1 Summary of main characteristics

- Multi-scientism; mapping, geography, ecology, history, literature.
- Discovery of sites mentioned in ancient sources.
- Narrative descriptions of monuments and pieces of art.
- Narrative descriptions of the physical landscape and life in Crete, from a variety of perspectives.
- Landscape is treated as the physical environment that contains human activity. Its study is characterised by excitement for the discovery of exotic Crete.
- Time and space are not dissected; the observable world is more unified than in later works.

5.2.2 Theoretical background and aims

Travellers' accounts in Crete start already from the 14th century. Until the 17th, descriptions concern mainly geography, contemporary history, local products, but also ancient history and mythology (Gondica 1995). A Travellers' boom is noticed in the 19th and early 20th centuries, an era that believed in man's ability to learn the world through empirical observation and promoted the exploration of new lands, in particular ones that had hosted glorious civilisations in the past. European humanism, with its focus on ancient Greek philology, made Greece an attractive pole of exploration, which was brought into attention not only as the land of origin for the European civilisation, but also as an undiscovered, exotic place, romanticised for its struggle against the Turkish conquest. Moreover, Greece was of a strong political interest for European governments. Crete was among the most favourable destinations for Travellers, who could be geographers, doctors, botanologists or cartographers, and who were usually involved in many knowledge areas of their time. They were among the elite of their country, having been able to receive a good level of education that included the study of ancient Greek literature. Acquaintance with ancient Greek texts was a major inspiration for their travels and thus the discovery of sites mentioned in ancient texts a principal goal. At the same time they had a strong interest in ethnography and concurrent life on the island. This approach can be followed throughout the 20th century, and is in fact on-going through travel guides and chronicles.

5.2.3 Methods

Travellers, who visited the island when it was still under Turkish rule, would get in contact with consuls or representatives of European countries in Crete, who would suggest a Cretan local as a guide, responsible to take them around and help them with their investigations across the island. A basic itinerary and general plan was in general pursued, but travelling under difficult circumstances often required flexibility as well as diplomatic skills. Personal observations were the main tool of exploration, which concerned as much the physical environment, landuse, economy and cities, as social life, customs and beliefs. Regarding the discovery and documentation of ancient sites and monuments, the principal source of information was ancient historians, mythology and previous Travellers, but material culture such as architecture, coins, inscriptions etc were also used as important evidence. The information acquired from written texts were combined with information from local people and usually followed by personal observations.

5.2.4 Site definition / Relocatability

Places discussed are all loci considered interesting to describe and illuminate Crete's history and identity, whether villages, monuments, monasteries or sanctuaries. Ancient sites are defined upon information from written sources, but also upon surviving material remains, mainly architecture. The term 'ancient' refers to Greek or GR times, as this is the period that attracts most interest, and 'site' is the equivalent for an ancient GR town or settlement, known from ancient sources. Most sites visited by Travellers are known and usually exhibit

monumental architecture, or contemporary villages and monuments. Even though there are of course ancient sites that have been wrongly identified, descriptive accounts make most sites easy to relocate.

5.2.5 Results

The most important results concern life on the island at the time the various accounts were written. We gain very informative descriptions of both the environmental and the cultural landscape of Crete, social relationships, customs and beliefs, economic and political life. Geography and environment may be presented in an austere descriptive manner or as part of literary stories and narratives of social issues. In general, the physical and the social are co-related in a natural way, space and time are not dissected with sharp border lines. We receive a picture of the present in which the past is almost a living component. The past forms, of course, a distinct topic of research and is explored through myths, ancient history and material culture found in the landscape. Many ancient sites are correctly identified and mapped and descriptions, including a brief history of the site and its research, are valuable records of their situation at the time. On the other hand, we may also get wrong assessments and biased opinions.

5.2.6 Interpretative Framework

Patterning observed	Patterning of interpretations
Topography and material culture	Identification of GR towns or places mentioned in ancient sources
Extents of ancient remains	Identification and size of settlement
Megalithic architecture	Site chronology

The main interpretative problem Travellers encounter is the correct identification of a GR city and its location on the map. An inductive thought is followed, where all possible arguments leading to a specific interpretation are presented. Intuition plays a significant role and so does ‘common sense’, whether regarding the discovery of an ancient site or the explanation of belief systems, cultural behaviour or socio-political and economic situations. Comparisons are used in order to illuminate themes described and support proposed suggestions. Discourse necessitates the discussion of a wide variety of topics in order to supply an as complete a picture as possible of the described places. Geographical and other observations of the physical landscape, but also history, mythology, customs, life style and the cultural landscape are significant parts of Travellers’ accounts. Observations are described in detail, and may be supported by personal opinions and assessments. Maps of ancient Crete are a usual ‘must’. Sources such as ancient writers and previous Travellers/antiquarians are systematically referenced, representing the framework of inspiration and method within which they worked. There are also references to European art and literature, which reveal wider perceptions of educated Europeans.

5.2.7 General Assessment

Travellers’ accounts vary in the quantity and quality of information they provide, but in general they approach a wide variety of themes focusing on descriptions of the physical and cultural environment of their time. Some are more interested in ancient history and material remains from the past, others in environmental studies, or the socio-political situation. Travellers are educated people whether involved in academia, politics or the military. They are adventurers, but also people with good political contacts to grant them support and help with their endeavours. In principal, observations and experiences of their travels are kept in a diary form, but there are cases where research is taken seriously and performed with a certain method. Writing

is in fact a combination of 'objective' empirical observations, where data are described with no further personal comments, and literary descriptions of various themes, where personal thoughts and feelings are expressed in a quite detailed manner. Literary narratives and descriptions may also present the line of thought, regarding the relocation of ancient sites. Art drawings offer a realistic visualisation of themes described, whether monuments, landscapes, plants, animals or local people in their costumes. An indispensable part of presentation is the construction of maps showing geography, topography, and environmental characteristics (e.g. a forest), but also the location of ancient sites and monuments, castles and places discussed.

Interest in cartography combined with an interest in discovering ancient sites, promoted topographical observations and a geometric perception of the landscape. However, the Travellers use their intuition, their senses and emotions, as much as their empirical observations and critical thought. They are a most significant source of information regarding the appearance of the landscape at the time of their visit, but also regarding social history, including value systems of both Crete and the various European countries. They all leave exciting descriptions and have been a constant inspiration for research on the island. A very interesting approach is the incorporation of the ancient past into the present landscape, a diachronic perspective and interest in cultural continuity. Results may of course be subjective impressions and at times wrong, but Travellers' accounts are historical sources to be studied as such. In any case, Travellers' vivid narratives give us exciting information and an idea of how the past was perceived by both locals and Travellers.

5.3 Culture History Tradition

5.3.1 Summary of main characteristics

- The framework within which archaeology in Crete was born; Landscape explorations aimed at discovering and recording material culture.
- The rich findings of the Minoan civilization have biased archaeological research ever since.
- Landscape is the spatial / geographical context of archaeological sites.
- Close links with the Topographic Tradition.
- A Cultural evolutionist perspective has characterised research. The study of material culture has focused mainly on artistic values and the building of chronologies. There is a focus on excavation data that are studied in order to establish site hierarchy (based on size, elaborate finds, architecture and concluded complexity).
- Not much – if any – discussion of method, theory, terminology used; concepts are usually taken for granted.

5.3.2 Theoretical background and aims

Projects of this tradition focus on the description of material culture within a rather normative view, aiming to build a picture of the past and in particular of the Minoan past. Minoan archaeology has developed primarily within a theoretical framework of classics rather than prehistory. Greek and foreign researchers excavated and brought to light a much wanted glorious past, which has fuelled archaeological research ever since. Landscape explorations aim at the discovery of new sites, namely spots of interesting finds, which prove the spatial extends and magnitude of the Minoan culture. The exact location and nature of ancient activity are in fact of secondary importance. However, research is not restricted to Minoan times; since most archaeologists studied classics and ancient history, GR and BVT sites and antiquities are also recorded.

Greek archaeology was born in a Culture History framework. From the end of the 19th and throughout the first half of the 20th century, and in connection with the socio-political demands of the time, many researchers inspired by Homer walked all over Greece in order to locate ancient sites mentioned in written sources and find new ones, representative of the glorious ancient civilisations. Excavation discoveries in combination with the decipherment of Linear B resulted in an increased desire for the discovery of PH

sites. Archaeology in Crete has been typified by an almost exclusive interest in the Minoan past, as a result of the specific historical and in particular political circumstances within which it was born, and which are characterised by an evolutionary ideological framework and the need of Europe to find its prehistoric identity (Mc Enroe 2002; Preziozi 2002). A leading figure of the beginnings of Cretan archaeology is I. Hatzidakis (Hatzidakis 1881; 1888; 1931 etc), president of the 'Philomathic Society of Herakleion' (Φιλεκπαιδευτικός Σύλλογος Ηρακλείου) and founder of the Herakleion museum. He worked hard for the collection of antiquities in order to promote the Greek national identity of the island, which was still under the Turkish rule. He dug Malia and other sites and also encouraged foreign researchers, who at the time were exploring Crete (and Greece), often representative of the Great European powers and America, who were competing over excavation sites (La Rosa 2000-1; 2002-4). Xanthoudidhes (Hatzidakis's descendant) also wrote about collections of antiquities and the history of Crete (Xanthoudidhes 1904; 1909; etc). Kalokairinos dug first at Knosos (Kopaka 1995), which was finally undertaken by the British School and Arthur Evans (reports in BSA volumes and Evans 1921). Harriet Boyd Hawes (reports in AJA volumes; Alsebrook 1992), Hogarth, Halbherr and others were also among the first who established Minoan archaeology, through excavations and extensive explorations across the island (Huxley 2000; Sakellarakis 1998). Later on Pendlebury (1939) and in the 60's Hood, composed extensive catalogues with ancient sites and worked in the same framework as Benton, Hankey, Morris etc. Sinclair Hood in specific, had participated in Roman studies in Britain and having studied 'recent' history (since Constantine the Great), he had an interest also in the GR period and occasionally recorded Byzantine-Ottoman sites. He worked towards the enrichment of site inventories (starting with the request of a publishing company to update Pendlebury's 'The Archaeology of Crete'), which triggered interest also to little known areas and demonstrated evidence in support of the extents of the Minoan civilisation. Excavators and ephors (Marinatos, Alexiou, Platon, Davaras, Sakellarakis, Tzedakis etc), have worked in the same framework of trying to uncover the Cretan past. Ultimately, the writing of the history of ancient Crete (Spanakis 1940; Vidalakis 1970 and many others) uses data from excavations and history and archaeological landscape researches.

This tradition has in fact strong links with the Travellers, but also with the Topographic Tradition. For example, archaeologists have often adopted a Traveller's approach, using previous writers and local sources to identify sites; at the same time, the meticulous recording particularly developed in the German Topographic Tradition represented a more 'scientific' presentation of data and opinions, and the significance given to the description of the observable world, characteristic of the turn of last century. Overall, perhaps the most distinctive characteristic of this tradition is its focus on description and the lack of any interest in explanation. The concepts used have always been taken for granted.

5.3.3 Methods

Field-methods are structured along the lines set by Travellers, antiquaries, topographers and settlement archaeology. Archaeologists went on excursions and looked around for locations of ancient remains, developing an 'intuitive', 'empirical' approach to discovering ancient sites. The main methods followed are: **a)** Going to kafeneions asking for 'visala' and meeting people who would often take them to sites. Agrofylakes and people with an interest in archaeology occasionally became archaeologists later. **b)** Travelling around looking for low hills with relatively flat tops and areas with arable land and water sources. These criteria formed the 'common sense' locations for settlements. **c)** Following previous researchers' descriptions to relocate sites.

Hood was influenced by Woolley's excavation methods at Alalakh and Kenyon's at Jericho (a student of M.Wheeler; she gave great importance to recording methods). He declares that his principles were to look around as much as one could walk, carry as much as possible, look for common sense 'inhabitable' areas and record everything, including GR and sometimes later sites. Sherds kept, were the best diagnostics seen on the surface.

Like the Travellers CH archaeologists also use toponyms to infer site-location, whereas previous explorers (ancient writers, Travellers and archaeologists) are used as information sources to identify known sites.

5.3.4 Site definition / Relocatability

Sites are locations of past material culture. They are defined upon 'self-explanatory' or intuitive criteria rather than explicitly defined ones. The presence of architecture and sherd spreads – the combination of both presenting a stronger case – is taken to reveal a site, most commonly interpreted as an inhabited location. Sometimes, however, sites may even be 'stories' of a find at a village. The area-size these locations cover vary, they could be an isolated tomb or find, or a wide area with many findspots, e.g. a settlement with a possible tomb nearby and a scatter ½ km away. Uncertainty over chronological and functional characterisations is expressed through hypothetical tenses or let to be implied, e.g. when they refer to rumours of ancient finds and sites. An important weakness is that at times interpretations are not clear, e.g. when people refer to previous researchers without stating if they agree with them or not, or when they describe site data as of probable chronology and / or function and refer to the site as of a *certain* interpretation.

On site, all periods noted may be mentioned, but there is usually no distinction between possibly different functions in different periods. Sherd quantities are described in vague terms, e.g. a few, or many. Site-function variation is very broad, as a site is any location with material remains and thus archaeologists may describe loci such as walls, displaced architectural blocks, inscriptions, wells, in short any place with some archaeological interest. Greater attention is, however, given to settlements, burial and religious sites. Overall, sites are not perceived as interpretations or entities of a specific definition, needed for interpretative suggestions on social reconstructions, they are more 'hard data' telling us 'what' exists 'where'.

Site Recovery Variability: The data measured are traces of walls, stones (from walls) in combination with pottery presence, or just pottery concentrations. The walls are mainly interpreted as house walls, but have also been interpreted as parts of terraces, fortification walls, roads or quays. The quantity of pottery upon which site function and chronological definition are based, varies and there is no formal quantification that distinguishes settlements from isolated houses or farmsteads. The same characterization (e.g. stones and a thin scatter of sherds) may be used for both 'small settlement' and 'farmstead'. However, sites interpreted as settlements usually seem to demonstrate larger and more dispersed scatters of stones and pottery or better preserved walls in comparison to those called 'farmsteads'. It appears that scatters of more than 50m² are interpreted as settlements.

Examples of data measured for site definitions:

Settlement	Isolated house	Farm
Walls, sherds and finds	Traces of walls and 1-2 sherds	Scatter
Sherds and stones	Walls and fragments	Concentration in a small area
A few sherds and a toponym	Traces of walls and scattered sherds	
Stones and a good deal of pottery	Thin scatter	
Pottery	A few sherds	
Stones and a scatter		

As far as relocatability is concerned, some sites may be known or easy to find if they have substantial architectural remains and locational directions from known spots, but in other occasions they are extremely

difficult to relocate as locational descriptions may not be adequate and map scales are usually of low resolution. In general, location does not always receive the same importance.

5.3.5 Results

Landscape research within the Culture-History tradition, has produced mainly reports and site-indexes (whatever a site is meant to be). These, describe material culture and landscape observations, not in a consistent manner, but with an effort to present as clear a picture as possible. As there has traditionally been a greater interest in Minoan times, chronological resolution is much better for the PH than the later periods. For the PH, we also have small sites, e.g. farmsteads and isolated houses, as well as settlements. GR and especially BVT are recorded, even though chronological characterisations may be too general and inaccurate e.g. 'Medieval'. The aim is to provide detailed descriptions of material culture found, but often there is no attempt to find interconnections of loci discussed. The most popular interpretations regarding Minoan society include:

- The unity of Minoan civilisation. Proving its extent and grandeur. There are Minoan sites across the island.
- LBA: flight to hills due to sea peoples and warfare
- The West is considered to be less developed in relation to central and eastern Crete
- Crete was extensively populated in N and BA and heavily forested.
- An identified settlement hierarchy implies social hierarchy; concepts of hamlets, farmsteads, moving royal settlements between summer and winter, remind us of concepts relevant to the English countryside.

5.3.6 Interpretative Framework

Patterning observed	Patterning of interpretations
Relationship between sites and topographic characteristics.	Location, accessibility.
Distance among sites and geographical / environmental features (sea, water sources etc).	Common sense suitability of location for settlement, specific function, developmental stage.
Material culture spread and quantity.	Substantial remains define sites; quantity and spread define site size e.g. a lot of material and a big spread are more likely to represent a settlement as opposed to a hamlet or farmstead.
Site numbers, size, function.	Rough population estimates based on site numbers, size and function (e.g. relationship between tholoi and settlements). Site-size implies hierarchy.
Typology and chronology.	Definition of site chronology and function (burial or religious character of the site). Origins of Minoan culture, theories of colonization and diffusion. Possible relationships between sites.
Architecture, objects, iconography, philological sources.	Social reconstructions based on themes such as food and clothes, war and trade, religion and burial customs.

The basic questions sought to be answered concern types of sites and their chronology. Relevant interpretations are based on experience and intuition. Socio-political views are strongly influenced by English concepts and perceptions, e.g. there are Minoan 'hamlets' and 'farmsteads', but not really 'metochia'. A favoured picture of the Minoan landscape (S.Hood), reconstructs houses with terraces, a landscape dotted with isolated farms and

towns with suburbs. There are assumptions on Minoan cultural and political uniformity, and common sense relationships, e.g. between quantity of material and economic hierarchies, power and population densities. Change is basically studied in relation to diffusion, warfare and catastrophic events (e.g. Santorini eruption). In general, the weight is given to the identification and documentation of sites rather than on complex socio-political interpretative schemes and there is more attention to general patterns than social conflicts and local differences. Landscape explorations are seen as providing additional data to excavations for the construction of historical narratives within a systemic framework.

Reports consist mainly of text descriptions of sites visited and relevant maps. A basic introduction referring to the reasons for undertaking the specific project is usually also included. Links with the Topographic Tradition have established relevant descriptions as a necessary component of site records and geographical observations are also included, even though their relationship to material remains is rarely explained or discussed. Moreover, Cyril Fox's work (1932) had a significant influence on the following generations, who observed geography in relation to settlement, even if not in a consistent manner. Site records include descriptions of material remains observed and the history of archaeological research. An effort for some explicitness is occasionally attested in descriptions of site location (heights, bearings, topography, toponyms), in dating sites (chronology of Minoan tripod feet presented), and also in the presentation of the history of research regarding the sites discussed. Previous researchers and excavators are consulted and extensively used to aid interpretations. Most have of course been working within the same tradition, studying objects from excavations in order to establish and improve Minoan chronology, and walking the landscape in order to find new Minoan sites. Ancient writers and Travellers (mainly Spratt and Pashley) are also widely referenced. Finally, personal opinions and speculations are often expressed with relative caution.

5.3.7 General assessment

Work within this tradition belongs to the framework of Greek archaeologies, which are characterised by culture-history ideas and the development of classical archaeology (Morris 2000, 2004; Kotsakis 1991). Extensive explorations in Crete follow a general pattern where the best students of pioneer archaeologists were sent to Greece to discover new sites. The discovery of the Minoan civilization triggered a strong desire for the (re)construction of its remote past, which was primarily based on excavations. Extensive explorations served the purpose of locating new sites to excavate, and at the same time provided a picture of the spatial spread of antiquities.

Culture history tradition has not focused on a strong theoretical enquiry but has depended strongly on a theoretical framework that consists of long established and 'taken for granted' views (e.g. the existence of elites and palaces and the supremacy of cultures exhibiting such social differentiation). Methodology is not explained and there are no clear definitions of sites or of chronological and function interpretations used. Descriptions are usually presented without trying to find interconnections of loci discussed. Although the presentation of data often follows a narrative manner, an actual narrative of the history of the area explored is not pursued. Catalogues are a must, but the information given does not follow a specific structure. Descriptions of ancient remains and their location (sites) are presented in a rather literary form, even though we can discern a conscious effort to document sufficiently data and information considered important. There is in fact an interesting interplay between a formal way of writing (observations without personal comments) and an informal one where personal opinions are expressed. Presentation consists of site descriptions in terms of material remains and additional information such as topography, and sketch-maps at various resolutions showing the area of research and site location in a 2-dimensional space. Site maps are often presented with a chronology and / or functions legend. Architectural plans appear occasionally, but pottery drawings are almost always included in reports. The purpose is to present material culture and its location, but tentative explanations or a general conclusion of patterns observed may also be given. Landscape photos also appear occasionally and allow a more realistic visualisation of the landscape. Statements made declare the focus given

on discovering sites and compiling site catalogues, but also on providing good site records, which are taken to elucidate aspects of ancient societies by default.

Interpretative suggestions have of course been heavily criticised, not least for a culture-evolutionary framework, which does not explore 'whys', promotes a dichotomy between man-environment, projects the present into the past comparing forms and not relationships and treats prehistoric societies as a unified 'culture' or system (Hamilakis 1995). Indeed, such a perspective treats past societies as in a predictable cycle of genesis-maturity-acme-decline-death and seeks a homogenized cultural identity to the expense of social identity and heterarchical relationships. However, archaeological developments are only naturally subject to relevant historical contingencies. Identifying weaknesses of relevant work should not prohibit us from recognising its significant contributions and pioneer character. The great enthusiasm and dedication in revealing man's past led to important discoveries and classifications that have established a necessary chronology. Catalogues of sites have enriched our knowledge about past human activity and inspired later work. Much current work undeniably needs past and present records and reports, with all their weaknesses. After all, many patterns tentatively identified by extensive research of the Culture-History tradition may be valid till now and supported by further evidence of later intensive surveys (e.g. settlement hierarchy), even if the latter have developed more elaborate interpretative schemes.

Many current researchers have discussed sceptically and criticised the theoretical framework of Minoan archaeology (Bintliff 1984; Driessen and MacDonald 1998; Hamilakis 1995; 2002b; Driessen *et al.* 2002). This is an expected and certainly wanted result of disciplinary developments. We surely have to question interpretations and seek answers to more complex questions. However, it is important to acknowledge all archaeological contributions and at the same time assess their potential and limitations. A very important problem we have with landscape research of this tradition is that data are not collected in a manner suitable to answer many of the questions asked in a landscape-ecology framework. Of course no densities can be estimated and there are problems in classifying sites and interpretations. Even though site data usually refer to substantial human activity in the past, at times sites can only be treated as information sources. We need to filter which interpretations we can use and for what purpose, but in fact this is the case with all results of landscape research.

5.4 Human Geography Tradition

5.4.1 Summary of main characteristics

- Geographical and environmental observations form the basis for interpreting settlement location and by extent human societies.
- The landscape is approached as the physical environment within which human societies evolve according to external (environmental) and internal (social) stimuli.
- Maps are used to visualise the relationships between geographical factors and settlements discussed in the text.
- A diachronic approach reinforces interpretations.

5.4.2 Theoretical background and aims

The most important characteristic of projects within this tradition is the emphasis given on geography and environment, as the core framework within which human behaviour can be explained. The physical landscape is not guaranteed a deterministic role, but is considered as defining the context within which specific responses are enabled. Research questions explore human choice for settlement and the varying social developments within the same geographical areas. Even though projects are usually period-specific, a diachronic framework of analysis between geography, historical topography and human culture is usually pursued and proposed, offering comparable observations for a more thorough understanding of past societies. The principal aim is

to produce an explanatory framework within which all relevant archaeological results can be understood. Excavation data and results of previous researchers are extensively used, sites revisited and often reassessed. At the same time, some researchers walk the landscape extensively and discover new sites, which recorded at variable scales of detail, are integrated in general explanatory models of social structures.

5.4.3 Methods

Methodology uses detailed studies of geography and environment mainly through field explorations, but also through maps. Data observed are in principal topography, distance from the sea, geology, water sources, and land potential, and of course site chronology and function. Correlations often seek to test hypotheses. An important component of the process of understanding relationships between sites (human behaviour) and environment / physical landscape, is the contact with local people who live and interact with the landscape under study. Historical and ethnographic parallels may also be used. Archaeological investigations are based on existing knowledge, and new observations of revisited or newly discovered sites.

5.4.4 Site definition / Relocatability

Even though projects focus mainly on settlements, a wide variety of sites is discussed. Function is defined upon archaeological material and geographical / topographical criteria. Depending on quantity of material and location, settlements may be interpreted as of either permanent or temporary character. However, there is no explicit site definition. All places considered interesting and relevant to interpretative suggestions are discussed, even on the area level, often impeding the isolation of clear chronological and functional interpretations. Relocatability is not actually the primary goal for the HG tradition. Maps and drawings focus rather on supporting explanations, and visualising man-environment relationships. However, depending on researcher there is also an effort for accuracy. Many of the sites discussed are known settlements and topographical drawings can be very informative. Moreover, text descriptions and toponyms can facilitate site relocation.

5.4.5 Results

A great asset of this tradition is that it studies settlement patterns in a historical continuum and not in chronological windows, promoting a historical study of social behaviour and change. The observation of correlations between settlement location and environmental factors concludes on differing patterns of preference over time, explained via economic enterprises and social structures. A favoured theme is life on the Cretan mountains studied diachronically and seen as a recurring expression of times characterised by social conflicts. Peaceful and blooming periods are linked to settlement prospering near the coast or close to fertile plains. Research questions are mainly based on archaeological data from excavations and previous researchers, but at the same time they have encouraged extensive explorations, which have resulted to the discovery of many new sites.

5.4.6 Interpretative Framework

Patterning observed	Patterning of interpretations
correlations between geography and settlement	Economic potential, social organisation
site interrelationships (size, distance etc)	Settlement hierarchy, social complexity
site numbers and sizes	Population and economic growth, nucleation, dispersal
recurring patterns	Strengthening of interpretations

Interpretation is based on the belief that geography and society are in a continuous interplay and therefore, geographical studies can illuminate societal structure over time. Research examines the varying geographical and environmental conditions in relation to variability in settlement location and character, and studies social organisation, which seems to adapt to geographical restrictions and potential. The approach does not promote a deterministic role of the environment; its relationship with people is seen as both influencing and resulting from societal structure. Geographical studies and a historical approach are used to enhance understanding of human choices and social organisation in general. Themes explored include economy, social complexity, cultural identity, and population movements. Site interrelationships and role in the landscape construct a narrative for the social circumstances in the various periods under study. There is an interest in island-wide patterns and comparisons between different areas reinforce explanations of human behaviour. Reports focus on clarifying line of thought, aims and approaches. Data observations are presented as both positive and negative evidence that support interpretative suggestions. The description of material culture sustains chronological and function characterisations, but data presentation includes descriptions of topography, location, environment and site interrelationships. Narrative constructions in relation to map visualisation are indispensable in presenting social explanation. All sources of information regarding a site's interpretation and history are considered, from Travellers and ancient sources to previous researchers and contemporary archaeologists. Scholars operating within Human Geography, in particular those who have worked in Crete are also referenced, supporting problem orientation and interpretative framework.

5.4.7 General assessment

Scholars whose research in Crete is studied in this thesis come from France, Germany and Poland. They are members either of the academia or research foundations. Projects differ in the degree of influences they have accepted from other traditions and disciplines, but they all share a common approach to the landscape, namely culture and environment are studied in their intricate relationship, which is used to illuminate social organisation from a variety of aspects. Relative are statements regarding the importance of knowing site exact location so that we can study them in relation to their geographical context and understand their role in respective societies. The importance ascribed to studying change is also a key characteristic of the tradition. The wide conceptual framework is exemplary, exploring various levels of activity and following a holistic approach in describing past societies. Descriptions of the topography and environment are vivid and to the point, exhibiting competently the characteristics which are used in interpretations. There is a strong interest in providing narrative reconstructions and argued suggestions aim at as vivid and complete descriptions of past societies as possible. In general, the study of relationships between the natural environment and socio-economic organisation, but also cultural continuity results in instructive suggestions regarding past human societies. Moreover, interest in specific patterns of social expression and little known periods, enrich our knowledge of the past to a great extent. Even though most archaeological data used are results of previous researches (mainly within the CH tradition) a lot of new sites have been discovered from extensive explorations.

Text is narrative and dense, describing data observed in relation to thoughts and interpretations. Problem orientation is presented from the beginning and supported throughout the text. There may be site catalogues with descriptions of material observed, or sites may be discussed as part of the description of an area or pattern. Maps focus on the presentation of site location in relation to geography and topography aiming at the visualisation of the chorographic relations discussed. Text descriptions give further details on site location while landscape photos and topographical sketch-maps exemplify further described characteristics that play a chief role in interpretation. Presentation includes also drawings of caves, architecture and objects. In general there is an effort for an objective representation of observations both in a two and in a three-dimensional space.

However, a serious problem is the narrative form of text that mixes data and interpretations. The focus is not on a lucid presentation of data, which clearly lead to specific interpretations, but on the discussion

of interpretative schemes that may be supported by various data. Thus, information may recur and site chronological and function characterisations are not always clear. Archaeological data are at times poor and in general rather difficult to classify and use. The fact that no systematic sampling is used deprives us of the information we can get from the off-site record, but also from detailed on-site studies. Still, landscape studies have a lot to profit from the approach proposed.

5.5 Topographic Tradition

5.5.1 Summary of main characteristics

- Topographic study of known sites, but also of new ones found in the process of extensive explorations.
- Mapping of sites in relation to topographical features.
- Comparison of contemporary topography with ancient.
- Measurements of monuments.
- Landscape is treated as a measurable environment containing human activity (material culture).

5.5.2 Theoretical background and aims

Projects of Cretan archaeology included in this tradition differ slightly from what is described as Topographic archaeology in general, due to their main interest in the PH period. The aim is not only to reconstruct ancient Greek topography and the location of known sites based on ancient sources; however, topography and its mapping are the principal means of understanding ancient spatial organisation. The shape of the surface with its hills, rivers and in general lines that can subscribe space is used to interpret site function and character. Use of space in the past is the ultimate question. It is studied principally in relation to its geometry and this is why mapping, usually pursuing precision, is very important. The interest in recognising the spatial spread of material culture and how this relates to topography, but also the frequent division of space upon time, are characteristics that are typical in Culture-History as well, and link the two traditions with strong bonds. The two paradigms, characteristic of the socio-political circumstances of the end of the 19th – beginning of the 20th century both in Greece and abroad (cultural evolutionism, nationalism, positivist thought, interest in military mapping) have in fact shaped Greek archaeology. Cretan projects show clear traits from both traditions, but are influenced also by other traditions and landscape archaeology developments.

5.5.3 Methods

In order to study ancient sites in their topography, two things are indispensable: extensive fieldwalking and mapping. Researchers walk the landscape looking for the sites of their interest and focus on topographical observations. Topographical mapping, or else the registration of the geometry of spatial relationships in the landscape, is of great importance, whether on the site or regional level. On the site level precision is a key issue and it is pursued with the help of all possible means and tools used in topographical site mapping. In general, high resolution topographical maps are used as a basis and enhanced with further knowledge.

5.5.4 Site definition / Relocatability

Site definition can be quite problematic; sites vary from those of a definable function at a regional scale to parts of the same settlement or even the same architectural feature (different segments of a wall may be different sites). The last cases are frequent particularly in projects which focus on specific settlements and produce topographical maps which portray the on-site spatial spread of material culture. It is evident that such ‘sites’ help us to understand the structure of a settlement, but can not be used quantitatively for inter-site comparisons. There are also cases where the same project may record separate concentrations of material

culture as separate sites or under the same site (e.g. Hood Knossos). The difficulty to interpret whether concentrations are separate sites or parts of the same settlement may in fact be stated (Schiering). Projects of this tradition may combine on-site topographical studies with regional explorations around the site of interest; in such cases sites may be also defined within a landscape approach (discrete concentrations of material culture found while walking e.g. Itanos).

Overall, locations of all kinds of human activity may be recorded as sites, whether these concern an architectural feature, a burial or a settlement. Projects usually provide high resolution maps and discuss on-site architectural distribution or sites with distinct architecture. As a result, the relocation of ancient remains should not, in general, be particularly difficult. However, sites which are parts of the same architectural unit, or sherd concentrations, would certainly not be easy to relocate. The greatest problems in site relocatability would be caused due to the notion of site.

5.5.5 Results

When specific settlements are the core theme of study, research seeks to reconstruct use of space over time. Results concern changes in spatial organisation and in settlement extents and structure, while possible explorations of the immediate countryside seek to provide a 'context' and study a site's relationship with the rural landscape. Results may give us a picture of the humanised landscape in a specific period or over time (what type of sites occur and at which locations) and we may also have an in-depth study of specific kinds of sites and their interrelationships, based on topography (e.g. Minoan Roads).

5.5.6 Interpretative Framework

Patterning observed	Patterning of interpretations
Geometry of monuments	Function and identification of cultural characteristics
Intra-site spatial distribution of material culture. Distances and geometric relationships	Function of buildings / features and by extent functions and structure of settlement over time
Topography of monuments and sites	Function and character. Sites are seen in a socio-political context
Types of sites in a regional context in relation to topography	History of human landscape changes. Relationships between sites

Topography may be studied in two ways: **a)** as the relationship between the geometry of space and the spread of material culture, and this is when precise mapping is considered very important; questions may not concern issues of complex human behaviour, but focus on precise recording, which supports function interpretations **b)** as the relationship between the geometry of space and the location of sites of a specific function. In this case locational choice is discussed and explained in terms of physical topography, which is used to elucidate socio-political structures. Even though research interest usually focuses on specific periods, site organisation and relationships with the immediate region may be explored over time. The most typical characteristic of projects within this tradition is their focus on objective and detailed recording of archaeological remains and their position in the geometry of the physical landscape. Texts describe topography in terms of routes, elevation and distances, but sources, vegetation and landuse are also observed. The growing prestige of environmental studies in the 70's has influenced topographic work as well, (e.g. in Hood Knossos a page of environmental information is included in the beginning of the report), even if this is not actually integrated with archaeological data in the interpretative process. In general, researchers try to present an accurate picture of their observations, enhanced by relevant maps. A historical narrative is however also pursued. As usual,

most references concern previous researchers in the area of interest, who are mostly excavators and pioneers of the CH tradition. References are a clear testimony of the strong links and co-developments between CH and Topographic Traditions. However, projects are naturally influenced by contemporary work and developments, e.g. Itanos refers also to intensive survey work in Crete.

5.5.7 General assessment

The Topographic Tradition developed out of an interest to identify ancient sites in combination with developments in cartography and the geometrical plotting of space at the end of the 19th century. It developed hand in hand with Culture History, but in fact focused much more on site-mapping and topography, as the obvious means to reconstruct ancient activity, whereas CH in Crete was absorbed in the effort to discover as much material culture of the fascinating new PH civilization as possible. Researchers are as usual connected mainly with the academia, but Greek archaeologists from the Ephoreia (Archaeological Service) are also involved. One project has been led by Greeks, another by Greeks and French, the third by Germans and the fourth by English. A great asset of projects within this tradition is that they have enhanced our knowledge of specific sites and structures and as a result also of their relevant societies. The scale of research is in general on the site or small area level. The detailed character of archaeological research, which employs meticulous recording, allows a good understanding of monuments-buildings-sites, while the descriptive discussion of data observed supports interpretations of chronology and function. These are particularly enhanced by careful mapping and spatial studies. The emphasis given on the description of the geography and geomorphology of the area, illuminates site inter-relationships, and there are cases where archaeological projects chose a topographic approach to explore complex themes of social organisation (Minoan Roads).

The style of writing is in principal a combination of a positivist account of data recorded and a literary text that describes research and interpretations. There is no specific text structure and usually no systematic catalogue of the sites discussed (except for Hood Knossos, which is closely linked to the CH tradition). Writing in a diary-form seeks ‘objectivity’, in order to strengthen the relationship between data observed and interpretations, and justify line of thought. Interpretations seem the natural result of objective descriptions. This tradition gives great importance to the presentation of material culture, in particular of architecture. Even of greater importance is the visualisation of the topography of the area and sites in concern, and this is realised with topographical maps, sketch-maps and landscape photos. In fact, landscape and object photography has the highest ratio among projects, relevant to the focus on presenting data objectively and clearly. Presentation includes the geographical location of the area of interest, but also site maps when regional sites are discussed. In general, maps have a strong geometrical perception of the landscape and even though 3-D relationships may be discussed, these may only be presented with basic contour information and landscape photos. Visualisation develops around 2-D relationships. At the same time, however, lack of structure in the texts creates repetitions and at times unclear relationships between data and interpretations. Site definition is also rather problematic and in fact not explicit. This seems to relate to problem orientation which focuses on the description and recording of all material remains and perhaps also their landuse and topography, but not on the study of different site-types to be used in interpretative schemes within a diachronic scope.

Overall, the Topographic Tradition has played a key influential role in archaeological research on the island and is in fact a common component in most landscape projects. The projects classified in this tradition, have also received various influences from other Landscape Traditions, even if of different ones (Schiering and Hood Knossos are closer to CH, Itanos and Minoan Roads to LT). Data and interpretations of these projects may serve different purposes and certainly add to archaeological knowledge of the island. However, they can not be easily integrated with results from other projects.

5.6 Landscape Tradition

5.6.1 Summary of main characteristics

- New Archaeology influences: concept of region, intensive surface survey methodology, and complex interpretative framework favouring social evolution.
- The main topic of research is the emergence of social complexity.
- Landscape is viewed as a definable region with specific environment and variable human activity.
- Large-scale studies, multi-disciplinarity.
- Interest in man-environment interrelationships, ecological perspectives, cultural ecology, etc.
- Elements from all traditions. In Crete attention is given to all work undertaken within the area of interest, regardless of approaches.

5.6.2 Theoretical background and aims

The Landscape Tradition for most equals to what is now called Landscape Archaeology, since it is only after the birth of regional surveys that landscape archaeology is a distinct branch of archaeological research. Projects of this tradition demonstrate theoretical and methodological developments in the last 4 decades. They follow a regional approach, where the aim is not just to discover new sites, but to study patterns of the sites observed based on their chronology, size, function and environmental context, and construct a narrative of human settlement over time within a specific geographical area. The publication of the UMME project in Greece, established the systematic extensive coverage of large areas and a focus on environment ever since. The birth of New Archaeology with its emphasis on ecology and environment's influential role on people, but also the importance given to scientific methods, had a great impact on landscape research, naturally also in Crete. In the early 70's we have the first regional surveys and in the end of 70's we have the first survey that employs systematic intensive survey to study the surface record (Chania), using sampling techniques and statistics.

The fact that the Landscape Tradition is a genuine product of New Archaeology is demonstrated by the belief that the archaeological record displays patterns linked to human behaviour and by revealing and studying these patterns, past societies can be understood. Thus, the reconstruction of settlement patterns over time is the major aim proclaimed by researchers. Regional surveys operate in a processual framework of studying subsystems, which imply hierarchy, and which altogether constitute society. At the same time, context surveys, but also urban surveys follow the same framework. Archaeologists study sherd concentrations systematically, and develop a greater interest in small sites and seasonality. Questions develop around the rise and structure of complex societies, hierarchy, urbanism, but also regional variation and the relationships between man-environment. Researchers approach ecological, economic and social issues, but also discussions over the nature of the surface record and the appropriateness of various methods, developing an awareness of survey potential and limitations. Survey projects in Crete receive influences from other major surveys throughout Greece (Kea, Boeotia etc), relevant environmental work (e.g. Bintliff 1977) and complex interpretative models on prehistoric societies (Renfrew 1972).

The new landscape approach is in fact a result of Anglo-American archaeological developments even though in the process it has been applied and developed by researchers worldwide. In Crete, due to political circumstances at the onset of Cretan Archaeology, foreign archaeologists have been engaged with central and eastern Crete, therefore, it is these parts of the island that demonstrate the greatest number of intensive survey projects. Most works of this tradition focus on the PH period even if they record human activity over time. Minoan archaeology is characterised by a strong interaction between traditions and this is apparent also in landscape research of this tradition.

5.6.3 Methods

The first intensive surveys walked specific areas rather intensively looking for sherd concentrations, but without sampling the landscape. From the late 70's however, sampling became the norm. At the same time, regional surveys always involve extensive explorations and judgmental criteria, structured upon the experience acquired from the long tradition of landscape research on the island, in particular regarding PH locations. These have been of primary interest and survive especially well throughout the Cretan landscape, with abundant pottery, but also architectural remains.

When off-site sampling is employed, it is usually based on grid squares or field tracts and walker-transects at regular intervals, who usually count everything and collect diagnostics. However, total collection might also be employed. Another version of landscape sampling involves walkers covering long landscape transects and vacuum circles at specific intervals (e.g. 50m). Occasionally, there might still be surveys which do not apply off-site sampling consistently; people walk the landscape at regular intervals among them and look for pottery concentrations / sites (e.g. Itanos).

On-site sampling is usually based along two axes at right angles across the site, where walkers might perform a grid collection or vacuum circles at small intervals. There is also additional grab collection from the quadrants and there might be additional axes extended diagonally from the notional centre. Variations include a vacuum circle and diagnostics from the whole site (Chania) or transects at right angles with the original ones (Katelionas) and seldom an overall grid (occasionally in Vrokastro).

Field-methods include an estimate of visibility which is conceived as the effect that vegetation coverage has on artefact recognition. Site identification is made on the field and when a site is identified, off-site collection usually stops; sites are usually sampled at a later stage and site revisits are a common tactic. Regional surveys also involve studies of the physical landscape and the environmental conditions. Analysis uses cultural-ecology methods (SCA, thiessen polygons), statistics (e.g. to study correlations between sites and environment), ethnography etc.

5.6.4 Site definition / Relocatability

A site in this tradition is usually taken to be any place with significant human activity. The term 'significant' however is quite subjective; a site therefore, may be peaks of pottery densities (when we have off-site counts), or pottery concentrations, but it may also be the location of 2-3 sherds (Pseira). Sometimes it is defined during field-walking and in other occasions only after site revisits (Kavousi). There are of course differences between periods, as the location of even 1-2 PH sherds will usually be recorded and maybe even revisited for closer inspection (Aghios Vasilios Valley), but this is not the case for later periods. The type of human activity studied mostly is settlement, as variability in size and location support models proposed regarding socio-economic structure and hierarchy.

Information on site location is at best presented through map co-ordinates, or tract numbers and text descriptions. However, relocatability has not been of importance in the Landscape Tradition. Site maps usually present sites only in relation to contours and not at very good resolution, therefore it is almost impossible to relocate most sites, especially since the majority of them are pottery concentrations that do not cover very large areas. Modern landscape features, settlements and toponyms would be necessary if one wanted sites to be relocatable, unless GPS co-ordinates are given. Relocatability problems occur partly due to legal restrictions that try to prevent the illicit trade of antiquities, but it is also a reflection of the prevalent concepts in landscape archaeology which pay more attention to quantitative issues and explanatory models of inter-site spatial relationships, than 'where' sites actually are. Site-location is regarded important in interpretations discussing subsistence and intra-regional socio-economic associations (e.g. the spatial patterning of territorial and hierarchical relationships), but not so for relocation purposes.

5.6.5 Results

Survey results focus on the description of settlement patterns over time (or rather of specific time slices in chronological order) in terms of settlement densities and hierarchy. The observed nucleation or dispersal of sites is the most favourable theme and is linked to urbanisation or a more independent farming economy respectively. Such patterns may be used to explain the origins and nature of palatial Crete, landuse and relationships between society and environment. In the GR, the history of sites is presented and patterns are related to the appearance of the Greek polis. Warfare and defensibility is another theme explored, and relevant patterns are observed mainly in transitional periods. Site interrelationships and territories are also discussed and so is economy and modes of living (trade, pastoralism, and seasonality). Overall, we end up with a narrative of relevant societies in successive time-frames, even though certain periods pose problems in pottery identification and are hardly represented in the landscape. Ultimately, regional histories serve as pieces in a puzzle, towards a historical reconstruction of the whole island and the answer of hot issues such as the political hierarchy in Minoan Crete.

5.6.6 Interpretative Framework

Patterning observed	Patterning of interpretations
Relationship between sites and environment	Subsistence, economy
Relationship between sites and topography	Locational choice upon environmental but also social criteria (e.g. inaccessibility provides defence)
Landuse, land capability, historical ecology	Potential of subsistence through time; environmental reconstructions
Distance among sites	Catchment areas, Territoriality
Site numbers and size	Urbanisation, dispersal, nucleation, hierarchy, population densities
Function and Chronology	Narrative of human activity over time; social complexity
Comparison with other areas	Cultural homogeneity and regional peculiarities
Geomorphology	Landscape changes

In L.T. the interpretation of an identified settlement pattern usually seeks complex schemata of the socio-political and economic circumstances. Modified neo-evolutionism explores ideas such as state origins and complex societies. Usually, there is an interest in diachronic changes and landscape ecology. Regional variation is stressed and divergent local trajectories explored, but at the same time interpretations are seen in an island-wide perspective. Typical themes discussed, especially in Minoan archaeology, are overseas contacts, peer polity, subsistence, territories, influence spheres, site-interaction, exchange networks and hierarchy. There is a growing interest in recording site size, which is indeed very important (Watrous 2004), but the fact that site size is almost always linked to political hierarchy is rather problematic as it is not necessary that sites co-existed – this depends on chronological resolution. The environmental record is studied consistently and supports models of subsistence and ecological change. However, environmental observations are not always linked to interpretations of archaeological data. Occasionally they may be linked to issues of surface record biases. Ethnography is also studied in order to illuminate human responses and practices, while post-modern ideas are not really explored. In general, a modernist stance can be discerned in the way methodology and the environmental record is presented, and in general an effort for a distance between researchers and researched can be discerned.

Referencing is usually extensive, in particular in long, multi-disciplinary projects with a good publication record. All previous archaeological work is mentioned and used as information sources and the basis upon which further archaeological knowledge is constructed. Ancient writers and historical sources form a leading information source and guide for the interpretation of archaeological data in the historical periods. At times, narrative reconstructions may be exclusively based on historical data. References include major survey projects that have influenced field methods. At best, theoretical works that have influenced interpretative framework are also discussed (Phaistos).

Overall, reports of landscape research, whether at a preliminary stage or final publication, start with a discussion of the environment, which is considered as the appropriate context within which to view human activity even if their inter-relationships are not discussed. The history of research is presented as a historical context of archaeological research. The description of the field-methods followed is a must, but their effectiveness and limitations are rarely discussed. The site catalogue usually presents site location in a descriptive manner even if location is also stated with map-coordinates. Some environmental data may also be presented in a consistent manner, but the most important site information concerns the chronological periods identified and secondarily functions. Site maps per period are also a must and allow visualisation of the recognized settlement patterns. Finally, a historical narrative of intensity of human activity and its explanation in socio-political and economic terms is usually the pursued outcome.

5.6.7 General assessment

Most surveys have been realised by foreign academics (in principle English and Americans). Often they co-operate with Greek archaeologists of the relevant Ephoreia as in such a way they are granted permits and have better access to material and archaeological knowledge, acquired by every-day experience of local archaeologists. In any case, the last 30 years have indeed been revolutionary in archaeological landscape research and the result is a multitude of data and a more complex, but also rich picture of the Cretan landscape over time. Systematic sampling, multi-disciplinarity and a strong interest in ecology are the most important characteristics of relevant projects. Field methodology within a New Archaeology framework allowed a better understanding of the surface record and the discovery of a great number of small sites, which illuminate human landscape activities and socio-economic structures. Relationships between people and environment are studied widely, so as to reconstruct modes of living and subsistence strategies. Geography and topography are also used in explanatory models of economic activities and social organisation. The co-operation with other disciplines has no doubt promoted archaeological research in many aspects, from the better understanding of landscape changes and the material record (geomorphology, aerial photography, fabrics analysis), to data manipulation (statistics, IT) and the study of human behaviour (ethnography, social anthropology). The systematic study of changes in numbers and sizes of settlements allows a comparative synthesis of socio-political and economic organisation through defined time periods, in fact the same ones devised from the beginning of Cretan archaeology. A great benefit from LT projects has been an increased interest in historical periods, illuminating a diachronic Cretan landscape. The amount of intensive research undertaken, has indeed promoted historical knowledge of human presence on the island and landscape ecology in general, at a variety of spatial and temporal scales, from local to island-wide.

Writing combines a narrative form with a systematic presentation of data, which in this tradition is the most elaborate. Proper documentation of data and methods, including visualization, is considered very important. As well as the themes presented in all archaeological landscape research, basically maps of the area concerned, site maps, architectural plans and object drawings, methodology is also presented through sketch-maps of field units and occasionally field-forms, while results are supported by tables and occasionally graphs. Site maps present densities per chronological period and this is the core theme explored and discussed. However, function and size variations are not visualized and maps do not help relocatability; sites are presented as dots in relation to contours, in a horizontal representation of their spread, with no reference to other landscape features. Contours give of course height information, which is usually discussed in settlement

patterns, but the relationship between sites and environmental factors observed is rarely portrayed. Site catalogues usually present certain information in a structured form, even though not always clear, especially regarding site function and size differentiations over time. Moreover, the off-site record is hardly ever represented and so are site densities, and as a result we do not visualise the variability and variable intensity of human activity in the landscape, even though social behaviour can be better understood if studied and perceived in a chronological and spatial continuum.

Regarding field methods, a distinction should be made between projects that do not apply sampling methods and those that do; the latter allow revisits which may result to site identification (Aghios Vasilios Valley, Kavousi etc) and also permit an assessment of precision in site recovery, even if this is not really a common tactic. In reality, most sites are defined while field-walking and it is not clear how off-site collection data are integrated and how fuzziness between the off-site record and site borders is treated. However, there are certain problems when sites are defined exclusively on the field, as it is known that some may not have a distinguishable high density when walking, but this may be apparent in subsequent data analysis. A combination of methods is certainly necessary on the Cretan landscape; archaeological knowledge and extensive approaches pay also their own contribution and indeed provide crucial information (Nowicki 1992).

On-site sampling along two axes from a notional centre has been criticised by various researchers quite early (Plog, Plog and Wait 1978 p.407), even though it has been supported that it is still 'an efficient means of determining the size and boundaries of the site, the full range of periods represented by coarse fabric types and fine diagnostic sherds, and the general functions of the site based on artefact types and extant architecture' (Haggis 1992). However, grid-sampling is the best way to reveal site extents over time and allows a better resolution in function and chronological analysis. Weaknesses of axis sampling have been studied through experiments and extensively discussed over time (Bintliff and Snodgrass 1985; Bintliff and Howard 1999). Naturally, restrictions of resources cannot be overlooked, and choice of site sampling methods can vary between sites depending on circumstances. Still, potential and restrictions have to be discussed, but in general an assessment of field methods and precision relative to interpretations is not pursued. Issues of pottery knowledge that create problems in identifying specific periods, even though sometimes considered, are not treated as a measurable factor. Environmental and in general multi-disciplinary studies should also be associated with specific interpretations. Often, however, the environment is studied only as a context to archaeological activity. Moreover, viewing archaeological data spatially as if they belong to the same temporal entity of variable length, but usually low resolution, becomes a serious interpretative problem. 2-D maps enhance a false impression that spatial distribution equals a temporal phenomenon, but in fact maps should be read as interpretations and not as data (Foxhall 2000). We should remember that it is short-term processes that may be even shorter than a life cycle whose accumulation constructs a long-term 'pattern' and it is, no doubt, very difficult to distinguish between different deposits and occupation sequences even in excavated contexts (Dewar 1992; Dewar & McBride 1992). A distinction, however, between long, medium and short term should be pursued, and we should aim at an as fine resolution as possible, exploring different interpretative possibilities. Seasonality for example is not only linked to economy, but also to ideology (e.g. Vlachs: linked to transhumance and a dispersed settlement pattern at the same time that nucleation was attested elsewhere. Also, different socio-economic situations may co-exist – e.g. farmstead economy and urbanization – may exist concurrently).

Overall, cultural ecology has been the strongest paradigm in recent landscape research, which focusing on Minoan times, builds upon theoretical ideas and explanations promoted within a Culture-History framework and relevant culture-evolutionary ideas. In principal, societies are still studied as cultural systems belonging to specific spatial and time borders. Moreover, terms such as 'social complexity' have an implicit meaning linked to evolutionism and thus refer to certain types of societies that are considered as 'developed'. The theoretical framework of landscape research in Crete develops from New Archaeology developments distinguished particularly in methodological approaches, but also within a Cretan archaeology background characterized mainly of a Culture-History framework. Post-modern themes are not really in fashion in Cretan

surveys; however issues of heterarchy, cultural memory, regional complexity and scale are discussed. In any case, our data and understanding of past societies have certainly improved to a great degree, even though research still neglects historical periods and we are deprived of a holistic landscape-ecology picture. However, the greatest weakness of LT projects in Crete is that data integration is very problematic indeed, not simply due to variation in field methods, but mainly due to differences in site concepts and the lack of systematic publication that exemplifies interpretations and their relationship to data observed. When we do not even know actual areas surveyed, inter-regional comparisons become rather problematic. The bet to win is to be able to use and compare data / site-interpretations, before we proceed to comparisons of the interpretative models proposed.

5.7 Concluding Remarks

Landscape archaeology in Crete falls within the framework of Greek archaeologies and their sub-paradigms and in particular Minoan Archaeology, which has developed according to specific socio-political requirements, it has demonstrated a strong traditionalism, but it has also tried to encompass disciplinary developments. Archaeological landscape research exhibits a complex relationship between theoretical framework, problem orientation, methods and results. Questions explored are formulated under the influence of specific theoretical considerations, they demand and follow specific methods, and produce or even impose specific results. At the same time there is a multifarious relationship between traditions. In general, traditions may be associated with disciplinary theoretical and methodological developments that may be relevant to social circumstances over time, but are not linked in clear, linear chronological relationships. They co-exist and interact. The term ‘tradition’ can not be used as a panacea to group projects as appropriate or surpassed research in an evolutionary framework, but as a guide of different problem orientation, methods and results between different projects. As we have seen, Travellers aim at providing a narrative of life on the island, part of which is its ancient past, through the identification of sites mentioned in ancient texts; Culture History focuses on the documentation of material remains and the discovery of new sites; the Topographic Tradition on documenting the geometry of sites and their relationship to topography; Human Geography pays great attention to geography and tries to reconstruct social structure through man-geography relationships, and Landscape Tradition focuses on methodology and the systematic exploration of the landscape, discussing socio-political and economic complexity. All traditions offer valuable approaches and knowledge, even though we discern better and worse examples of research in all of them.

The principal aim of all landscape research has been to record and map sites. Their perception however varies. ‘What’, relates to the notion of an important site, from an unquestionable settlement to pottery densities; ‘Where’ may be a dot among others in a horizontal context, whether at the site level or at the remains level (a wall), studying mainly distance relations and location relevant to geographical and environmental correlations. More complex questions seek to answer also ‘how’ and ‘why’. Both deductive and inductive approaches have been followed and Cretan archaeology is in general characterised by a systemic framework and the strong influence of ecological considerations. Concepts of time and space have varied and so has the notion of site and perceptions of what is important human activity. There is certainly no doubt that all archaeological landscape research we have in Crete has had its own contribution in approaching the past, even though level of detail, originality and integrability may vary depending on various reasons, among which academic and finance potential, but also socio-political circumstances at countries of both ends. The important conclusion to be drawn is that resulting knowledge has different usability for different purposes, and we can not take results for granted, even among projects of the same tradition. Therefore, it is vital to consider the extent to which data from different projects can be used and what questions they can answer, which presupposes an understanding of what they mean. Such a problem orientation is of ultimate importance for future landscape research; it highlights not only the need to assess existing data and their integrability, but also the need to disseminate future interpretations in a way that can be meaningfully used by others.

6. Using Landscape Research Data in Siteia, eastern Crete: a Case Study.

6.1 Introduction

The aim of this chapter is to compare archaeological projects that have operated within the same wider region, as a case study in exploring the potential of integrating results of different landscape approaches over time so as to reconstruct an overview of human evolution in the area. The present attempt does not claim to be a complete study of the social evolution in the region; such an experiment would require the re-assessment of site interpretations and their classification into refined classes of function considering status, size and geographical location. In fact, we would need to study subsistence, population fluctuations, economic networks, spatial relationships, socio-political development, state/polity formation, hierarchy, ideology, cultural and social identity, combining both excavation and survey data at the level of a PhD thesis or Post-Doc research. Resent attempts show that there is a growing need and desire to use survey data for regional analysis, whether for the study of popular Minoan themes such as state emergence (Schultz-Barrick 2007) or for the understanding of social relations in a region (Relaki 2003). This chapter, however, will evaluate the acquired knowledge from a number of landscape research projects and synthesize a general picture of human activity over time, rather than focus on a specific social question in a particular period.

The area chosen is the eparchy of Siteia in eastern Crete, which has been the focus of exploration from the first days of archaeology and thus offers us a significant volume of archaeological information and a variety of approaches to compare. Dozens of archaeologists and explorers have walked and studied the archaeological landscape of eastern Crete and have discovered hundreds of sites; however, for the scope of this work I will be using a sample of projects that includes all latest survey projects and some representative ones from other traditions, but there are a number of other reports that should also be included in a more detailed study of the area, e.g. the work of Travellers (esp. T.W. Spratt), first archaeologists (A. Evans, Bosanquet, Xanthoudidhes etc), later Greek archaeologists (N. Platon, Davaras etc) and certainly the work of N. Schlager 1987; 1988, and I. Sanders 1982.

6.2 Methodology

In order to reconstruct a history of human activity in Siteia, site information, but also general knowledge acquired from each project will be used. The sample consists of 8 projects that provided a site catalogue, plus 4 more that give us insights into specific aspects of the past. Pseira demonstrates an exceptionally high site-number and therefore density, but sites are defined upon local questions and can not be used meaningfully in relation to other regional data / site interpretations. In figure 6.1 we can see the geographical spread of the projects and table 6.2 presents the projects used, their tradition, the size of the relevant areas explored, the number of sites discussed for each one and the overall density. Projects are presented in chronological order.

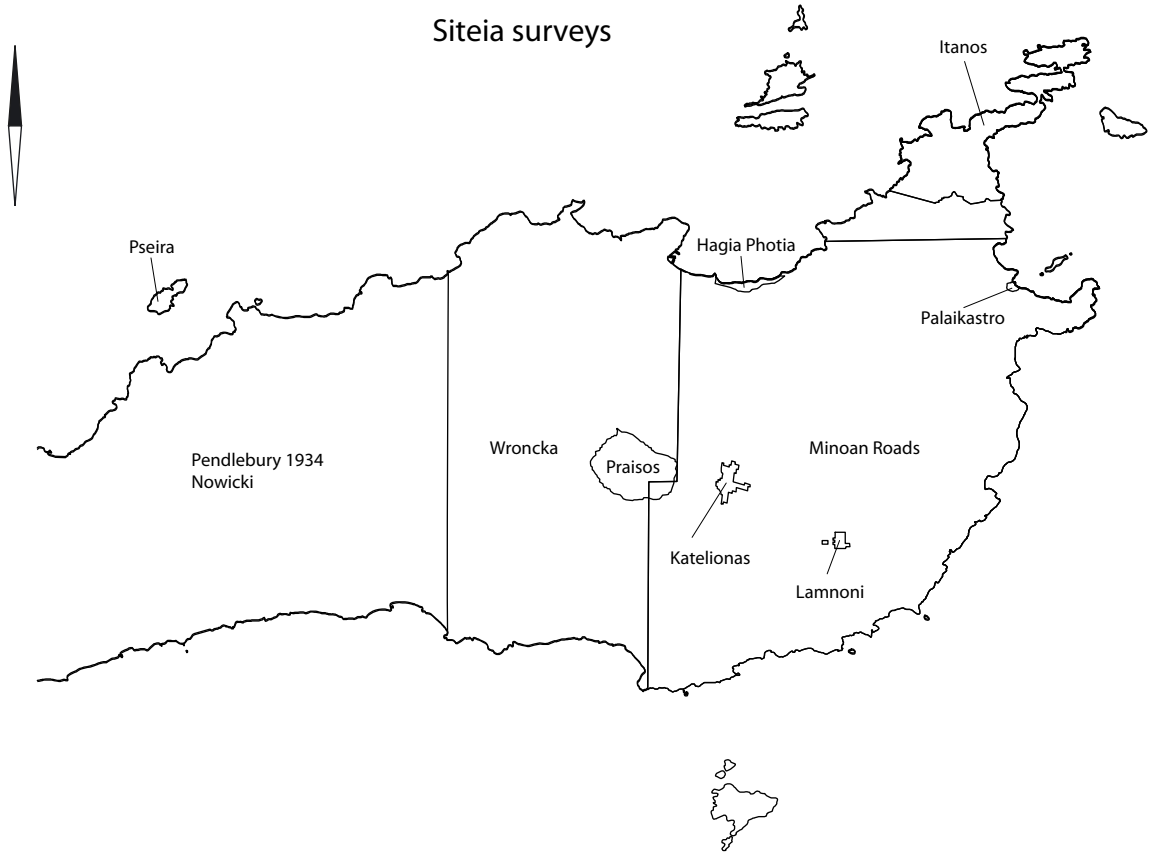


Figure 6.2 The areas covered by the sample of archaeological landscape projects in the eparchy of Siteia.

survey id	Tradition	Area surveyed km²	Total no of sites	Total density
Pendlebury 1934	Culture History	759,433[2]	30	0.039
Wroncka	Human Geography	900	94	0.104
Nowicki	Human Geography	759,433[2]	49	0.064
Minoan Roads	Topographic Tradition	318,3[1]	89	0.279
Hagia Photia	Landscape Tradition	4.05	10	2.469
Praisos	Landscape Tradition	9	85	9.444
Katelionas	Landscape Tradition	1.42	15	10.563
Lamnoni	Landscape Tradition	0.65	11	16.923
Itanos	Topographic Tradition	24.72[1]		
Palaikastro	Landscape Tradition	0.36		
Pseira	Landscape Tradition	1.75	314	179.428
Lehmann	Human Geography	759,433[2]		

Table 6.2 Sample of projects used, with respective tradition, total number of sites, area surveyed and total density.

[1] calculated from the published map
[2] the area of the modern eparchy of Siteia

The use of landscape research data in acquiring an overview of human evolution in the area of Siteia, is based on site interpretations classified upon the information supplied by researchers regarding the main types of human activity (function classes used are the same as in table 'Chronology / Functions', appendix two), and summarised into a chronological sequence that I have tried to balance between detail and importance (table 'Siteia sites summary'). Finer chronological categories were actually collected (table 'Siteia sites'), but are inconsistent among projects and are rather meaningless for the purposes of this attempt that covers the full span of human evolution from its earliest days to the present. Thus, both chronological and function interpretative classes are the result of the data/interpretations available and the purposes and potential of this chapter. The period frames that are considered more significant are transitional periods (Neolithic to Bronze Age and Bronze to Iron Age), periods in relevance to the phenomenon of the palaces in Minoan Crete (Prepalatial, Protopalatial, Neopalatial and Postpalatial), the period from Geometric to Classical times that is commonly described as 'Greek' or 'Hellenic', the end of the Greek world and the beginning of the Roman (Graeco-Roman), and the period from Byzantine to Turkish times, which has not been adequately studied and therefore does not allow a finer chronological classification.

The number of sites per interpretative class indicates in a way the amount and the kind of energy spent in the different periods, but often it depends on researchers' interests rather than being a real representation of the past. It is on site interpretations however, that we depend in order to reconstruct a picture of human behaviour in the past. Before we attempt a brief narrative of the history of human evolution in Siteia, a summary description and evaluation of the acquired knowledge per project is presented, so that we have a point of reference during subsequent survey data integration.

Tables: numbers of PH sites do not exclude coexisting numbers of 'PH?' ones (the same site could have a certain and a possible PH interpretation in different sub-periods); the aim is to see the number of sites for certain and uncertain PH interpretations respectively. Therefore we shouldn't use the total of both for a prehistoric landscape. The actual number of PH sites whether of a certain, uncertain or the coexistence of both interpretations is presented in table 6.3.1. This number could be used for a hypothetical PH landscape that includes sites of both certain and possible PH interpretation. The same is the case for the Greek, GR, and BVT landscapes.

6.3 Integration

Before we attempt a synthesis of the available survey data into what we ultimately know about the history of human evolution in the area of Siteia, I shall briefly present some of the problems we encounter in such integration, and the different foci of attention, methods, results and therefore knowledge we have from each project.

The most important problem encountered when using survey data is the difficulty to classify them in specific functional categories; as there is no standard form of classifying and publishing site interpretations, it is very often unclear whether a specific interpretation is suggested for a site or not. In multi-period sites in particular, the chronological periods attested in pottery are presented, but it is not often clarified whether the same function is implied throughout time. Moreover, site names, numbers and interpretations may vary between different publications of a project. Not all projects are fully published, and we lack vital information especially from most recent intensive surveys, which are expected to have produced a great volume of information regarding diachronic human activity. Intensive surveys can not be compared with non-intensive on the same ground, as the first may give us densities of a certain precision, but the latter do not. The different aims and methods also impose a low level of integration. Question-specific projects give us a lot of information about a specific period, but little or none about others. Finally, chronological precision may be variable, site size is not estimated and there are no specific criteria that define function and would allow a meaningful comparison of a greater spectrum of activities (e.g. different types of settlement). In fact, as there is no explicit terminology established for function characterisations, we would have to redefine functions and

reclassify sites according to our own criteria so that we can meaningfully compare settlement and habitation sites of different size and type, but this has not been within the scope and potential of the present work.

Table 6.3.1 gives us an overview of the knowledge acquired for the major and indeed very large slices of time, namely PH, Greek, GR and BVT. As it has been shown in previous chapters as well (especially chapter 4), the great preference for the Minoan landscape is clear. Post prehistoric sites are only a few, and comparatively much less than the PH ones in all but one project, Praisos, which focused on the landscape around the Greek city of Praisos. Our potential to reconstruct human activity over time is thus unequal for the different periods. Tables 6.3.2, 6.3.3 and 6.3.4 will be used to assess the level of continuity attested from one period to another.

survey id	Total PH	PH density	Total Greek	Greek density	Total GR	GR density	Total BVT	BVT density
Pendlebury 1934	20	0.026	10	0.013	10	0.013	1	0.001
Wroncka	93	0.103	1	0.001	0	0	0	0
Nowicki	47	0.061	24	0.031	2	0.002	5	0.006
Minoan Roads	82	0.257	7	0.021	6	0.018	0	0
Hagia Photia	10	2.469	3	0.74	4	0.987	1	0.246
Katelionas	10	7.042	0	0	6	4.225	0	0
Lamnoni	10	15.384	0	0	4	6.153	2	3.076
Praisos	28	3.111	32	3.555	8	0.888	14	1.555

Table 6.3.1 Total site counts of the main periods per project.

From PH to Greek			
survey id	No of sites	Prehistoric	Greek
Hagia Photia	1	habitation	agro-pastoral activity
Hagia Photia	1	presence	habitation
Hagia Photia	1	unknown activity	unknown activity
Minoan Roads	3	settlement	settlement
Nowicki	1	defence site	habitation
Nowicki	14	settlement	settlement
Pendlebury 1934	1	habitation	habitation
Pendlebury 1934	1	presence	unknown activity
Pendlebury 1934	1	settlement	settlement
Praisos	1	burial activity	burial activity?
Praisos	1	habitation?	habitation?
Praisos	1	unknown activity	installation/construction/industrial activity?
Praisos	1	unknown activity	ritual?
Praisos	6	unknown activity	unknown activity
Wroncka	1	unknown activity	burial activity

Table 6.3.2 Sites that continue from PH to Greek times per project.

From PH to GR			
survey id	No of sites	PREHISTORIC	GR
Hagia Photia	1	habitation	installation/construction/industrial activity?
Hagia Photia	1	settlement	settlement
Hagia Photia	2	unknown activity	unknown activity
Katelionas	1	burial activity	burial activity
Lamnoni	1	burial activity	burial activity
Lamnoni	1	settlement	settlement
Lamnoni	1	unknown activity	unknown activity
Minoan Roads	1	habitation	habitation
Minoan Roads	1	settlement	settlement
Nowicki	1	ritual	settlement
Pendlebury 1934	1	burial activity	settlement
Pendlebury 1934	1	defence site	burial activity
Pendlebury 1934	3	unknown activity	unknown activity
Praisos	2	unknown activity	unknown activity

Table 6.3.3 Sites that continue from PH to GR times per project.

From Greek to GR			
survey id	No of sites	Greek	GR
Hagia Photia	1	agro-pastoral activity	installation/construction/industrial activity?
Hagia Photia	1	unknown activity	unknown activity
Minoan Roads	3	settlement	settlement
Pendlebury 1934	1	settlement	burial activity
Pendlebury 1934	1	unknown activity	settlement
Praisos	1	settlement	settlement

Table 6.3.4 Sites that continue from Greek to GR times per project.

6.4 Summary of acquired knowledge per project

6.4.1 Pendlebury 1934 (table 6.4.1)

Pendlebury visited eastern Crete in 1934 for eleven days in order to revisit ‘as many as possible of the sites discovered by Sir Arthur Evans on his travels in the ‘nineties and to attempt to date the unexcavated remains more accurately than was then possible’. He describes sites he visits giving information on their existence, approximate location and history of research, but he also refers to sites giving only the references of their excavation or study. Therefore his study can not be taken to be representative of actual site numbers; it is basically an account of previously recorded and new sites.

	N/ FN/ EM I	Pre palatial	Pre palatial?	Proto palatial	Proto palatial?	Neo palatial	palatial	Palatial?	Post palatial	Post palatial?	PH
Settlement			1		2	4	4	1		1	**4**
Habitation	1										**2**
Habitation?	1										1
Burial activity		1							1		**2**
Burial activity?			1								
Defence site											**3**
Unknown activity						2	2				5
presence				1			1		1		2
total	2	1	2	1	2	6	7	1	2	1	**19**

	PH?	PG/ G	O/ A/ CL/ HL	Greek	HL/ R/ LR	GR	BVT	unknown
Settlement		1		**4**	3	**3**		
Habitation		1		**1**				
Burial activity		1		**1**		**2**		
Burial activity?	1							
Ritual?						1		
Unknown activity		2	2	3	3	4		1
presence		1		1			1	
total	1	6	2	**10**	6	**10**	**1**	

Table 6.4.1 Chronological and function interpretations of 'Pendlebury 1934' project.

As seen in table 6.4.1, the great majority of Pendlebury's sites are prehistoric and the information we receive about human activity covers the ancient world until LR times. Most sites are interpreted as settlements, but we are also informed of other activities such as defence and burial, whereas quite a few are of undefined function, even though some are known to be Minoan 'guard-posts'. Chronological certainty and precision are average.

Overall, we have evidence of human habitation from the end of the Neolithic / beginning of the Bronze Age, but we know very little of the Prepalatial and almost nothing of the Protopalatial landscapes. The highest settlement activity is attested in Neopalatial times (6 sites) and some activity is also noted for the Postpalatial. A connection between guard posts and routes is noted, a popular theory of Minoan archaeology that continues to the present (Minoan Roads) and which demonstrates palatial control and power, and implies conflict. Regarding the Greek and Graeco-Roman times we know less, but quite a few sites are defined as of habitational character. The Geometric is in fact the best represented with 1 certain settlement, 1 habitation and 1 burial site, while the observed pattern shows a need for refuge in high hills and protected areas. In the case of two sites (20%) we see them being used in both Greek and GR times (table 6.3.4), but not a continuation of function could be determined. Five sites exhibit reuse from PH to GR (26.31%), but when function can be determined it has changed over time (table 6.3.3). Finally, in 2 out of the 3 sites that show evidence of activity in both PH and Greek periods (15.78%), function remains the same (table 6.3.2).

To sum up, Pendlebury refers to sites several of which may be known and excavated, and most of which are of defined date and function; however, site definitions are often debatable. What we ultimately have is a general idea about the presence of human activity in various forms over time, and occasionally its continuation from PH to Greek times.

6.4.2 Wroncka (table 6.4.2)

Wroncka studies the relationships between geographical location and human activity in Minoan times from a historical perspective. Cultural development is seen as being strongly linked with environmental potential; together with a site catalogue and map, she provides an explanatory framework of the development of the palatial culture based on the study of environmental attributes. The sites considered are mostly known and excavated, but include sites from her own extensive research. All places of human activity are considered, even of debatable date and unknown type, however, interpretative certainty is quite high. The majority of sites with a usable function interpretation studied, concern habitational and even more so burial activity, thus her work gives us useful insights into the prehistoric habitational and burial landscapes. Habitation and in general activity is attested from the Neolithic and continues into Prepalatial times when as usual the majority of discernible activity concerns burials. The distinction between Protopalatial and Neopalatial is not always possible, therefore most sites belong to the palatial period in general, but the Neopalatial period is certainly more discernible than the Protopalatial and during palatial times we observe an increase in settlements and habitations, but also in other activity. The Postpalatial period is mainly represented through burials, but there is also evidence of habitation and other activity. Sites continue until the very end of the Bronze Age, but only one burial site is noted for the Geometric and therefore the Greek period, due to the researcher's interests. Overall, we observe an intensity of activity during palatial times, which is discussed in relation to the environment's influence on human locational choice and the possibilities it offers for further cultural development. Thus, most Minoan settlements were noted near the coast and alluvial plains, which open up to inland territory and this pattern is explained in terms of wine and olive-oil cultivation and exportation especially during LM.

	N/ FN/ EM I	Pre palatial	Pre palatial?	Proto palatial	Proto palatial?	Neo palatial	Neo palatial?	Palatial	Palatial?	Post palatial
Settlement					1	1	1	2		1
Habitation	1		2		3	5	7	7	7	2
Burial activity	1	6	2		4		5	2	4	13
Ritual			2	1	2	2		2	1	
Ritual?			1							
Defence site										1
Defence site?										
installation							2		2	
Unknown activity	4	4	1	1	5	8	5	11	2	4
presence	4	3	1	1	2	3	3	5	1	1
Various findspots										
Total	10	13	9	2	16	18	22	29	17	22

	Post palatial?	LM IIIC/ sub-Min	PH	PH?	PG / G	Greek	unknown
Settlement	1		**2**				
Habitation	7	1	**15**	7			
Burial activity	3	1	**22**	3	1	**1**	
Ritual			**3**				
Ritual?			1				
Defence site			**2**	2			
Defence site?			1	1			
installation	2		**2**				
Unknown activity	3	1	13	5			
presence	1	1	11	4			1
Various findspots			1				
Total	17	4	**73**	22	1	**1**	

Table 6.4.2 Chronological and function interpretations of 'Wroncka' project.

6.4.3 Nowicki (table 6.4.3)

Nowicki's work focuses on specific site-types, and more specifically on refuge settlements of the end of the Bronze Age, but the phenomenon is noted also for the Neolithic and the beginning of the Middle Bronze Age. The second focus of research concerns Peak sanctuaries of the Protopalatial period. As seen in table 6.4.3, the PH is expectantly represented by a much higher density of sites due to the researcher's interests and LM IIIC / sub-Min settlement is the major activity recorded showing a high level of continuation from PH to Greek times (table 6.3.2). Protopalatial ritual is the second most important. Activity lessens as we proceed towards the GR period and the BVT is represented mainly through 3 VEN settlements. Overall, certainty is high, but site numbers are not representative of the relative periods, as the researcher's questions were specific to a particular phenomenon, namely the choice of defensible locations for settlement towards the end of the Bronze Age. This pattern demonstrates social troubles and warfare with the coming of new people (defensible sites near the coast), but also among island communities, that continues into the Geometric and gives us insights into the genesis of the Greek polis. Defensive systems are observed both near the coast and inland and consist of sites of various sizes that seem to have a particular role in the system (from watch towers to extensive settlements and dual settlements). Defensive settlements in the MBA are again evidence of conflict, while the appearance of PK's are linked to the expansion of palatial ideology and control.

	N/ FN/ EM I	N/ FN/ EM I?	Pre palatial	Proto palatial	Neo palatial	Neo palatial?	Palatial	Palatial?	Post palatial	Post palatial?	LM IIIC/ sub-Min	LM IIIC/ sub-Min?
settlement	2	1	4	1	1	2	4	1	6	2	19	2
Settlement?	1								1			
Habitation					1		1					
Habitation?			1									
Burial activity									1		1	
Burial activity?												
Ritual				11	4		11					
Ritual?			1									
Defence site								1			2	
Unknown activity					1		2					
presence												
Total	3	1	6	12	7	2	19	2	8	2	22	2

	LM IIIC / PG	PH	PH?	PG / G	PG / G?	O/ A/ CL/ HL	O/ A/ CL/ HL?	Greek	Greek?	GR	BVT	BVT?
settlement	9	**25**	5	15	3	6	2	**16**	5	**2**	**3**	1
Settlement?		1		1		1						
Habitation				1				**1**				
Burial activity		**1**										
Burial activity?	1	1										
Ritual		**11**										
Ritual?		1										
Defence site	2	**3**							1		**1**	
Unknown activity				1		1		1				
Total	12	**43**	5	18	3	8	2	**18**	6	**2**	**4**	1

Table 6.4.3 Chronological and function interpretations of 'Nowicki' project.

6.4.4 Minoan Roads (table 6.4.4)

This project explores primarily a specific form of human activity, namely roads and guard-posts, in order to describe and explain the socio-political framework of the palatial period. Infrastructure, communication routes and spatial relationships are indeed very important for the understanding of cultural development and social structure. The project's interpretative framework uses of course excavation data as well, but research was structured mainly upon landscape work. We also have quite a high number of settlement and other activities in the palatial period, which is the principal period of research, but we can not distinguish between Protopalatial and Neopalatial. A disadvantage in using interpretations of this project is that a large proportion of the sites reported do not have a specific interpretation, because publications do not include a site catalogue; the publication used and which provides the majority of sites (Chrysoulaki 1993), describes activity per area unit, but does not specify function of each site included. Settlement activity is in fact noted from the Neolithic (near the coast) till the very end of the Bronze Age. The sites described include also some Greek and GR settlement activity, the majority of which are a continuation of PH use into historical times.

Overall, as the aim of the project is to understand specific site-types of the palatial period and their interrelationships, the strength of the project is on the information it provides about the period with the highest degree of developmental level registered in the landscape, the time of the palaces; through the study of the palatial communication network and the Minoan guard-posts, we get interesting insights into the organisational structure of the Minoan society. The project sees roads, guard-posts, infrastructure sites, villas and PK's as the result of a much organised central authority.

	N/ FN/ EM I	Palatial	Post palatial	LM IIIC/ PG	PH	PG/ G	O/ A/ CL/ HL	Greek	HL/ R/ LR	GR
settlement	4	3	1	3	**11**	3	1	**7**	5	**5**
Settlement?										1
Habitation		5			**6**					
Burial activity		1			**1**					
Ritual		4			**4**					
Defence site		18			**18**					
installation		13			**13**					
Not specified		20			20					
Unknown activity		9			9					
Total	4	73	1	3	**82**	3	1	**7**	5	**6**

Table 6.4.4 Chronological and function interpretations of 'Minoan Roads' project.

6.4.5 Hagia Photia (table 6.4.5)

Hagia Photia is one of the very few systematic intensive surveys in the eparchy of Siteia, undertaken not to answer specific questions, but as complementary to excavation and as an experiment to assess survey results in a coastal area that encourages settlement over time and which is part of a wider area that had long attracted archaeological interest over the century. Still, all periods were recorded, and as the survey was very intensive it seems that the project gives us quite a representative picture of the diachronic human activity in its area (4 km²). The PH period is the best represented and on the whole, chronological precision and certainty are quite high. Function interpretations have a higher degree of certainty and precision in the PH times. A few sites seem

to have been used in multiple periods, but only one settlement is known to have kept its function from PH to GR times (tables 6.3.2 - 4).

Overall, the survey shows some activity from pre-palatial times (burial and defence), but the project informs us of habitation in the wider area already from the Neolithic. The well-known EM I-II site at Hagia Photia, which has demonstrated strong links with the Cyclades, is believed to represent a new community in the area. Later on, a fortified building in MM IA shows evidence of warfare in Prepalatial times. We don't really know what was going on in Protopalatial times, but activity, mostly identified as habitational, picks up during the Neopalatial, when we have the highest number of sites, and lessens again in Postpalatial. A gap is attested at the end of the Bronze and beginning of the Iron Age, but during Greek and GR times the plain is inhabited and cultivated once again even though sparsely. After the end of the ancient world we know only of one infrastructure site from the survey, but the village of Hagia Photia was actually established in Medieval times. Finally, a few sites are re-used from PH to Greek (3 sites), from PH to GR (4 sites), and from Greek to GR (2 sites), but usually, function changes. It is interesting to see that this coastal area, even though small, has been used throughout time in variable forms and intensity.

	Pre palatial	Proto palatial	Neo palatial	Palatial	Post palatial	LM IIIC sub-Min	PH	O/ A/ CL/ HL	Greek	HL/ R/ LR	GR	BVT
settlement			1	1	1		**1**			1	**1**	
Habitation			4	4	1		**5**	1	**1**			
Habitation?			1	1								
Burial activity	1											
defence	1						**1**					
Agropastoral activity								1	**1**			
installation										1		**1**
Installation?											1	
unknown activity		1	1	2			2	1	1	2	2	
presence		1			2	1	1					
Total	2	2	7	8	4	1	**10**	3	**3**	4	**4**	**1**

Table 6.4.5 Chronological and function interpretations of 'Hagia Photia' project.

6.4.6 Praisos (table 6.4.6)

This project aimed to study the historical context of the Greek city of Praisos, using systematic intensive survey and focusing on topographical mapping, but human activity is in fact recorded diachronically. As a result of research interests the best represented periods are from Archaic to Hellenistic (the distinction between CL and HL has often not been possible to make), but there is only a marginal difference between the number of PH and Greek sites, whereas the BVT landscape is also quite well represented, compared with the general - astonishing - lack of archaeological interest for the period. However, function precision is the highest for the Greek period, even though in general it is pretty low in the preliminary publication. Quite a large number of sites continue to be used from PH into Greek times (table 6.3.2), and there is also some evidence for continuity of site use into GR (tables 6.3.3 – 4).

Overall, habitation is noted from the Neolithic giving us hints of defensible locations being preferred. Some activity is observed throughout the PH periods, the highest being during palatial times, but low function precision prohibits us from being able to use site interpretations effectively. The project's historical narrative,

however, explains variations of site density in terms of nucleation (only a few Neopalatial sites), or retreat from the coast (increase of LM III sites in the hinterland of Praisos). Locational choice is linked with the need for protection in the Neolithic and the end of the Bronze Age, and with subsistence in the Protopalatial period, when a large amount of megalithic walls seem to reveal rural expansion. The area's peak is during CL and HL with Praisos rising to a very important Greek city, even though rural density does not seem to be higher than in MM times.

	N/ FN/ EM I	Pre palatial?	Proto palatial	Proto palatial?	Neo palatial	Neo palatial?	Palatial	Post palatial	Post palatial?	LM IIIC/ sub-Min	LM IIIC/ sub-Min?	LM IIIC / PG?	PH	PH?
Settlement										1			**1**	
Habitation	1													
Habitation?				1	1		1	1		1			2	
Burial activity								1	2	2			**2**	2
Burial activity?									2		1	2		2
Ritual														
Unknown activity	2	1	1	2	1	2	3		1	2			18	1
presence														
Total	3	1	1	3	2	2	4	2	5	6	1	2	**23**	5

	PG / G	PG / G?	O/ A/ CL/ HL	O/ A/ CL/ HL?	Greek	Greek?	HL/ R/ LR	HL/ R/ LR?	GR	GR?	BVT	BVT?	unknown
Settlement	1		1		**1**		1		**1**		**1**		
Habitation											**1**		
Habitation?			3		3								
Burial activity		2	1		**2**	1							
Burial activity?		1	1	1	1	1							4
Ritual	1		1		**1**						**3**	1	
Ritual?			1		1								
Agropastoral activity											**4**		
installation			2		**1**						**1**	1	5
Installation?					1								
Unknown activity	1	1	10	6	11	6	4	1	6	1	2		19
presence			2		2								
Total	3	4	22	7	**24**	8	5	1	**7**	1	**12**	2	

Table 6.4.6 Chronological and function interpretations of 'Praisos' project.

6.4.7 Ziros (Katelionas & Lamnoni) (tables 6.4.7a and 6.4.7b)

Ziros project consists of the survey of the two upland areas of Katelionas and Lamnoni (fig. 6.1), in order to study the historical evolution of the area until the Arab conquest and its relationship to various centres in the vicinity over time. It was a systematic intensive survey that sought to identify sites of variable size and hierarchical level through the study of pottery densities across the landscape. Even though the researcher's interests focus primarily on the Minoan period, the specific project was intended to study human evolution diachronically, and thus it informs us of a gap of human activity in EM and from the end of the Bronze Age to Hellenistic times. Function precision is pretty good and all major types of human activity are recognised, while chronological precision is also pretty good even though it does not always allow us to distinguish between the first and second palace periods (but one would expect pottery traditions to last longer in such remote areas anyway). Continuation of site use and indeed function, is noted only from PH to GR in 1 site in Katelionas and in 3 out of the 4 GR sites in Lamnoni.

Overall, we observe the presence of people already in Final Neolithic in both basins, explained as organised around a nucleated settlement and occasional farmsteads, with burial and religious ground in the vicinity. No Prepalatial material was found, but occupation picks up again from Protopalatial times and continues until LM III showing a peak of activity during the palatial period, which however, does not exceed that of the Neolithic. The situation doesn't seem to differ much during GR, when both areas are stated to be under Ierapetra's territory after Praisos's destruction in 195 B.C., and used by agricultural communities.

	N/ FN/ EM I	Proto palatial	Neo palatial	Palatial	Post palatial	PH	HL/ R/ LR	GR
settlement	2	2	2	2	1	**3**	2	**2**
Habitation				1		**1**	3	**3**
Burial activity	1	1	1	2	2	**2**	1	**1**
ritual				1		**1**		
Defence site				1		**1**		
unknown activity	2					2		
Total	5	3	3	7	3	**10**	6	**6**

Table 6.4.7a Chronological and function interpretations of 'Katelionas' project.

	N/ FN/ EM I	Proto palatial	Neo palatial	palatial	Post palatial	PH	HL/ R/ LR	GR	BVT
settlement		1	1	1		**1**	1	**1**	
Habitation	2					**2**		**1**	
Habitation?	1					1			
Burial activity	1			1	1	**1**	1	**1**	**1**
ritual	1			1		**2**			
Agro-pastoral activity?				1		1			1
Unknown activity	1			1		2		1	
presence	1								
total	7	1	1	5	1	**10**	2	**4**	**2**

Table 6.4.7b Chronological and function interpretations of 'Lamnoni' project.

6.5 Synthesis

The reconstructed patterns presented below for important chronological periods can not be taken as an accurate picture of human evolution over time since most projects were question specific and studied particular site types and periods. The apparent reduction of settlement in certain periods is certainly enhanced by pottery recognition problems and on-going pottery traditions. Very few projects studied human activity historically and in its variability. Intensive survey methods may potentially provide a better representation of human activity in a wide temporal, spatial and type level, but very few of the relevant projects are actually published. We note of course, that more recent projects show a greater interest in diachronic landscapes even if they are question –specific (Praisos, Itanos) and periods like the Neolithic and BVT have been more discernible in some recent researches. Overall, reconstructions are certainly subject to the available data, which are better for some periods and areas than others.

6.5.1 Neolithic / Final Neolithic / Early Minoan I

Human settlement in the area of Siteia starts from Neolithic times, and quite a few sites have been noted by almost all projects undertaken in the area. Most sites are interpreted as settlements or habitations, but we know also of several burials and 1 ritual site in Lamnoni and of course several sites whose function could not be established. It is interesting that people occupy sites on the coast (Wroncka, Pseira, Itanos, Nowicki, Minoan Roads) but also in the interior of the island (Praisos, Lamnoni, Katelionas). Typical sites of the period are coastal caves and rock-shelters that are not easily accessible and which are usually used as burial ground, but settlements may also be inaccessible as they usually occupy remote and well-protected hillocks and cliffs. Defensibility is actually observed both on the coast and inland (Praisos), fact that may represent conflict among communities on the island and maybe also fear for newcomers. In the upland areas of Lamnoni and Katelionas we are given a picture of communities nucleated around a settlement, but occupying the landscape with several farmsteads as well. It is actually supported that Lamnoni was occupied first and the same pastoral community moved to Katelionas. The idea of possible hilltop ritual is particularly interesting, even though it requires further attention. The fact that no EM was found could be because FN pottery was still in use in those upland areas at the same time as the coast was in contact with the Cyclades. Overall, it seems that eastern Crete was occupied by several communities during the Neolithic, throughout the diversity of the landscape, and the need for defensibility represents an intensity of movement and competition among communities.

6.5.2 Prepalatial (EM – MM IA)

The Prepalatial period is quite problematic as in some projects it is much better represented than the previous period (Wroncka, Nowicki, Hagia Photia), but in others hardly present (Praisos) or totally absent (Ziros). Most activity seems to take place near the coast and EM II in particular, shows signs of growth, overseas contacts and nucleation. The area exhibits very important sites for the period; the Hagia Photia cemetery that declares the presence of a prosperous community with strong connections with the Cyclades (Davaras and Betancourt 2004; Doumas 1976;1979); the settlement at Petras that will prosper into an important town during the Palatial period and continues to be used in Postpalatial times as well; Palaikastro which in EM IIb shows signs of nucleation with a building structure similar to those of Vasiliki, Phaistos and Tylisos. Another very important site is the MM IA fortified building on Kouphota hill at Hagia Photia, which indicates defensibility and industrial production, but whose function has not been established with certainty (Tsipopoulou 1988, see also discussion in the same publication, 1999; Doumas 1976, 1979). The end of the Prepalatial period and the beginning of the Protopalatial (EM III / MM I-II) is linked to social upheaval, with settlements being established in defensible locations, some of which may be related to early Peak Sanctuaries (Nowicki). Overall, we seem to have a greater number of sites compared to the Neolithic especially near the coast, and communities seem to grow and prosper through trade and contacts, but also develop rather competitive relationships.

6.5.3 Protopalatial (MM IB - II)

Most projects seem to identify a rather densely inhabited Protopalatial landscape, with an increase in sites of variable functions and across the landscape. The upland areas of Ziros are reoccupied for the first time after the Neolithic; in Lamnoni settlement is now more dispersed, even if not denser, and Neolithic burial ground is reused. Katelionas with two nucleated settlements shows slightly denser activity than Lamnoni, and the fact that most activity is concentrated at the borderline of the plains is linked to their agricultural exploitation. Similarly, in Praisos there seems to be an increase of sites and the pattern recognised shows rural expansion with activity developing near arable land, routes and sources. Intensive agriculture is in fact very well demonstrated on the island of Pseira, where the relevant study revealed techniques of manuring, terrace construction and land management. On the other hand, the countryside in Itanos is almost empty and only minor activity is reported in Hagia Photia, whereas Palaikastro develops to a town prospering with foreign contacts. Thus, the picture we have regarding settlement activity, is one of nucleation on the east (Palaikastro, Zakros) and north (Petras, Pseira) coast, but also a general expansion of settlement in the highlands (Nowicki, Ziros, Praisos).

This is undeniably a period of great interest and complexity characterised by the establishment of 'palatial' structures, Peak Sanctuaries and sites known as 'guard-posts', which are usually interpreted as controlling Minoan routes and the circulation of agricultural products on behalf of the palaces, serving a similar role to later Neopalatial villas (e.g. Chiromandres: Tzedakis *et al*. 1990). Nowicki has in fact identified similar structures in Lasithi as parts of defensive settlements, and in general he has observed a need for defensibility with many of his refuge settlements being used at the time. Indeed, guard-posts and defensive settlements hint towards a time of socio-political conflicts during this period. PK's can also be a significant interpretative tool for the study of the society at the time and they have been related to an ideological expansion of regional centres, but also to palatial economic expansion and control of large pasturelands[1]. Rural PK's are seen as local sacred places which seem to go out of use in Neopalatial times, whereas the ones linked to regional centres, continue and prosper (Peatfield 1983). In Siteia, many form a group around Petsofas which was the first and most important Peak Sanctuary above the flourishing town of Palaikastro. Nowicki discusses the gap between the group of PK's around Petsofas – Palaikastro in the eastern part of the eparchy of Siteia and the Knossos – Jouktas ones, whose sphere of influence spreads eastwards until the western Mountains of Lasithi; he proposes that the eastern Siteia PK's were under the influence of Knossos, whereas the palaces of Malia and Phaistos may have resisted such an influence since there doesn't seem to be a system of PK's around them. Whether there had been an independent east Siteia socio-political unit or not is certainly a problem that can not be resolved in the present study, however, it is important to note the concentration of such religious, ideological and maybe political and economic expression at the very eastern part of the eparchy. Overall, society in Protopalatial times developed to a form that exhibits central organisation, but communal social behaviour (tholos tombs, rituals), economic growth, nucleation / urbanisation on the coast, rural expansion inland and in general agricultural intensification, religious / ideological propagation but socio-political conflicts, cultural unity throughout the island, but also interesting local differentiations.

6.5.4 Neopalatial (MM III – LM IB)

This is the period of the greater expansion of settlement and general growth, demonstrated by most projects. In Praisos, however, we have little evidence of activity explained as a possible sign of nucleation similar to Kavousi (but where did people move to?). The dissimilar situation observed by Hagia Photia and Itanos

1 Peak Sanctuaries are a most important cultural expression of palatial Crete, reflecting ideology, but also political and economic territories. Many scholars have studied their relationship to centres and rural sites, their function in Minoan society and its possible changes between Protopalatial and Neopalatial Crete (from Paul Faure in the 69's and Bodgar Rutkowski in the 70's till current researchers, e.g. Peatfield 1983; 1987; 1990, Nowicki 1991, Watrous 1995, Soetens 2006)

projects shows a much greater settlement growth along the coast. Unfortunately we can not distinguish between first and second palace periods at Ziros, but one wonders if the situation was similar to that at Praisos.

This period sees the establishment of structures known as 'villas', which have been interpreted mainly as houses or the base of a powerful chief who exercised agricultural - economic control over a large area. Their function is a very controversial theme in Minoan archaeology (Hägg 1997), but overall they seem to have served different roles; some have a rather strong industrial character (Zou), others show connections with agropastoral economy (Aghios Georgios), while some structures are almost miniature versions of palatial architectural arrangement and demonstrate intensive religious elements (Makrygialos: also called 'cult villa' by Davaras 1997). Another important site type of the period is that of the so-called 'guard-post' studied extensively by the Minoan Roads project, where they are seen as military structures exercising palatial control over the routes and therefore circulation. Smaller sites of the 'vigla' type are seen as playing a subsidiary role to the guard-posts. The idea of centralised palatial control through such structures was already put forward by Evans. Megalithic structures of the 'guard-post' type start in the Protopalatial period and whether they are believed to exercise palatial control (Minoan Roads) or seen as parts of defensive settlements in other areas (Nowicki – Lasithi), most researchers read a defensive / military character (also Palaikastro) and may therefore be taken as indication of socio-political conflict and upheaval. We should note, however, Wroncka's proposal of them serving as rest-posts along routes, fact that demonstrates her different perception of Minoan society as of a peaceful one. In any case eastern Crete shows a high density of such independent buildings that most certainly had an important role in Minoan society.

In general, many new sites are established across the landscape, from settlements to 'guard-posts', roads and villas. The town of Palaikastro is rapidly reconstructed after its destruction at the end of the Protopalatial period, with a well-planned street system and the first public building. The towns of Zakros and Petras reach their peak also, showing evidence of greater nucleation. An extensive road network links Zakros and Palaikastro to sites of industrial, burial and religious activities. At Pseira there is evidence for intensification of landuse and rise of population, but also Hagia Photia sees the establishment of more 'country houses' and a more intensive exploitation of the plain. Eastern Crete is in general very rich in sites such as villas and guard-posts, PK's but also towns and settlements of variable sizes across the landscape and has an extensive road network linking towns, industrial sites such as quarries, and PK's. All these indicate a high level of energy spent for infrastructure towards the fulfilment of economic, social and religious needs of the respective society.

6.5.5 Palatial

Quite often chronological site interpretations do not distinguish between first and second palace periods and the time of palace architecture is treated as a unified period (Ziros and Minoan Roads, Lehmann, Wroncka). Overall, the distinguished patterns of nucleation (especially along the coast), central organisation, agricultural intensification, settlement expansion, economic growth etc are more intense in the 2nd palace period. Wroncka identifies proximity to coast and alluvial plains as the important factors for the growth of palatial settlements, and in fact the exploitation of fertile land is acknowledged by all researchers as a typical characteristic of the period leading to its affluence and socio-economic development. Lehmann sees coastal development as a sign of peace and stability and when agricultural potential does not justisfy such growth, this is seen as the result of overseas contacts. However, as discussed above, socio-political conflict is well-attested during the time of the 'palaces'.

6.5.6 Postpalatial

This period has not been of primary focus for any project and some only barely record some kind of activity due to research interests (Minoan Roads). Nowicki for example, has actually studied the bigger number of settlements of this period as he is interested in the end of the Bronze Age. However, even projects that have

studied human activity over time, report a reduction of sites in this period especially along the coast; In Hagia Photia activity is halved and consists mainly of 1 settlement and 1 habitation, while not much is known from Itanos either. At Praisos we have 1 possible habitation and 1-5 LM III tombs, while Ziros reports 1 settlement and 2-3 tombs. It is stated (Praisos) that there seems to be a retreat from the coast and occupation of inland areas, even though in Palaikastro there is a rebuilding programme during LM IIIA/B and the town is occupied until its abandonment at the end of LM IIIB.

Postpalatial times have traditionally been known through LM III tombs (Pendlebury, Wroncka), but more recently settlements have also been recognised and studied. LM II is one of the least recognisable periods over time and in our area we know only that in Palaikastro, there is sporadic reoccupation during this period. Overall, it seems that people have created larger communities as attested through settlement nucleation and burials.

6.5.7 LM IIIC – PG

The so-called period of the Dark Ages has not been sufficiently discussed by many researchers especially in earlier times. However, settlement and burial activity is attested by most. The widely accepted characteristic of the period is the abandonment of coastal areas and the movement inland, sign of social conflicts and competition, stated in Pendlebury, Lehmann, Pseira project and others. Indeed, the plain of Hagia Photia is deserted and not much is known for other areas on the coast, but in fact the upland area of Ziros seems to have been abandoned as well.

Our knowledge for this period, comes mainly from the extensive work of Nowicki who has focused in the study of the transition from the Bronze to Iron Ages (LM IIIC – PG), and the beginnings of the Greek poleis-krati. The pattern of refuge settlements in the Dark Ages identified in Siteia, falls within a general pattern at the time throughout the island, even though there may be some local differences. Here as well, people have settled summits that are particularly steep and relatively high when they overlook coastal plains and are thus near the sea. Habitation is greater inland, where settlements of quite a bigger size may be more accessible, but they belong to a defence system of several settlements, and are protected by watch towers and smaller settlements. Settlements which were central to such a system and could expand and control a greater area seem to have developed to the Geometric towns. The phenomenon is linked to a period of instability following the fall of a more centralised society and the rise of independent groups throughout the southeast Mediterranean. The choice of defensive locations for settlement, defence-walls and the poverty of material, indeed show times of social troubles and economic depression. Western Siteia Mountains[2] form the second most important refuge settlement system after Lasithi Mountains.

An interesting phenomenon of the habitation pattern at the time is also the existence of small, particularly inaccessible settlements, which seem to have been the last refuge, and perhaps not only for the nearest permanent settlement, but also for other nearby ones. An example of such dual settlements is Zakros Ellinika (permanent settlement) and Zakros Kastello (more inaccessible settlement) on the east coast. Moreover, some of the Dark Age sites that are not very defensible can have a very defensible area above or nearby, which they may use only temporarily and thus no buildings are erected (e.g. Mega Chalavro). Finally, a size hierarchy is identified, consisting of a) watch points, b) small hamlets, c) medium settlements, d) extensive settlements and e) cities.

2 Some of the sites studied by Nowicki and included in the present study relate to a wider defence system in the West Siteia Mountains, which incorporates sites that are outside the borders of the eparchy of Siteia.

6.5.8 Greek

As already observed, post-PH times have received much less attention, even though the Greek or Hellenic period, namely from Geometric to Hellenistic, has always been recorded by most researchers even if not consistently. The lack of archaeological interest has been the primary cause for pottery recognition problems, and thus chronological precision has not been satisfactory, often restricted to terms such as 'Greek', that does not allow us a sufficient understanding of the historical evolution at the time. Except for projects that focused almost exclusively on PH themes (Palaikastro, Minoan Roads), more recent landscape research has been diachronic (at least until the end of the ancient world) and two intensive surveys, namely Praisos and Itanos, have actually focused on this period, exploring the historical circumstances of the development of the homonymous ancient cities. Unfortunately, though, they have not been fully published yet.

The available data, however, give us an idea of human activity at the time, even if fragmentary: On the coastal plain of Hagia Photia habitation is sparse with a 7th century country house, but the plain is continuously cultivated. Coastal settlement is observed in the east as well (Minoan Roads, Palaikastro), whereas in the north-east the important city of Itanos rises at the time. Itanos was strong and open to the outside world, flourishing until Roman times. The homonym project gives us some interesting insights into social memory; it is revealed that new burial needs in CL times respected older public buildings, showing that the community had strong bonds with the past at least until CL times. During HL, however, the cemetery is totally reformed. The countryside doesn't show evidence of permanent habitation, fact that may be explained by nucleation at Itanos and exploitation of the countryside by the people living in the city, a pattern which is attested for CL times elsewhere (Mendoni 1994). In the interior of the island at Praisos, the city reaches its peak during CL and HL and rural expansion seems higher than in Itanos, even though not higher than in Minoan times and less than in the Mainland Greece at the time. On the other hand, the upland areas of Ziros show evidence of human activity only after the 3rd century B.C., and the island of Pseira has also very sparse evidence of only occasional activity. It seems that whether inland or on the coast, we have fewer but bigger settlements, which need and control large territories.

Finally, Nowicki, having studied the transition from the Bronze to Iron Ages, he has discerned settlements that developed into Greek 'πόλεις' during Geometric times and a few that continued to be occupied into later periods, but the number is constantly decreasing (sites surviving from PG to HL: Proto-Geometric, 17sites; Geometric, 11sites; Orientalizing, 7sites; Archaic, 4sites; Classical, 2sites; Hellenistic, 1site). This pattern agrees with a model of growing stability as settlements appear more nucleated and secure with the passing of time. People seem to have formed larger social groups and occupy less defensible areas (but fortify them), as conflict has moved scale from the small community to the city level.

6.5.9 GR

Most projects do not actually differentiate between Greek and GR periods, and overall give us very little evidence of the time. According to the fragmentary picture offered by the above projects, Hagia Photia plain continues to be cultivated and there is some evidence for a permanent farm habitation. The hinterland of Itanos shows higher activity than in Greek times, therefore a more dispersed pattern, and the city grows until the end of the period, when it is abandoned. At Ziros, Katelionas shows some evidence of permanent settlement in the form of farms and villages, whereas Lamnoni seems to have been used for agro-pastoralism but doesn't show traces of permanent activity loci. It is estimated that it supported about the same amount of people as in the Minoan period (50-100). After the fall of Praisos from Ierapetra in 195 BC Katelionas and Lamnoni are thought to have fallen within the latter's territory. It should be noted that the LR period at Ziros is taken to be the 6-8th centuries AD (including the first Byzantine period, 6th-7th century A.D.), while at the same time in Pseira, the early Byzantine period starts in the 5th century AD. In Praisos some minor activity is reported and in fact it is stated that very little can be inferred for post-Greek periods. Overall, we can probably discern some higher activity along the coast, and Lehmann discusses the development of coastal settlement at the

time as evidence for prosperity and social peace, but the information we have is in fact totally insufficient to reconstruct a satisfactory picture of the society at the time.

6.5.10 BVT

The study of societies after the end of the ancient world has in general been restricted to historical texts and religious art. The archaeological record has not been used as for previous periods, and in particular landscape archaeology has shown minimal interest for this period. Except for a few intensive surveys, which have studied human ecology diachronically, our information about BVT times consists of only sporadic and inconsistent evidence. Medieval pottery is in general acknowledged to be very difficult to recognise, but in fact, archaeological focus on PH times is largely responsible for our lack of experience with the archaeological record of this period. For our area, we know that several nowadays villages were founded in the medieval period, such as Hagia Photia, Nea Praisos, Kalamafki and Ayios Spyridon (the last three in Praisos area). The abandonment of strong cities (Itanos) declares a total reorganisation of the social landscape and indeed now we observe the establishment of several villages on the coast and inland, some of which are defensible and express social upheaval (Nowicki). At the same time, in Pseira we have 2 early Byzantine farms with permanent agricultural constructions in the fields. Moreover, the landscape expresses a strong religious ideology that continues to the present, as many churches and monasteries are founded in this period. In general, socio-economic life surviving to the present or until a few years ago seems to have had its roots in this period.

6.6 Conclusions

Overall, some projects give us primarily qualitative information (analysis of specific site types and explanatory suggestions regarding human activity) and others focus on quantitative information (numbers of sites that describe type and chronology of human activity over time). As seen in the above tables, most of the archaeological data / interpretations belong to the palatial period. As a result, we have a much clearer picture regarding this period than preceding and following ones.

The combination of project information gives us a picture of variable human activity and the changes in its intensity, across the landscape and in different periods. Explanatory suggestions comment on the function and role of human settlement over time or in specific periods, with insights into social circumstances (Lehmann, Wroncka, Nowicki). Aims and results may give a high priority to the identification of relationships among sites and between sites and topography (Nowicki, Praisos). The Minoan Roads project studies the communication network among Minoan sites and discusses its role in Minoan society and in relation to specific sites, in particular the so-called ‘guard posts’. Palaikastro survey sheds light into the extents, structure and function of a Minoan settlement, while Pseira illuminates the intensity of Minoan agricultural landuse. Other projects are interested in building a diachronic picture of human activity in their area (Ziros, Hagia Photia). Only Praisos and Itanos surveys are explicitly interested in post-Minoan periods, namely the GR. The latter is combined with excavations and gives us a clearer picture of the history of the ancient city.

Most sites are habitation sites, whether at a larger / settlement level or at a smaller level (single house, farmstead etc). The size of habitation sites, however, is rarely known, even though it is used as crucial evidence in the models proposed. Usually it is taken to imply political and economic hierarchy, but also population densities, an assumption which is not really well-founded since sites do not need to be contemporary, and also it is a well-attested phenomenon that a settlement population may use a number of nearby sites temporarily (also in modern Crete). Size, however, is crucial evidence and may indeed reveal relationships of economic dependency or independency, as well as a number of other issues regarding subsistence, socio-political circumstances and ideology, and since it is used as an important interpretative tool, it should be recorded consistently. Moreover, definitions and relationships between size and function should be clear in order to guarantee homogenous meaning in the terminology used.

The archaeological knowledge acquired through landscape research in association with excavation data can indeed illuminate past societies, especially of the Minoan period. An in-depth study of the human evolution in an area where different projects have taken place, would however require a reclassification of site interpretations in the highest function and chronological resolution possible, using classes that not only describe, but also analyse human behavioural patterns, taking into account also knowledge from the excavated record. Moreover, these would have to be studied in relation to topographical and environmental maps, which are the second most important element for archaeological interpretation.

Survey data has been used primarily for reconstructions of settlement activity over time, but also to detect and occasionally explain the history of hierarchies and possible relationships among sites, political relationships between regions, and even questions such as the rise of state, palatial society and polis-kratos. Indeed, survey data have revealed a multitude of human activity across space and allow us to follow different trajectories among regions in definable chronological periods (Driessen 2001). The main technique we use to describe and understand ancient societies is to analyse relationships between site numbers and their spread across space in specific time windows and we use spatial analysis to study sites in terms of location and how they relate to environment and topography. Thus, we conclude on subsistence potential, contacts, socio-political and economic circumstances.

Site numbers alone, however, are not enough for a social archaeology and abstraction does not really help to understand past societies. Settlement patterns over large slices of time and arbitrary regions are not an adequate means to reconstruct past historical circumstances. Instead, we have to pursue specificity of concepts, questions, and data. Furthermore, we need studies on the dynamics of regions, how these are constructed and what they are for the people involved (Relaki 2003). Ancient societies are lived by people, who somehow seem absent from our reconstructions. It is important though, to involve agency and study societies at the community level (Knapp 2003), seeking their interactions with the landscape in different scales and levels. Social beings do not consciously formulate historical circumstances such as systems of political hierarchies and economic dependencies; they interact with the landscape in order to ameliorate their living conditions and satisfy their socio-cultural needs and in order to approach some understanding of what life was like, we need to acknowledge that people operate in multiple levels of time and space. Particularly in Crete with its unique fragmentary and insular landscape, communities are perhaps the most viable unit to analyse societies.

In reality, whether we seek to answer questions of large-scale phenomena such as patterns of economic and political hierarchies, or questions regarding social behaviour at a finer level, we need to map sites of different function and size over time in relation to topographical and environmental attributes, but first, we need to exemplify the relationship between data observed and interpretations on site chronology and function and we need to define a terminology of significant classes of human activity that can be used by all researchers. Maps are strong interpretative tools, but they are meaningful only if they represent human activity and spatial relationships as they are discussed in texts. We also need to define and clarify our concepts, for example what does the term ‘hierarchy’ mean, is it political, economic, ritual, social, and how does it relate to the actual living of the people? How is the term ‘farmstead’ conceived, does it imply permanent or temporary habitation and is it run by family units or does it form part of wider economic and political structures?

As a result, to understand better an area based on landscape research (but of course incorporating also all available archaeological and historical knowledge), I believe it is important to act towards two directions: a) to turn our interest towards people and how they interact with the landscape as agents and communities as well as actors of larger socio-political and economic systems and b) to pursue an as fine and clear definition as possible of the variable human activity over time and its associations with material remains. The latter point is linked to the need of knowing what kinds of human activities we study and relate to the physical landscape, what these may mean in social terms and what spatial and time characteristics and relationships they might reveal for the relevant societies. It is believed that only in this way can we actually profit from the potential of a wide body of theoretical concepts and archaeological data and promote discussion and communication among researchers in our search for explanations regarding social human behaviour in the past.

7. CONCLUSIONS: Archaeological Survey Data Integration

7.1 Thesis Summary

The aim of this thesis has been to construct a historiography of landscape research in Crete from the time of the Travellers to the present day (chapter five). This has been seen in the context of Aegean and world-wide landscape archaeology (chapter one). In the analysis of archaeological landscape projects on the island, special attention has been given to theoretical frameworks that have guided landscape research and to its methodological practice, both of which are reflected in the results produced (databases, chapters three and four). The potential of various projects has been assessed (chapters three and six) and there has been an attempt to use results in order to reconstruct an overview of human activity in the area of Siteia as a case study (chapter six). As a result, we have concluded on the importance of landscape research from all traditions and approaches for the study of ancient societies, but also on the diverse possibilities different projects offer, and on the need to assess and filter the information retrieved so as to fit our questions and goals. A very significant outcome of this research has been the realization of the need to be explicit regarding 1) the relationship between data and interpretations and 2) on the kind of information we need to produce and publish from landscape research so that we promote archaeological knowledge and allow a higher level of communication within the archaeological community.

7.2 The Need to Integrate Archaeological Landscape Research Data

It is beyond doubt that landscape archaeology and in particular modern intensive survey projects are an indispensable tool in the study of regional histories and the uncovering of socio-cultural processes. Through regional surveys we can study relationships between different kinds of human activity and the physical landscape, identifying patterns or lack of patterns, and assessing variability over space and time. We can also study relationships between socio-cultural expressions, space and time, as well as the survival of their material signature over time. It has to be acknowledged that a significant part of human activities is inscribed in the landscape, and it is through such inscriptions that we may guess social, economic, political and ideological conceptuality and practices. Regional surveys illuminate factors that contribute to the construction of cultural landscapes (from the expression of a religious feeling to subsistence potential) and allow a great flexibility in studying space through time and vice versa. A landscape ecological approach that seeks to understand the multi-scalar and polymorphic interrelationships between man and environment in multiple time and space levels, and which in fact studies the physical and the cultural landscape as a unity and not as two separate entities that are connected, offers better chances in acquiring some understanding of social processes.

The revolutionary character of regional surveys in archaeological interpretation is not equated simply to the greater number of sites that we are able to recover, even though site densities per period has been the principal interpretative platform. In fact, it is site densities that support patterns of nucleation / dispersal, population numbers, agricultural intensification, trends in locational preferences and hierarchy, which in turn are used to describe economic processes and socio-political structures. However, social explanation and change can not be studied purely on quantitative measures, on the contrary, unless we use sufficiently the qualitative nature of the data we collect, we are likely to be led to wrong conclusions. At the same time we need to explore multiple time scales as it is within temporal diversity that human beings, societies and landscapes are born and evolve. It is not enough to know how many sites occur per period; we need to know how many of what kind, what duration and why. To be able to extract all this information from the surface record would of course be ideal, but it is hardly feasible due to the fragmentary nature of survey data. However, we should try to approach such questions by exploiting to the best of our potential the wide variety of opportunities that archaeological landscape research offers.

Furthermore, one of the most significant attributes of modern Landscape Archaeology is that it has promoted regional and inter-regional comparisons, which allow us to ask complex questions looking at trajectories over wider spatial scales. In fact, unless we compare identified patterns with those of other regions, we are likely to be restricted to the description of patterns / trends, but not be able to approach in-depth explanations. Historical developments do not concern isolated spatial windows, which coincide with survey boundaries. At any rate, whether we want to understand historical processes in a specific region or view regional processes within a wider inter-regional framework, it is necessary to be able to understand and assess the relationship between survey data and interpretations and also to be able to integrate them with those from other surveys.

7.3 Problems in Data Integration

The merits of combining data and interpretations from different surveys for the reconstruction of larger social schemes, have of course increased the desire to do so and this is apparent in two ways: on one hand there are more synthetic works that explore patterns and developments across regions; in Crete, most archaeologists compare the results of their landscape research with those from other surveys and comment on similar trajectories across the island or identify regional variation. On the other hand, there is a growing awareness of the problems that different methods cause in data integration and researchers commend on the need to produce data that is comparable (Cherry 2004; Millett 2000). Integrability problems, however, relate as much to different methods, concepts and approaches, as to their inadequate publication.

7.3.1 Methodological variability

Since the first days of systematic intensive surveys there have been numerous discussions on appropriate methods, site definition and the assessment of recoverability. It is now acknowledged that geomorphological studies illuminate episodes that may hide remains of human activity of certain periods, while the evaluation of visibility allows an assessment of pottery/finds recoverability. Likewise, sampling can help us define sites in relation to off-site activity, assess bias, extrapolate patterns and study intensity and nature of landscape use, as well as on-site changes over time. By default, the data collected in interdisciplinary projects have greater potential and differ from those of more traditional approaches (e.g. walking the landscape intensively but without sampling). However, different scales of collection and analysis cause integrability problems even within the same project and there are researchers who explore various techniques and methods in search of a solution (Bevan and Conolly: KIP web site).

There could of course be various suggestions regarding methods and approaches in the recording of the off-site and on-site record, the study of the environment and its relationship with material remains, the collaboration with other disciplines or the application of analytical techniques. However, it is not my purpose here to discuss and compare different methodologies. We will never have the same methods applied, sometimes not even within the same survey, and in fact methodological diversity is often dictated by the nature of research questions, as well as funding, time available, understanding of survey methods, difficulty of the landscape and potential for interdisciplinarity. To my opinion, a problem of higher priority we need to cope with, is that methodology, data and interpretations are not published in a consistent manner with the goal to exemplify how they interrelate.

7.3.2 Lack of publication standards

To elucidate man-environment interrelationships over time and study social structures and changes, we need to understand landscape data and their potential to lead to interpretative schemes. There is an urgent need for some explicitness in definitions and data presentation, so that we understand what different concepts mean for different people (e.g. ‘site’ or a specific function such as farmstead) and how data are linked to interpretations.

Usually, reports present an inconsistent description of observations, which are not always clearly linked to interpretations. The fact that there are not some standards regarding presentation, results to the omission of important information. Thus, we usually do not know the exact area that has been surveyed or how precision relates to the recovery of different sites. We also do not know how site sizes change over time and what ranges of data quantity and quality are used to conclude on a specific function and chronology. Various terms are used with no explicit definition of what they mean and the same term may be used with different meanings in different periods. Quite often, it is extremely difficult to be confident of what researchers actually suggest, if they express certainty regarding an interpretation or if they do not know. However, to be able to integrate interpretations from different projects and assess whether we agree or not, it is necessary to obtain full understanding of what these essentially mean.

7.4 Towards a Meaningful Publication of Survey. Data and Interpretations

Landscape archaeology is supposed to aim at the reconstruction of social histories and not at static landscape pictures in chronological order. Interpretations may in fact discuss complex social relationships and indeed illuminate ancient societies, but it is of ultimate importance to understand what data are used to result to specific interpretations, and how these are interlinked in larger interpretative schemes. In other words, archaeological presentation should clarify the relationship between data observed and interpretations suggested. As a result of my attempt to understand interpretations from different survey projects and assess their integrability, I present a summary of suggestions regarding the information we need to know:

- A clear definition of research aims and problem orientation as well as of theoretical background. Also, a clear description of methodology and a discussion on its potential and restrictions, relevant to specific aims.
- Off-site and on-site walking and collection techniques and an assessment of their potential. The choice to use diverse methods should be explained and its probable impact on results assessed. We need to understand when techniques change and why, and how they may relate to data observed. A relevant issue is visibility. It should be clear how it is assessed and ideally it should be a variable relevant to material classes and not just a constant equated with vegetation coverage applied invariably to all classes of data. In any case, the most important thing we need to know is how it is used in relation to density counts and how the recoverability of certain sites and classes of data is assessed.
- The size of the sampled population, which may be only a small proportion of the target. Also, the precision of the surface seen, as it relates to the degree of recovery of different sites depending on their size. Precision is relevant to number of walkers, time spent on the field and walking interval. If appropriate, it should be given in ranges.
- Off-site and on-site densities. The latter should relate to sites of different function and chronology, and thus in multi-period sites on-site density should be estimated for all the different periods. It is important to have a range and average density for sites of different function and chronology.
- Site sizes per chronological and functional class used.
- As well as quantitative, we need the qualitative criteria used to infer site characterisations, e.g. environmental and landuse observations. There must be a clear understanding of how much and what kind of data lead to a specific interpretation. We should remember that a Minoan farm (for example) is not data, but an interpretation, linked to various observations.
- Since site concepts are used to describe socio-economic structures, we need clear definitions for the different chronological and functional interpretations used, which in fact may vary from period to period. Definitions, should not only explain their relationship to quantity and quality of data, but their meaning in relation to regional socio-political and economic patterns described. For example what does

a hamlet mean in socio-economic terms in a specific chronological framework and what is the difference between a farm and a metochi in the same and in different periods? What is to be said regarding a site's life-cycle, a permanent, temporary and seasonal use? Controversial terms such as 'farmstead' without further explanation of how the term is conceived can be rather problematic. 'Farmsteads' are usually compared with contemporary 'metochia', which however are of seasonal use and can not be used to boost population numbers; On the other hand, the ethnographic record shows that there are several sites in the countryside used temporarily or seasonally, which can greatly enhance our understanding of the relevant societies.

- Classes of function and chronology should be presented in multiple scales of resolution. For this, a similar methodology to the one followed in the 'Chronology/Functions' table of the 'Surveys' database is proposed, but at a better precision. If we are able to distinguish a CL burial in a 'GR settlement and burial' site, the site should be classified in both finer and more general classes of function and chronology. Function classes should include all levels and scales of human activity, from habitation to industrial, religious and ideological proliferation. The temporal component should be respected and classes should relate to the social aspects we study.
- Doubtful chronology and function interpretations as well as unknown should be treated as separate classes. Possible interpretative models should respect the variability of site characterisations, whether certain, possible or unknown and explore various models of explanation.
- Chronological and function interpretations should separate between sites on the regional scale and 'sites' on the site level. We need to distinguish between interpretations that illuminate regional use of the landscape and those that shed light into site organisation and history. Obviously, if a site catalogue includes e.g. 10 'sites' which are part of the same settlement, these can not be included in regional comparisons.
- Presentation should not be reduced to 2-dimensional dot maps. If the landscape is studied as a 3-dimensional surface, we should be able to visualise it as such and explore variations in human activity across space regarding intensity, character, time and its relationships with geography and environment. Visualisation is an important part of understanding; therefore, it should represent interpretative schemes, even possible ones.
- The environmental data observed, should also be linked to interpretations diachronically and not be treated as a 'taken for granted' context of human activity, separate from the description of social systems.

Most current research within landscape archaeology tries to decipher social structures and processes that are inscribed in the landscape and which can be used to reveal past histories. For this reason it is important to study landscape evolution in its wholeness (as the complex relationship between its environmental and social components) and not simply record changes of site locations over 'stagnant' time slices. We have to remember that social dimensions do not equal spatial patterns. Sites cannot be treated as a homogenous entity whose spatial distribution and rough chronological classification constitutes the appropriate analytical tool to study social history. It is necessary to explore space and time relationships at a variety of levels, and achieve better theorization on our interpretative methodologies. Above all, we need to pursue clarity over assumptions and interpretations and communicate successfully what we study and why, presenting our interpretations in ways that they can be understood and meaningfully used by the wider academic community.

References

Adams, R. M.
1965 *Land Behind Baghdad: A History of Settlement in the Diyala Plains*. Chicago & London: University of Chicago Press.
1981 *Heartland of Cities: Surveys of Ancient Settlement and Land Use on the Central Floodlplain of the Eurphrates*. Chicago: University of Chicago Press.

Adams, R. M., and H. J. Nissen.
1972 *The Uruk Countryside: The Natural Setting of Urban Societies*. Chicago: University of Chicago Press.

Ahmad, E.
1952 Rural Settlement types in the Uttar Pradesh (United Provinces of Agra and Oudh). *Annals of the Association of American Geographers* 42:223-46.

Alcock, S. E.
1991 Urban Survey and the Polis of Phlius. *Hesperia* 60:421-463.
1993 *Graecia Capta. The Landscapes of Roman Greece*. Cambridge: Cambridge University Press.
1994 "Breaking up the Hellenistic World: Survey and Society," in *Classical Greece: Ancient Histories and Modern Archaeologies*. Edited by I. Morris, pp. 171-190. Cambridge: Cambridge University Press.
2002 *Archaeologies of the Greek Past. Landscape, Monuments and Memories*. Cambridge: Cambridge University Press.

Alcock, S., and J. F. Cherry (eds)
2004 *Side-by-Side Survey: Comparative Regional Studies in the Mediterranean World*. Oxford: Oxbow.

Alcock, S. E., J. F. Cherry, and J. Davis
1994 "Intensive survey, agricultural practice and the classical landscape of Greece," in *Classical Greece. Ancient Histories and Modern Archaeologies*. Edited by I. Morris, pp. 137-170. Cambridge: Cambridge University Press.

Alcock, S. E., J. F. Cherry, and J. Elsner (eds)
2001 *Pausanias: Travel and Memory in Roman Greece*. Oxford: Oxford University Press.

Alexandri, A.
1994 *Gender symbolism in Late Bronze Age Aegean glyptic art*, Doctoral Dissertation. Department of Archaeology, University of Cambridge.

Allen, K. M. S., S. W. Green, and E. B. W. Zubrow (eds)
1990 *Interpreting Space: GIS and Archaeology*. London: Taylor & Francis.

Alsebrook, M.
1992 *Born to Rebel: the life of Harriet Boyd Hawes*. Oxford: Oxbow.

Ammermann, A. J.
1981 Surveys and Archaeological Research. *Annual Review of Anthropology* 10:63-88.
1985 Plow-zone experiments in Calabria, Italy. *JFA* 12:33-40.
2004 "Farewell to the Garden of Eden: survey archaeology after the loss of innocence," in *Archaeological Field Survey in Cyprus: Past History, Future Potentials*. Edited by M. Iacovou, pp. 177-182. Athens: British School at Athens, Studies II.

Ammermann, A. J., and S. Bonardi
1981 "Recent Developments in the Study of Neolithic Settlement in Calabria," in *Archaeology and Italian Society*. Edited by G. Barker and R. Hodges, pp. 335-42. Oxford: British Archaeological Reports (BAR International Series 102).

Angelomati-Tsoungarakis, E.
1990 *The Eve of the Greek Revival: British Travellers' Perceptions of Early 19th Century, Greece*. London, New York: Routledge.

Ashmore, W.
2002 "Social archaeologies of landscape," in *Companion to Social Archaeology*. Edited by L. Meskell and R. W. Preucel. Oxford: Blackwell.

Aston, M.
1985 *Interpreting the Landscape: Landscape Archaeology in Local Studies*. London: Batsford.
2002 *Interpreting the Landscape from the Air*. Oxford: Oxbow.

Attema, P., and M. van Leusen
2004 "Intraregional and interregional comparison of occupation histories in three Italian regions: the RPC project," in *Side-by-Side Survey: Comparative Regional Studies in the Mediterranean World*. Edited by S. E. Alcock and J. F. Cherry, pp. 86-100. Oxford: Oxbow.

Bailey, G. Editor
1997 *Klithi: Palaeolithic settlement and Quaternary landscapes in northwest Greece*. Vol. 2: Klithi in its local and regional setting. Cambridge: McDonald Institute for Archaeological Research.

Banning, E. B., A. Hawkins, and S. T. Stewart
2005 "Detection Functions in the Design and Evaluation of Pedestrian Surveys," *Announcement in the 32nd CAA conference, Prato, Italy, 2004.*

Barber, E. J. W.
1997 "Minoan women and the challenges of weaving for home, trade and shrine," in *TEXNH: Craftsmen, Craftswomen and Craftsmanship in the Aegean Bronze Age*. Edited by R. Laffineur and P. Betancourt, pp. 515-19. Liège and Austin: Université de Liège and University of Texas at Austin (Aegeum 16).

Barker, G.
1989 The archaeology of the Italian shepherd. *Transactions of the Cambridge Philological Society* 215:1-19.
1995 *A Mediterranean Valley: Landscape Archaeology and Annales History in the Biferno Valley*. London: Leicester University Press.
2000 Hidden Prehistoric Landscapes: An Italian Perspective. *JMA* 13:100-102.

Barker, G., and J. A. Lloyd. Editors.
1991 *Roman Landscapes. Archaeological Survey in the Mediterranean Region*. London: British School at Rome.

Barker, G. and J. Symonds
1984 "The Montarenti Survey, 1982-83", in *Il progetto Montarrenti (Si). Relazione Preliminare,* Archeologia Medievale 11. Edited by V. Bartoloni *et al.*., pp. 255-295.

Barrett, J. C., R. Bradley, and M. Green.
1991 *Landscape, Monuments and Society: The Prehistory of Cranborne Chase*. Cambridge: Cambridge University Press.

Barrett, J. C.
1998 "Chronologies of landscape," in *The Archaeology and Anthropology of Landscape*. Edited by P. Ucko and R. Layton, pp. 21-30. London: Taylor and Francis.

Barth, F.
1950 Ecologic adaptation and cultural change in archaeology. *American Antiquity* 15:338-39.

Bayliss-Smith, T.
1988 "Prehistoric agriculture in the New Guinea Highlands: problems in defining the altitudinal limits to growth," in *Conceptual Issues in Environmental Archaeology*. Edited by J. L. Bintliff, D. Davidson, and E. Grant. Edinburgh: University Press.

Belon, Pierre du Mans.
1555 *Les observations de plusieurs singularités et choses mémorables, trouvées en Grèce, Asie, Judée, Egypte, Arabie, et autre pays étranges*. Antwerp: Plantin Press.

Bender, B.
1992 Theorizing landscapes and the prehistoric landscapes of Stonehenge. *Man* 27:735-55.

Bennet, J., and S. Voutsaki
1991 "A Synopsis and Analysis of Travellers' Accounts of Keos (to 1821)," in *Landscape Archaeology as Long-Term History: Northern Keos in the Cycladic Islands from Earliest Settlement until Modern Times*. Edited by J. F. Cherry, J. L. Davis, and E. Mantzourani, pp. 365-382. Los Angeles: Institute of Archaeology, University of California.

Bennet, J., J. L. Davis, and F. Zarinebaf-Shahr
2000 Pylos Archaeological Project, Part III. Sir William Gell's Itinerary in the Pylia and Regional Landscapes in the Morea in the Second Ottoman Period. *Hesperia* 69:343-380.

Bevan, A.
2002 The Rural Landscape of Neopalatial Kythera: A GIS Perspective. *JMA* 15(2):217-55.

Bevan, A., and J. Conolly
2003 GIS, Archaeological Survey, and Landscape Archaeology on the Island of Kythera, Greece. *JFA* 29:123- 138.
2003 GIS and Scale Issues. http://www.ucl.ac.uk/kip/gis_scale.php

Binford, L. R.
1964 A consideration of archaeological research design. *American Antiquity* 29:425-441.
1996 "Willow Smoke and Dogs' Tails: Hunter-Gatherer Settlement Systems and Archaeological Site Formation," in *Contemporary Archaeology in Theory: A reader*. Edited by R. W. Preucel and I. Hodder, pp. 39-60. Oxford: Blackwell.

Bintliff, J. L.
1977 Natural Environment and Human Settlement in Prehistoric Greece. *BAR* Suppl. Ser. 28 (1-2).
1984 Structuralism and myth in Minoan studies. *Antiquity* 58:33-40.
1994 "The history of the Greek countryside: As the wave breaks, prospects for future research," in *Structures Rurales et Sociétés Antiques: Actes du colloque de Corfou 14-16 mai 1992*. Edited by P. Doukellis and L. Mendoni, pp. 7-15. Paris: Annales Littéraires de l'Université de Besançon 508: Les Belles Lettres.
1997 Regional Survey, Demography and the Rise of Complex Societies in the Ancient Aegean: Core-Periphery, Neo-Malthusian, and Other Interpretative Models. *JFA* 24:1-38.
1999 The Ottoman Era in the Context of Long-Term Settlement History. A Case-Study: The Archaeological Survey of the Valley of the Muses, Boeotia, Greece. *Arab Historical Review for Ottoman Studies* 19-20:203-229.
2000a. "Reconstructing the Byzantine Countryside: New Approaches from Landscape Archaeology," in *Byzanz als Raum: Zu Methoden und Inhalten der Historischen Geographie des östlichen Mittelmeerraumes*. Edited by K. Belke, H. Hild, J. Koder, and P. Soustal, pp. 37-55. Wien: Verlag der Österreichischen Akademie der Wissenschaften.
2000b Deconstructing 'The sense of Place'? Settlement Systems, Field Survey, and the Historic Record: a Case-study from Central Greece. *Proceedings of the Prehistoric Society* 66:123-149.

Bintliff, J. L. (ed)
1991 *The Annales School and Archaeology*. London, New York: Leicester University Press.

Bintliff, J. L., and A. M. Snodgrass.
1985 The Cambridge/Bradford Boeotian Expedition: The First Four Years. *JFA* 12:123-161.
1988a Off-site pottery distributions: A regional and interregional perspective. *Current Anthropology* 29:506-13.
1988b Mediterranean Survey and the City. *Antiquity* 62:57-71.

Bintliff, J. L., D. Davidson, and E. Grant (eds)
1988 *Conceptual Issues in Environmental Archaeology*. Edinburgh: University Press.

Bintliff, J. L., and V. Gaffney
1988 "The Ager Pharensis / Hvar Project 1987," in *Recent Developments in Yugoslav Archaeology*. Edited by J. C. Chapman, J. L. Bintliff, V. Gaffney, and B. Slapsak, pp. 151-175. Oxford: BAR International Series 431.

Bintliff, J. L., and P. Howard
1999 Studying Needles in Haystacks: Surface survey and the rural landscape of Central Greece in Roman times. *PHAROS: Journal of the Netherlands Institute at Athens* 7: 51-91.

Bintliff, J. L., P. Howard, and A. M. Snodgrass
1999 The hidden landscape of prehistoric Greece. *Journal of Mediterranean Archaeology* 12:139-68.

Bintliff, J. L., and K. Sbonias (eds)
1999 *Mediterranean Landscape Archaeology 1: Reconstructing Past Population Trends in Mediterranean Europe (3000 BC-AD 1800)*. Oxford: Oxbow.
2000 "Demographic and ceramic analysis in regional survey," in *Extracting Meaning from Ploughsoil Assemblages*, vol. 5, *The Archaeology of Mediterranean Landscapes*. Edited by R. Francovich and H. Patterson, pp. 244-258. Oxford: Oxbow

Bintliff, J. L., M. Kuna, and N. Venclova (eds)
2000a *The Future of Surface Artefact Survey in Europe*. Sheffield: Sheffield Academic Press.

Bintliff, J. L., E. Farinetti, K. Sbonias, L. Sigalos, and B. Slapsak
2000b The Tanagra Survey. Report on the 2000 season. *PHAROS: Journal of the Netherlands Institute at Athens* 8:93-127.

Blackman, D., and K. Branigan
1977 An Archaeological Survey of the Lower Catchment of the Ayiofarango Valley. *BSA* 72:13-84.

Blanton, R. E.
2000 *Hellenistic, Roman and Byzantine Settlement Patterns of the Coast Lands of Western Rough Cilicia*. Oxford: BAR International Series 879.

Blanton, R. E., S. A. Kowalewski, G. A. Feinman, and J. Appel
1982 *Ancient Mesoamerica: A Comparison of Change in Three Regions*. Cambridge: Cambridge University Press.

Bodnar, E. W., and C. Foss
2003 *Ciriaco d'Ancona, 1391 - 1452*. Cambridge, Mass: Harvard University Press.

Boismier, W. A.
1991 "The role of research design in surface collection," in *Interpreting Artefact Scatters: Contributions to Ploughzone Archaeology*. Edited by A. J. Schofield, pp. 11-25. Oxford: Oxbow.

Bory, de Saint-Vincent, Jean Baptiste Geneviève Marcellin, baron and Puillon Boblaye E.
1831-38. *Commission Scientifique de Moree: Section des Sciences Physiques*. Paris, Strasbourg: Chez F.G. Levrault. 4 vols. Relation, Géographie, Géologie, et Minéralogie, Zoologie, Botanique. Atlas.

Bottema, S., G. Entjes-Nieborg, and W. van Zeist (eds)
1990 *Man's Role in the Shaping the Mediterranean Landscape*. Rotterdam and Brookfield: A.A. Balkema

Bourdieu, P.
1984(79) *Distinction: A Social Critique of the Judgement of Taste*. London: Routledge.

Bowden, M. C., S. Ford, V. Gaffney, and M. Tingle
1991 "Skimming the surface or scraping the barrel: a few observations on the nature of surface and sub-surface archaeology," in *Interpreting Artefact Scatters: Contributions to Ploughzone Archaeology*. Edited by A. J. Schofield, pp. 107-16. Oxford: Oxbow.

Brady, J. E., and W. Ashmore
1999 "Mountains, Caves, Water: Ideational Landscapes of the Ancient Maya," in *Archaeologies of Landscapes: Contemporary Perspectives*. Edited by W. Ashmore and B. A. Knapp. Oxford: Blackwell.

Braidwood, R. J., and B. How
1960 *Prehistoric Investigations in Iraqui Kurdistan*. Chicago: University of Chicago Press.

Branigan, K.
1970 *The tombs of Mesara: a study of funerary architecture and ritual in southern Crete, 2800-1700 B.C.* London: Duckworth.

Braudel, F.
1949 *La Méditerranée et le monde méditerranéen a l'époque de Philippe II*. Paris: A. Colin.

Buondelmonti, C.
1897 (in Crete 1414-1418). *Description des Iles de l'Archipel.* Paris: Ernest Leroux.
1983 Ένας γύρος της Κρήτης στα 1415: *Christoforo Buondelmonti,* περιγραφή της νήσου Κρήτης *(in Crete ci. 1385-1430)*. Edited by S. Alexiou and M. Aposkiti. Ηράκλειον: Σύλλογος Πολιτιστικής Ανάπτυξης Ηρακλείου.

Butzer, K.
1971 *Environment and Archaeology: An Ecological Approach to Prehistory*. Chicago: Aldine.
1982 *Archaeology as Human Ecology: method and theory for a contextual approach*. Cambridge, New York: Cambridge University Press.

Cadogan, G.
2004 "Hector Catling and the Genesis of the Cyprus Survey," in *Archaeological Field Survey in Cyprus: Past History, Future Potential. Proceedings of a Conference held by the Archaeological Research Unit of the University of Cyprus, 1-2 December 2000*. Edited by M. Iacovou, pp.17-22. London: British School at Athens, Studies II.

Caraher, W. R., D. Nakassis, and D. K. Pettegrew
2006 Siteless Survey and Intensive Data Collection in an Aritifact-Rich Environment: Case Studies from the Eastern Corinthia, Greece. *JMA* 19:7-43.

Cary, M.
1949 *The Geographic Background of Greek and Roman History*. Oxford: Clarenton Press.

Catling, H. W.
1962 Patterns of settlement in Bronze Age Cyprus. *Opuscula Atheniensia* 4:129-69.

Cherry, J. F.
1982 "A Preliminary Definition of Site Distribution on Melos," in *An Island Polity: The Archaeology of Exploitation in Melos*. Edited by A. C. Renfrew and M. Wagstaff, pp. 10-23. Cambridge: Cambridge University Press.
1983 "Frogs round the pond: perspectives on current archaeological survey projects in the Mediterranean region," in *Archaeological Survey in the Mediterranean Area*, Edited by D. R. Keller and D. W. Rupp, pp. 375-416. Oxford: BAR International Series 155.
1984 Common Sense in Mediterranean Survey. *JFA* 11:117-20.
1994 "Regional Survey in the Aegean: The 'New Wave' (and After)," in *Beyond the Site. Regional Studies in the Aegean Area*. Edited by P. N. Kardulias, pp. 91-112. Lanham , NY, London: University Press of America.
2004 "Cyprus, the Mediterranean, and Survey," in *Archaeological Field Survey in Cyprus: Past History, Future Potentials*. Edited by M. Iacovou, pp. 23-35. London: British School at Athens, Studies II.

Cherry, J. F., and S. J. Shennan
1978 "Sampling Cultural Systems: Some Perspectives on the Application of Probabilistic Regional Survey in Britain," in *Sampling in Contemporary British Archaeology*. Edited by J. F. Cherry, C. Gamble, and S. J. Shennan, pp. 17-48. Oxford: British Archaeological Reports BS 50.

Cherry, J. F., C. Gamble, and S. J. Shennan (eds)
1978 *Sampling in Contemporary British Archaeology*. Oxford: British Archaeological Reports BS 50.

Chevallier, R.
1957 *Bibliographie des Applications archéologiques de la Photographie Aérienne*. Milano: Fondazione Ing. C. M. Lerici.

Childe, V. G.
1928 *The Most Ancient East: the oriental prelude to European prehistory*. London: Kegan Paul, Trench, Trubner.
1951 *Social Evolution*. New York: Henry Schuman.

Chisholm, M.
1968 *Rural Settlement and Landuse*, 2nd edition. London: Hutchinson.

Chorley, R. J., and B. A. Kennedy
1971 *Physical geography. A systems approach*. London: Prentice Hall.

Chrysoulaki, S.
1999 Minoan Roads and Guard Houses-War Regained. *Aegaeum* 19:75-85.

Clark, M. J.
1989 "Geography and Information Technology," in *Horizons in Human Geography*. Edited by D. Grecory and R. Walford, pp. 14-28. London: Macmillan Education Ltd.

Constantine, D.
1984 *Early Greek Travellers and the Hellenic Ideal.* Cambridge: Cambridge University Press.

Cosgrove, D.
1984 *Social Formation and the Symbolic Landscape*. London: Croom Helm.
1985 Prospect, perspective and the evolution of the landscape idea. *Trans. Inst. Br. Geogr* 10:45-62.
1989 "Geography is everywhere: culture and symbolism in human landscapes," in *Horizons in Human Geography*. Edited by D. Gregory and R. Walfred, pp. 118-35. London: Mcmillan.

Crawford, O. G. S.
1953 *Archaeology in the Field*. London.

Creutzburg, N.
1933 "Die Ländlichen Siedlungen der Insel Kreta," in *Die ländlichen Siedlungen in verschiedenen Klimazonen*. Edited by Klute. Breslau.

Crumley, C. L. (ed)
1994 *Historical Ecology: Cultural Knowledge and Changing Landscapes*. Santa Fe, New Mexico: School of American Research Press.

Crumley, C. L., and W.H. Marquardt (ed)
1987 *Regional Dynamics: Burgundian Landscapes in Historical Perspective*. San Diego: Academic Press.

Cunningham, T., and J. Driessen
2004 "Site by site: combining survey and excavation data to chart patterns of socio-political change in Bronze Age Crete," in *Side-by-Side Survey: Comparative Regional Studies in the Mediterranean World*. Edited by S. E. Alcock and J. F. Cherry, pp. 101-113. Oxford: Oxbow.

Darwin, C.
1859 *On the Origins of Species*. London: John Murray.

Davaras, C.
1997 "The 'Cult Villa' at Makrygialos," in *The Function of the 'Minoan Villa': Proceedings of the eighth International Symposium at the Swedish Institute at Athens, 6-8 June 1992.* Edited by R. Hägg, pp. 117-135. Stockholm: Svenska Institutet i Athen.

Davaras, C., and P. Betancourt
2004 *The Hagia Photia Cemetery I: the tomb groups and architecture*. Philadelphia, PA: INSTAP Academic Press.

Davis, J. L.
2004 "Are the landscapes of Greek prehistory hidden? A comparative approach," in *Side-by-Side Survey: Comparative Regional Studies in the Mediterranean World*. Edited by S. E. Alcock and J. F. Cherry, pp. 22-35. Oxford: Oxbow.

De Silva, M.
2004 "Landscapes of the Past: the Maremma Regional Park and the Grosseto coastal Belt." *Announcement in the 32nd CAA conference, Prato, Italy, 2004*.

De Silva, M., and G. Pizziolo
2004 "GIS Analysis of Historical Cadastral Maps as a Contribution in Landscape Archaeology," in *Enter the Past: The E-way into the Four Dimensions of Cultural Heritage*. Edited by S. W. Magistrat der Stadt Wien Referat Kulturelles Erbe Stadtarchäologie Wien, pp. 294-298. Oxford: BAR International Series. Computer Applications and Quantitative Methods in Archaeology, Proceedings of the 31st Conference, Vienna, Austria, April 2003.

Depping, G. B.
1830 La Grèce, ou Description topographique de la Livadie, de la Morée et de L'Archipel. Paris

Dewar, R. E.
1992 Incorporating variation in occupation in settlement-pattern analysis. *American Antiquity* 56 (4):604-620.

Dewar, R. E., and K. A. McBride
1992 "Remnant Settlement Patterns," in *Space, Time and Archaeological Landscapes*. Edited by J. Rossignol and L. A. Wandsnider, pp. 227-255. New York: Plenum Press.

Diacopoulos, L.
2004 Investigating Social Complexity through Regional Survey: Second-Generation Analysis of Bronze Age Data from the Canadian Palaipaphos Survey Project, Southwestern Cyprus. *JMA* 17 (1):59-85.

Dobres, M.-A., and J. Robb
2000 *Agency in Archaeology*. London, New York: Routledge.

Dosse, F.
1994 *The New History in France: The Triumph of the Annales*. Place: University of Illinois Press.

Driessen, J.
2001 "History and Hierarchy. Preliminary Observations on the Settlement Pattern of Minoan Crete.," in *Urbanism in the Aegean Bronze Age*. Edited by K. Branigan, pp. 51-71. Sheffield: Sheffield Academic Press.

Driessen, J., and C. F. Macdonald (eds)
1998 *The Troubled Island. Minoan Crete before and after the Santorini Eruption* (*Aegeum 17*). Liège: Université de Liège.

Driessen, J., I. Schoep, and R. Laffineur (eds)
2002 *Monuments of Minos. Rethinking the Minoan Palaces* (*Aegeum 23*). Proceedings of the international workshop "Crete of the hundred palaces?" held at the Université Catholique De Louvain, Louvain-la-Neuve, 14-15 December 2001, Liège: Université de Liège.

Doumas, C.
1976 Προϊστορικοί Κυκλαδίτες στην Κρήτη. *AAA* 9:69-79.
1979 Προϊστορικοί Κυκλαδίτες στην Κρήτη. II. *AAA* 12:104-9

Dunnell, R. C.
1980 "Evolutionary Theory and Archaeology," in *Advances in Archaeological Method and Theory*, vol. 3. Edited by M. Schiffer, pp. 35-99. New York: Academic Press.
1992 "The notion of site," in *Space, Time and Archaeological Landscapes*. Edited by J. Rossignol and L.A. Wandsnider, pp. 21-41. New York, London: Plenum Press.

Dunnell, R. C., and W. S. Dancey
1983 "The Siteless Survey: A Regional Scale Data Collection Strategy," in *Advances in Archaeological Method and Theory*, vol. 6. Edited by M. Schiffer, pp. 267-287. New York: Academic Press.

Dunnell, R. C., and J. F. Simek
1995 Artefact Size and Plowzone Processes. *JFA* 22:305-319.

Dyson, S. L.
1982 Archaeological Survey in the Mediterranean Basin: A Review of Recent Research. *American Antiquity* 47:87-98.

Elsner, J.
1994 "From the pyramids to Pausanias and Piglet: monuments, travel and writing," in *From the pyramids to Pausanias and Piglet: monuments, travel and writing*. Edited by S. Goldhill and R. Osborne, pp. 224-254. Cambridge: Cambridge University Press.

Etienne, R., and F. Etienne
1992 *The Search for Ancient Greece*. London: Thames and Hudson/New horizons.

Evans, A.
1896 Explorations in Eastern Crete. *Academy* June 20:513.
1921-35 *The palace of Minos: a comparative account of the successive stages of the early Cretan civilization as illustrated by the discoveries at Knossos*. Vol: I-V, London: MacMillan and Co.

Evans, J. G.
2003 *Environmental Archaeology and the social order*. London and New York: Routledge.

Fairen, S.
2004 "Mobility, Visibility and the Distribution of Schematic Rock Art in the Central Mediterranean Coast of Spain." *Announcement in the 32nd CAA conference, Prato, Italy, 2004*.

Fasham, P. J., R. T. Schadla-Hall, S. J. Shennan, and P. J. Bates
1980 *Fieldwalking for archaeologists*. UK: Hampshire Field Club and Archaeological Society.

Fentress, E.
2000 "What are we counting for?," in *Extracting Meaning from Ploughsoil Assemblages*, vol. 5, *The Archaeology of Mediterranean Landscapes*. Edited by R. Francovich and H. Patterson, pp. 44-52. Oxford: Oxbow.

Fish, S. K., and S. A. Kowalewski (eds)
1990 *The Archaeology of Regions: A Case for Full-Coverage Survey*. Washington, London: Smithsonian Institution Press.

Fitton, J. L.
1996 *The discovery of the Greek Bronze Age*. Cambridge, Massachusetts: Harvard University Press.

Flannery, K. V.
1972 The cultural evolution of civilizations. *Annual Review of Ecology and Systematics* 3:399-426.

Flannery, K. V. (ed)
1976 *The Early Mesoamerican Village*. London: Academic Press.

Foley, R.
1981 "Off-site archaeology: an alternative approach for the short-sighted," in *Pattern of the past: studies in honour of David Clarke*. Edited by I. Hodder, G. Isaac, and N. Hammond, pp. 157-84. Cambridge: Cambridge University Press.

Fotiadis, M.
1995 Modernity and the Past-Still-Present: Politics of Time in the Birth of Regional Archaeological Projects in Greece. *AJA* 99:59-79.

Fox, C.
1932 *The personality of Britain: Its influence on inhabitant and invader in prehistoric and early historic times*. Cardiff: National Museum of Wales.

Foxhall, L.
2000 The Running Sands of Time: Archaeology and the Short-Term. *World Archaeology* 31(3): 484-498.
2001 Colouring in the Countryside. Response to David K. Pettegrew 'Chasing the Classical Farmstead'. *JMA* 14:216-222.

Francovich, R., and H. Patterson (eds)
2000 *Extracting Meaning from Ploughzone Assemblages*. *The Archaeology of Mediterranean Landscapes*. Oxford: Oxbow.

Friedman, J.
1982 "Catastrophy and continuity in social evolution," in *Theory and Explanation in Archaeology*. Edited by A. C. Renfrew, pp. 175-196. New York: Academic Press.

Friedman, J., and M. J. Rowlands (eds)
1978a *The Evolution of Social Systems*. London: Duckworth.

Friedman, J., and M. J. Rowlands
1978b "Notes towards an epigenetic model of the evolution of 'civilization'," in *The Evolution of Social Systems. Fifth Research Seminar in Archaeology and Related Subjects, University of London*. Edited by J. Friedman and M. J. Rowlands, pp. 201-276. Pittsburg: University of Pittsburg Press.

Frieseman, H.
1789 *Description historique et géographique de l'Archipel*. Neuwied sur le Rhin: Société Typographique.

Gaffney, V.
2000 "Ceramics and the site: is survey enough?," in *Extracting Meaning from Ploughsoil Assemblages*, vol. 5, *The Archaeology of Mediterranean Landscapes*. Edited by R. Francovich and H. Patterson, pp. 29-43. Oxford: Oxbow.

Gaffney, V. L., J. L. Bintliff, and B. Slapsak
1991 "Site Formation Processes and the Hvar Survey Project, Yugoslavia," in *Interpreting Artefact Scatters: contributions to ploughzone archaeology*. Edited by A. J. Schofield, pp. 59-77. Oxford: Oxbow.

Gaffney, V., and P. M. van Leusen
1995 "Postcript-GIS, environmental determinism and archaeology: a parallel text," in *Archaeology and Geographical Information Systems: A European Perspective*. Edited by G. Lock and Z. Stancic. Pp. 367-380. London: Taylor and Francis.

Galaty, M. L.
2005 European Regional Studies: A Coming of Age? *Journal of Archaeological Research* 13:291-336.

Gallant, T. W.
1986 'Background noise' and site definition: A contribution to survey methodology. *JFA* 13:403-18.

Gallis, K. I.
1992 *`Ατλας προϊστορικών οικισμών της Ανατολικής Θεσσαλικής πεδιάδας*. Λάρισα: Εταιρεία Ιστορικών Ερευνών Θεσσαλίας.

Gell, W.
1804 *The Topography of Troy and its Vicinity, Illustrated and Explained by Drawings and Descriptions*. London.
1819 *The Itinerary of Greece, Containing 100 Routes in Attica, Boeotia, Phocis, Locris, and Thessaly*. London.

Gerritsen, F.
2003 *Local Identitites: Landscape and Community in the Late Prehistoric Meuse-Demer-Scheldt Region*. Amsterdam Archaeological Series 9. Amsterdam: University of Amsterdam.

Giddens, A.
1984 *The constitution of society : outline of the theory of structuration*. Cambridge: Polity Press.

Gillings, M., and G. T. Goodrick
1996 Sensuous and Reflexive GIS: Exploring Visualization and VRML. *Internet Archaeology* 1:(http://intarch.ac.uk/journal/issue1/gillings_toc.html).

Given, M., and A. B. Knapp (eds)
2003 *The Sydney Cyprus Survey Project: Social Approaches to Regional Archaeological Survey*. Los Angeles: Cotsen Institute of Archaeological Survey, University of California at Los Angeles.

Gojda, M.
2003 "Archaeology and Landscape Studies in Europe: Approaches and Concepts," in *People and Nature in Historical Perspective*. Edited by J. Laszlovszky and P. Szabo, pp. 35-51. Budapest: Central European University Department of Medieval Studies and Archaeolingua.

Gondica, D.
1995 Οι Ξένοι Ταξιδιώτες στην Κρήτη. 12os-17os. *Πεπραγμένα του Ζ' Διεθνούς Κρητολογικού Συνεδρίου* A1:163-72.

Gosden, C.
1994 *Social Being and Time*. Oxford: Blackwell.

Gsell, S.
1911 *Atlas archéologique de l'Algérie : édition spéciale des cartes au 200.000e du Service géographique de l'Armée avec un texte explicatif*. Paris: Fontemoing.

Hägg, R. (ed)
1997 *The Function of the 'Minoan Villa': Proceedings of the eighth International Symposium at the Swedish Institute at Athens, 6-8 June 1992*. Stockholm: Svenska Institutet i Athen.

Haggis, D.
1992 *The Kavousi-Thriphti Survey: An Analysis of Settlement Patterns in an Area of Eastern Crete in the Bronze Age and Early Iron Age*. PhD thesis, University of Minnesota.
2002 "Integration and Complexity in the Late Prepalatial Period: A View from the Countryside in Eastern Crete," in *Labyrinth Revisited: Rethinking 'Minoan' Archaeology*. Edited by Y. Hamilakis, pp. 120-142. Oxford: Oxbow.

Haggis, D., and M. Mook
1993 The Kavousi Coarse Wares: A Bronze Age Chronology for Survey in the Mirabello Area, East Crete. *AJA* 97:265-93.

Halstead, P.
1994 "The North-South Divide: Regional Paths to Complexity in Prehistoric Greece," in *Development and Decline in the Mediterranean Bronze Age*. Edited by C. Mathers and S. Stoddart, pp. 195-219. Sheffield: John Collis Press.

Halstead, P., and C. Frederick (eds)
2000 *Landscape and Land Use in Postglacial Greece*. Sheffield: Sheffield Academic Press.

Hamari, P.
2004 "Forestry GIS Applications-Protecting Archaeological Sites in Forested Areas." A*nnouncement in the 32nd CAA conference, Prato, Italy, 2004*.

Hamilakis, I.
1995 Μινωική Αρχαιολογία: προς μια κοινωνικοοικολογική προσέγγιση. *Πεπραγμένα Ζ' Διεθνούς Κρητολογικού Συνεδρίου* A2:981-1004.
1998 "Eating the dead: mortuary feasting and the politics of memory in the Aegean Bronze Age Societies"in *Cemetery and Society in the Aegean Bronze Age*. Edited by K. Branigan, pp. 115-32. Sheffield: Sheffield Academic Press.
2002 "What Future for the 'Minoan' Past?," in *Labyrinth Revisited. Rethinking 'Minoan' Archaeology*. Edited by Y. Hamilakis, pp. 2-28. Oxford: Oxbow.

Harris, D. R.
1977 "Alternative Pathways towards Agriculture," in *Origins of Agriculture*. Edited by C. A. Reed, pp. 179-243. The Hague: Mouton.

Haselgrove, C., M. Millett, and I. Smith (eds)
1985 *Archaeology from ploughsoil*. Sheffield: University of Sheffield, Department of Prehistory and Archaeology.

Hassan, F. A.
2004 "Ecology in Archaeology: From Cognition to Action," in *A Companion to Archaeology*. Edited by J. L. Bintliff, pp. 311-333. Oxford: Blackwell.

Hatzidakis, I.
1881 *Περιήγησις εις Κρήτην*. Ερμούπολη: Νικόλαος Βαρβαρέσος.
1888 *Κατάλογος των εν τω μουσείω του Φιλεκπαιδευτικού Συλλόγου Ηρακλείου αρχαιοτήτων ου προετάχθη η κατά το λήξαν έτος 1887 λογοδοσία του προέδρου Ιωσήφ Χατζιδάκη και περιγραφή του εν Αμνισώ σπηλαίου της Ειλειθυίας*. Ηράκλειο: Στυλιανός Αλεξίου.
1931 *Ιστορία του Κρητικού Μουσείου και των αρχαιολογικών ερευνών εν Κρήτη*. Αθήνα: Εστία.

Heidegger, M.
1977 "Building dwelling thinking," in *Martin Heidegger: Basic Writings*. Edited by D. F. Krell, pp. 319-40. London: Routledge and Kegan Paul.

Henshall, J. D.
1967 "Models of agricuiltural activity," in *Models in Geography*. Edited by R. J. Chorley and P. H. Haggett, pp. 425-58. London: Methuen.

Higgs, E. S.
1975 *Palaeoeconomy*. Cambridge: University Press.

Higgs, E. S.(ed)
1972 *Papers in Economic Prehistory*. Cambridge: Cambridge University Press.

Higgs, E. S., and C. Vita-Finzi
1972 "Prehistoric economies: a territorial approach," in *Papers in Economic Prehistory*. Edited by E. S. Higgs, pp. 27-36. Cambridge: Cambridge University Press.

Hodder, I.
2002 "The 'Social' in Archaeological Theory: An Historical and Contemporary Perspective," in *Companion to Social Archaeology*. Edited by L. Meskell and R. W. Preucel, pp. 23-42. Oxford: Blackwell.

Hodder, I., and C. Orton
1976 *Spatial Analysis in Archaeology*. Cambridge: Cambridge University Press.

Hodder, I., and C. Malone
1984 Intensive survey of prehistoric sites in the Stilo region, Calabria. *Proceedings of the Prehistoric Society* 50:121-50.

Hood, M. S. F.
1965 Minoan Sites in the Far West of Crete. *BSA* 60:99-113.
1967 Some Ancient Sites South-West Crete. *BSA* 62:47-56.
1983 "The 'Country House' and Minoan society," in *Minoan Society. Proceedings of the Cambridge Colloquium 1981*, pp. 131.

Hood, M. S. F., and P. M. Warren
1966 Ancient Sites in the Province of Ayios Vasilios, Crete. *BSA* 61:163-191.

Hood, M. S. F., P.M. Warren, and G. Cadogan
1964 Travels in Crete 1962. *BSA* 59:50-99.

Hope Simpson, R.
1965 *A gazetteer and atlas of Mycenaean sites*. London: Institute of Classical Studies.
1984 The analysis of data from surface surveys. *JFA* 11:115-17.

Hope Simpson, R., and O. Dickinson
1979 *A Gazetteer of Aegean Civilisation in the Bronze Age*. *Studies in Mediterranean Archaeology*. Goteborg: Paul Astroms Forlag.

Huxley, D. (ed)
2000 *Cretan Quests: British Explorers, Excavators and Historians*. London: British School at Athens.

Ingold, T.
1993 The temporality of landscape. *World Archaeology* 25:52-74.

Jameson, M. H.
1994 "Class in the ancient Greek countryside," in *Structures Rurales et Sociétés Antiques: Actes du colloque de Corfou 14-16 mai 1992*. Edited by P. Doukellis and L. Mendoni, pp. 55-64. Paris: Annales Littéraires de l'Université de Besançon 508: Les Belles Lettres.

Jameson, M. H., C. N. Runnels, and T. Van Andel
1994 *A Greek Countryside. The Southern Argolid from Prehistory to the Present Day'*. Stanford: University Press.

Jankuhn, H.
1977 *Einführung in die Siedlungsarchäologie*. Berlin and New York: Walter de Gruyter.

Jansen, M.
2004 "Archaeology and Indigenous Peoples: Attitudes towards Power in Ancient Oaxaca," in *A Companion to Archaeology*. Edited by J. L. Bintliff, pp. 235-252. Oxford: Oxbow.

Jarman, H. N.
1982 "The Lowlands," in *Early European Agriculture: its foundations and development: written in honour of Eric Higgs*. Edited by M. R. Jarman, G. N. Bailey, and H. N. Jarman, pp. 131-202. Cambridge, New York: Cambridge University Press.

Johnson, M.
1999 *Archaeological Theory: An Introduction*. Oxford, Massachusetts: Blackwell Ltd.
2004 "Archaeology and Social Theory," in *A Companion to Archaeology*. Edited by J. L. Bintliff, pp. 92-109. Oxford: Oxbow.

Kalton, G.
1983 *Introduction to Survey Sampling*. Newbury Park: Sage Publications.

Kamermans, H.
1995 "Survey sampling, right or wrong?" in *Proceedings of the Computer Applications and Quantitative Methods in Archaeology 1994.* Edited by J. Huggett & N. Ryan, pp. 123-126. Oxford: BAR International Series 600.
2000 "Land evaluation as predictive modelling: a deductive approach," in *Beyond the Map. Archaeology and Spatial Technologies*. Edited by G. Lock, pp. 124-146. Amsterdam: Nato Sciences Series, IOS Press.

Kamermans, H., J. Deeben, D. Hallewas, M. van Leusen, P. Verhagen, and P. Zoetbrood
2004 "Deconstructing the Crystal Ball: The State of the Art in Predictive Modelling for Archaeological Management in the Netherlands," in *Enter the Past: The E-way into the Four Dimensions of Cultural Heritage*. Edited by S. W. Magistrat der Stadt Wien Referat Kulturelles Erbe Stadtarchäologie Wien, on cd. Oxford: BAR International Series. Computer Applications and Quantitative Methods in Archaeology, Proceedings of the 31st Conference, Vienna, Austria, April 2003.

Kanta, A.
1980 *The Late Minoan III Period in Crete. A Survey of Sites, Pottery and Their Distribution*. Vol. 58. *SIMA*. Goteborg: Paul Astroms Forlag.

Kardulias, P. N. (ed)
1994 *Beyond the site: Regional Studies in the Aegean*. Boston: University Press of America.

Kardulias, P. N., and M. T. Shutes (eds)
1997 *Aegean Strategies: Studies of Culture and Environment on the European Fringe*. Lanham, Maryland: Rowman & Littlefiled Publishers.

Keay, *et al.*.
2000 Falerii Novi: A new survey of the walled area. *Papers of the British School at Rome* 68:1-93.

Keller, D. R., and D. W. Rupp (eds)
1983 *Archaeological Survey in the Mediterranean Area*. Oxford: BAR International Series 155.

Kenny, J., and W. G. Kilbride
2004 "Europe's Electronic Inheritance: The ARENA project and Digital Preservation in European Archaeology," in *Enter the Past: The E-way into the Four Dimensions of Cultural Heritage*, vol. 1227. Edited by R. K. E. Magistrat der Stadt Wien, Stadtarchaologie Wien, pp. 130-133. Oxford: BAR International Series. Computer Applications and Quantitative Methods in Archaeology, Proceedings of the 31st Conference, Vienna, Austria, April 2003.

Khalikiopoulos, Y
1903 *Sitia, die Osthalbinsel Kretas*. Berlin: *Veröffentlichungen des Institutes für Meereskunde* 4.

Kiel, M.
1997 "The Rise and Decline of Turkish Boeotia, 15th-19th Century (Remarks on the Settlement Pattern, Demography, and Agricultural Production according to Unpublished Ottoman-Turkish Census and Taxation Records)," in *Recent Developments in the History and Archaeology of Central Greece: Proceedings of the 6th International Boeotian Conference(BAR-IS 666)*. Edited by J. L. Bintliff, pp. 315-358. Oxford: BAR International Series

Kintigh, K. W.
1990 "Comments on the Case for Full-Coverage Survey," in *The Archaeology of Regions: A Case for Full-Coverage Survey*. Edited by S. K. Fish and S. A. Kowalewski, pp. 237-242. Washington, London: Smithsonian Institution Press.

Kirch, P. V.
1981 "The Archaeological Study of Adaptation: Theoretical and Methodological Issues," in *Advances in Archaeological Method and Theory*, vol. 3. Edited by M. Schiffer, pp. 101-155. New York, London: Academic Press.

Kirsten, E., H. Lehmann, and A. Philippson
1956 *Die griechische Polis als historisch-geographisches Problem des Mittelmeerraumes*. Bonn: In Kommission bei Ferd. Dummler.

Knapp, A. B.
1992a *Archaeological Annales and Ethnohistory*. Cambridge: Cambridge University Press.
1992b "Archaeology and Annales: time, space and change," in *Archaeological Annales and Ethnohistory*. Edited by A. B. Knapp, pp. 1-21. Cambridge: Cambridge University Press.
2003 The archaeology of community on Bronze Age Cyprus: Politiko Phorades in context. *AJA* 107:559-580.

Knapp, A. B., and W. Ashmore
1999 "Archaeological Landscapes: Constructed, Conceptualised, Ideational," in *Archaeologies of Landscapes: Contemporary Perspectives*. Edited by W. Ashmore and A. B. Knapp. Pp. 1-30 Oxford: Blackwell.

Knapp, A. B., and M. Given
2004 "Social Landscapes and Social Space: the Sydney Cyprus Survey Project," in *Archaeological Field Survey in Cyprus: Past History, Future Potentials*. Edited by M. Iacovou. Pp. 77-93. London: British School at Athens, Studies II.

Knappett, C.
1999 Assessing a Polity in Protopalatial Crete: The Malia-Lasithi State. *AJA* 103:615-639.

Konstantinidis, D.
2004a "Monitoring Archaeological Sites along the New Via Egnatia." *Announcement in the 32nd CAA conference, Prato, Italy, 2004*.
2004b "The Interconnectivity of Cultural Sites: Sights and Sounds across a Landscape," in *Enter the Past: The E-way into the Four Dimensions of Cultural Heritage*, vol. 1227. Edited by S. W. Magistrat der Stadt Wien Referat Kulturelles Erbe Stadtarchäologie Wien, pp. 258-262. Oxford: BAR International Series.

Kopaka, K.
1995 Ο Μίνως Καλοκαιρινός και οι πρώτες ανασκαφές στην Κνωσό.*Πεπραγμένα Ζ' Διεθνούς Κρητολογικού Συνεδρίου* Α:501-511.

Kotsakis, K.
1991 "The powerful past: Theoretical trends in Greek archaeology," in *Archaeological Theory in Europe. The last three decades*. Edited by I. Hodder, pp. 65-90. London: Routledge.

Kuhn, T.S.
1962 *The Structure of Scientific Revolutions*. Chicago: University of Chicago Press

Kuna, M.
1991 The Structuring of Prehistoric Landscape. *Antiquity* 65:332-47.
1998 "The memory of landscapes," in *Space in Prehistoric Bohemia*. Edited by E. Neustupny, pp. 106-115. Prague: Institute of Archaeology.
2000 "Surface Artefact Studies in the Czech Republic," in *The Future of Surface Artefact Survey in Europe*. Edited by J. L. Bintliff, M. Kuna, and N. Venclova, pp. 29-44. Sheffield: Sheffield Academic Press.

Kuna, M., M. Zvelebil, P. J. Foster, and D. Dreslerova
1993 Field survey and landscape archaeology research design: methodology of a regional field survey in Bohemia. *Pamatky Archeologicke* 84:110-30.

Kvamme, K. L.
1997 Bringing the camps together: GIS and ED. *Archaeological Computing Newsletter* 47:1-5.

La Rosa, V.
2000-1 'Σε ασπάζομαι αδελφικώς'. Επιστολές του Ι. Χατζιδάκη στον F. Halbherr. *Κρητική Εστία* 8:49-145.
2002-4 'Σε ασπάζομαι αδελφικώς'. Επιστολές του Ι. Χατζιδάκη στον F. Halbherr. *Κρητική Εστία* 9:10:9-42.

Leake, W. M.
1824 *The journal of a tour in Asia Minor*. London.
1935 *Travels in Northern Greece*. London: J.Rodwell.
1967 *Peloponnesiaca : a supplement to Travels in the Morea*. Amsterdam: A.M.Hakkert: Reprint of the edition: London, 1846.

Lehmann, H.
1939 Die Siedlungsräume Ostkretas. *Geographische Zeitschrift* 45:212-28.

Leroi-Gourhan, A.
1943 *L'Homme et le Matière*. Paris: Albin Michel.

Lloyd, J. A., E. J. Owens, and J. Roy
1985 "The Megalopolis Survey in Arcadia: Problems of Strategy and Tactics," in *Archaeological Field Survey in Britain and Abroad*. Edited by S. MacReady and F. H. Thomson, pp. 217-224. London: Society of Antiquaries, distributed by Thames & Hudson.

Lock, G., and Z. Stancic (eds)
1995 *Archaeology and Geographical Information Systems: A European Perspective*. London: Taylor & Francis.

Lohmann, H.
1993 *Atene: Forschungen zu Siedlungs und Wirtschaftsstruktur des Klassischen Attika*. Köln, Weimar, Wien: Böhlau Verlag.

MacDonald, W. A.
1966 Some suggestions on directions and a modest proposal. *Hesperia* 35:413-418.

MacDonald, W. A., and R. Hope Simpson
1961 Prehistoric habitation in the southwestern Peloponnese. *AJA* 65:229-45.

MacDonald, W. A., and G. R. J. Rapp (eds)
1972 *The Minnesota Messenia Expedition: Reconstructing a Bronze Age Regional Environment*. Minneapolis: University of Minnesota Press.

MacGillivray, J. A., L. H. Sackett, D. Smyth, J. Driessen, D. G. Lyness, and B. A. Hobbs
1984 An archaeological survey of the Roussolakkos area at Palaikastro. *BSA* 79:129-59.

Mantzourani, E., and D. Catapoti
2005 "What future in the Mediterranean past?" Paper presented in the Mediterranean Crossroads Conference Athens, May 2005.

Martin, G. J., and P. E. James
1993 *All Possible Worlds: A History of Geographical Ideas*. New York: John Wiley and Sons.

Mattingly, D.
2000 "Methods of collection, recording and quantification," in *Extracting Meaning from Ploughsoil Assemblages*, vol. 5, *The Archaeology of Mediterranean Landscapes*. Edited by R. Francovich and H. Patterson, pp. 5-15. Oxford: Oxbow.

Mc Enroe, J. C.
2002 "Cretan Questions: Politics and Archaeology 1898-1913," in *Labyrinth Revisited. Rethinking 'Minoan' Archaeology*. Edited by Y. Hamilakis, pp. 59-72. Oxford: Oxbow.

McGlade, J.
1995 Archaeology and the ecodynamics of human-modified landscapes. *Antiquity* 69:113-32.
1998 "Archaeology and the evolution of cultural landscapes: towards an interdisciplinary research agenda," in *The Archaeology and Anthropology of Landscape*. Edited by P. Ucko and R. Layton, pp. 458-482. London: Taylor and Francis.

Mee, C.
1999 "Regional survey projects and the prehistory of the Peloponnese," in *Le Péloponnèse: archéologie et histoire*. Edited by J. Renard, pp. 67-79. Rennes: Les Presses Universitaire.

Mee, C., and W. G. Cavanagh
2000 The Hidden Landscape in Ancient Greece: A view from Laconia and Methana. *JMA* 13:102-107.

Mendoni, L.
1994 "The organisation of the countryside in Kea," in *Structures Rurales et Sociétés Antiques: Actes du colloque de Corfou 14-16 mai 1992*. Edited by P. Doukellis and L. Mendoni, pp. 147-61. Paris: Annales Littéraires de l'Université de Besançon 508: Les Belles Lettres.

Millett, M.
2000 "Dating, quantifying and utilizing pottery assemblages from surface survey," in *Extracting Meaning from Ploughsoil Assemblages*, vol. 5, *The Archaeology of Mediterranean Landscapes*. Edited by R. Francovich and H. Patterson, pp. 53-59. Oxford: Oxbow.

Moody, J. A.
1985 The Development of a Bronze Age Coarse Ware Chronology for the Khania Region of West Crete. *TUAS* 10:51-65.
1987 *The Environmental and Cultural Prehistory of the Khania Region of West Crete: Neolithic through Late Minoan III*. PhD thesis, University of Minnesota.

Moody, J., H. Robinson, J. Francis, and L. Nixon
2003 Ceramic Fabric Analysis and Survey Archaeology: the Sphakia Survey. *BSA* 98:37-105.

Morris, I.
1994 "Archaeologies of Greece," in *Classical Greece: ancient histories and modern archaeologies*. Edited by I. Morris, pp. 8-47. Cambridge: Cambridge University Press.
2000 *Archaeology as Cultural History*. Oxford: Blackwell.
2004 "Classical Archaeology," in *A Companion to Archaeology*. Edited by J. L. Bintliff. Oxford: Blackwell.

Morris, M. W.
2002 *Soil Science and Archaeology. Three Test Cases from Minoan Crete*. Philadelphia: The Institute for Aegean Prehistory Academic Press.

Mueller, J. W. (ed)
1975 *Sampling in Archaeology*. Tucson: The University of Arizona Press.

Music, B.
1995 On-site prospection in Slovenia: the case of Rodik. *ACN* 43:6-15.

Music, B., B. Slapsak, and V. Perko
2000 "On-site surface distributions and geophysics: the site of Rodik-Adjovscina," in *Extracting Meaning from Ploughsoil Assemblages*, vol. 5, *The Archaeology of Mediterranean Landscapes*. Edited by R. Francovich and H. Patterson, pp. 132-146. Oxford: Oxbow.

Myres, J. L.
1953 *Geographical History in Greek Lands*. Oxford: Oxford at the Clarendon Press.

Neustupny, E.
1986 Sidelni areali pravekych zemedelcu (Settlement areas of prehistoric farmers). *Pamatky Archeologicke* 77:226-34.
1991 Community Areas of Prehistoric Farmers in Bohemia. *Antiquity* 65:326-31.

Nikolaidou, M.
2002 "Palaces with Faces in Protopalatial Crete: Looking for the People in the First Minoan States," in *Labyrinth Revisited: Rethinking 'Minoan' Archaeology*. Edited by Y. Hamilakis. pp. 74-97. Oxford: Oxbow.

Nixon, L., S. Price, and J. Moody
1999 Nixon, L., J. Moody, and S. Price. 1999. "Settlement Patterns in Mediaeval & Post-Mediaeval Sphakia: Issues from the Environmental, Archaeological, & Historical Evidence": for proceedings of the Mediaeval & Post-Mediaeval Greece conference, Corfu, May 1998, http://sphakia.oxford.ac.uk.

Nowicki, K.
1987 Topography of Refuge Setlement in Crete. *Jahrbuch des Römisch-Germanischen Zentralmuseums* Mainz 34:213-34.
1991 Some Remarks on the Distribution of Peak Sanctuaries in Middle Minoan Crete. *ArcheologiaWar* XLII:143-145.
1992 Report on Investigations in Greece. VIII. Studies in 1991. *Archeologia* 43:113-119.
1999a "The Historical Background of Defensible Sites in Crete: Late Minoan IIIC versus Protopalatial," in *POLEMOS, Le contexte guerrier en Egée a l'age du Bronze. Actes de la 7e Rencontre égéenne internationale (Aegeum 19)*. Edited by P. P. Betancourt, V. Karageorghis, R. Laffineur, and W. D. Niemeier, pp. 191-95. Liège: Université de Liège.
1999b "Economy of Refugees: Life in the Cretan Mountains at the turn of the Bronze and Iron Ages," in *From Minoan Farmers to Roman Traders: Sidelights on the Economy of Ancient Crete*. Edited by A. Chaniotis, pp. 145-171. Stuttgart: Franz Steiner Verlag.

1999c. "The Final Neolithic Refugees or the Early Bronze Newcomers? The Problem of Defensible Sites in Crete in the Late Fourth Millennium B.C.," in *MELETEMATA. Studies in Aegean Archaeology Presented to Malcolm H. Wiener as He enters his 65th Year (Aegeum 20)*. Edited by P. Betancourt, V. Karageorghis, R. Laffineur, and W. D. Niemeier, pp. 575-581. Liège: Université de Liège.
2000 *Defensible sites in Crete c.1200-800 BC (LM IIIB/IIIC through early Geometric)* (*Aegeum 21*). Liège: Université de Liège.

Odell, P., and F. Cowan
1987 Estimating tillage effects on artefact distributions. *American Antiquity* 52:456-484.

Orton, C.
2000 *Sampling in Archaeology*. Cambridge: Cambridge University Press.

Osborne, R.
2001 Counting the Cost. Comments on David K. Pettegrew 'Chasing the Classical Farmstead'. *JMA* 14:212-216.

Papadopoulos, J.
2005 Inventing the Minoans: Archaeology, Modernity and the Quest for European Identity. *JMA* 18:87-149.

Papadopoulos, J. K., and R. M. Leventhal (eds)
2003 *Theory and Practice in Mediterranean Archaeology: Old World and New World Perspectives*. Los Angeles: Cotsen Institute of Archaeology: University of California at Los Angeles.

Pashley, R.
1837 *Travels in Crete*. London: J.Murray.

Peake, H., and H. J. Fleure
1927 *Peasants and Potters*. Oxford: Clarenton Press.

Peatfield, A.
1983 The topography of Minoan peak sancturies. *BSA* 78: 273-280.
1987 "Palace and Peak: The Political and Religious Relationship between Palaces and Peak Sanctuaries," in *The Function of the Minoan Palaces. Proceedings of the Fourth International Symposium at the Swedish Institute in Athens, 10-16 June, 1984*. Edited by R. Hägg and N. Marinatos, pp. 89-93. Stockholm: Svenska Institutet i Athen.
1990 Minoan Peak Sanctuaries: History and Society. *Opuscula Atheniensia* 18:117-132.

Pendlebury, J. D. S.
1939 *The archaeology of Crete*. London: Methuen.

Peterson, J.
2001 "CAA Conference Papers on GIS in Landscape Studies: 1988-1998," in *Ancient Landscapes and Rural Structures. Proceedings of the COST G2 WG2 round table: Ljubljana, 18-20 December 1998*. Edited by B. Slapsak, pp. 17-23. Luxembourg: European Commission.

Pettegrew, D. K.
2001 Chasing the Classical Farmstead: Assessing the Formation and Signature of Rural Settlement in Greek Landscape Archaeology. *JMA* 14:189-209.

Philippson, A.
1950-59 *Die Griechischen Landschaften: eine Landeskunde*. Vol. I-IV. Frankfurt am Main: V. Klostermann.

Pickard, J.
1891 A topographic study of Eretria. *AJA* VII:371-389.

Platon, N.
1974 *Ζάκρος: το νέον μινωικόν ανάκτορον*. Αθήνα: Αρχαιολογική Εταιρεία.

Plog, S.
1976 "Relative efficiencies of sampling techniques for archaeological surveys," in *The Early Mesoamerican Village*. Edited by K. V. Flannery, pp. 136-58. New York: Academic Press.
1990 "Some Thoughts on Full-Coverage Surveys," in *The Archaeology of Regions: A Case for Full-Coverage Survey*. Edited by S. K. Fish and S. A. Kowalewski, pp. 243-248. Washington, London: Smithsonian Institution Press.

Plog, S., F. Plog, and W. Wait.
1978 "Decision making in modern surveys," in *Advances in Archaeological Method and Theory*, vol. 1. Edited by M. Schiffer, pp. 384-421. New York: Academic Press.

Potter, T. W.
1979 *The Changing Landscape of South Etruria*. London: Paul Elek.

Preucel, R. W., and L. Meskell
2002 "Knowledges," in *Companion to Social Archaeology*. Edited by L. Meskell and R. W. Preucel, pp. 3-22. Oxford: Blackwell.

Preziozi, D.
2002 "Archaeology as Museology: Re-thinking the Minoan Past," in *Labyrinth Revisited. Re-thinking 'Minoan' Archaeology*. Edited by Y. Hamilakis, pp. 30-39. Oxford: Oxbow.

Pritchett, K. W.
1965 *Studies in Ancient Greek Topography. Part I*. Berkeley: California University Press.
1969 *Studies in Ancient Greek Topography. Part II (Battlefields)*. Berkeley: California University Press.
1980 *Studies in Ancient Greek Topography. Part III (Roads)*. Berkeley: California University Press.
1982 *Studies in Ancient Greek Topography. Part IV (Passes)*. Berkeley: California University Press.
1985 *Studies in Ancient Greek Topography. Part V*. Berkeley: California University Press.
1989 *Studies in Ancient Greek Topography. Part VI*. Berkeley: California University Press.
1991 *Studies in Ancient Greek Topography. Part VII*. Amsterdam: J.C.Gieben.
1992 *Studies in Ancient Greek Topography. Part VIII*. Amsterdam: J.C.Gieben.

Prothero, R. M.
1957 Land use at Soba, Zaria province, northern Nigeria. *Economic Geography* 33:72-86.

Quilici Gigli, S.
1970 *Tuscana*. Rome: De Luca.

Raulin, V.
1869 *Description Physique de l'Isle de Crête*. Paris: Arthus Bertrand.

Read, D. W.
1975 "Regional Sampling," in *Sampling in Archaeology*. Edited by J. W. Mueller, pp. 45-60. Tuscon: University of Arizona Press.

Rehak, P. (ed)
1995 *The Role of the Ruler in the Prehistoric Aegean* (*Aegeum 11*). Liège: Université de Liège.

Reilly, P., and S. Rahtz (eds)
1992 *Archaeology and the information age: a global perspective*. *One World Archaeology 1*. London: Routledge.

Relaki, M.
2003 *Social Arenas in Minoan Crete: A Regional History of the Mesara from the Final Neolithic to the End of the Protopalatial Period*, PhD thesis, University of Sheffield.

Renfrew, A. C.
1972 *The Emergence of Civilisation. The Cyclades and the Aegean in the Third Millennium B.C.* London: Methuen.
1973 *Social Archaeology*. Southampton: Southampton University.
1980 The Great Tradition versus the Great Divide: archaeology as anthropology? *AJA* 84:287-98.
1986 "Introduction: Peer Polity Interaction and Sociopolitical Change," in *Peer Polity Interaction and Sociopolitical Change*. Edited by A. C. Renfrew and J. F. Cherry. Pp. 1-18. Cambridge, New York: Cambridge University Press.

Renfrew, A. C., M. J. Rowlands, and B. A. Segraves (eds)
1982 *Theory and Explanation in Archaeology*. New York, London: Academic Press.

Renfrew, A. C., and J. F. Cherry (eds)
1986 *Peer Polity Interaction and Socio-political change*. Cambridge, New York: Cambridge University Press.

Revel, J., and L. Hunt (eds)
1995 *Histories: French Constructions of the Past, Postwar French Thought, Vol.1*. New York: The New Press.

Reynolds, P. J.
1982 "The ploughzone," in *Festschrift zum 100jahrigen Jubiläum der Abteilung Vorgeschichte der Natur-historischen Gesellschaft Nürnberg*, pp. 315-340. Nürnberg.

Rossignol, J., and L. A. Wandsnider (eds)
1992 *Space, Time and Archaeological Landscapes*. New York: Plenum Press.

Rowlands, M.
1993 The role of memory in the transmission of culture. *World Archaeology* 25:141-51.

Rupp, D. W.
2004 "Evolving strategies for investigating an extensive terra incognita in the Paphos District by the Canadian Palaipaphos Survey Project and the Western Cyprus Project," in *Archaeological Field Survey in Cyprus: Past History, Future Potentials*. Edited by M. Iacovou, pp. 63-76. London: British School at Athens, Studies II.

Rutkowski, B.
1986 *The cult places of the Aegean*. London: New Haven.

Rutter, J. B.
1983 "Some Thoughts on the Analysis of Ceramic Data generated by Site Surveys," in *Archaeological Survey in the Mediterranean Area*, Edited by D. R. Keller and D. W. Rupp, pp. 137-142. Oxford: BAR International Series 155.

Sahlins, M. D.
1964 "Culture and environment: the study of cultural ecology," in *Horizons of anthropology*. Edited by S. Tax, pp.123-47. Chicago: Aldine.

Sakellarakis, I.
1998 *Αρχαιολογικές αγωνίες στην Κρήτη του 19ου αιώνα : 51 έγγραφα για τις Κρητικές αρχαιότητες* (1883-1898). Ηράκλειον: Πανεπιστημιακές Εκδόσεις Κρήτης.

Sanders, W. T.
1965 *The Cultural Ecology of the Teotihuacan Valley*. Pennsylvania State University.

Sanders, W. T., and B. J. Price
1968 *Mesoamerica: The Evolution of a Civilisation*. New York: Random House.

Sanders, I. F.
1982 *Roman Crete. An Archaeological Survey and Gazetteer of Late Hellenistic, Roman and Early Byzantine Crete*. Warminster, Wilts, England: Aris and Phillips Ltd.

Sanjuan, L. G., and D. W. Wheatley
1999 The State of the Arc: Differential Rates of Adoption of GIS for European Heritage Management. *EJA* 2:201-228.

Sauer, C. O.
1952 *Agricultural Origins and Dispersals*. New York: American Geographical Society.

Schama, S.
1995 *Landscapes and Memory*. New York: Knopf.

Schiering, W.
1981 Landbegehungen im Bezirk Rethymnon. *Πεπραγμένα Δ' Διεθνούς Κρητολογικού Συνεδρίου (1976)* A:544-558.

Schiffer, M. B.
1987 *Formation Processes of the Archaeological Record*. Albuquerque: University of New Mexico Press.

Schlager, N.
1987 "Untersuchungen zur prähistorischen Topographie im aubersten Sudosten Kretas: Zakros bis Xerokampos," in *Ägäis Kolloquium Schriften des deutschen Archäologen-Verbandes IX. Papers from the colloquium on Aegean Prehistory, held in Mannheim 20-22 February 1986*, pp. 64-82. Mannheim: Deutschen Archäologen-Verband.
1988 Archäologische Geländeprospektion in Südostkreta. *Mitteilungen des Deutschen Archäologen-Verbandes* 19:40-43.

Schmiedt, G.
1964 *Contributo della foto-interpretazione alla ricostruzione della situazione geografico-topografica dei porti antichi in Italia*. Firenze: Coi Tipi dell' Istituto Geografico Militare.

Schofield, A. J. (ed)
1991a *Interpreting Artefact Scatters: Contributions to Ploughzone Archaeology*. Oxford: Oxbow.
1991b "Interpreting artefact scatters: an introduction," in *Interpreting Artefact Scatters: Contributions to loughzone Archaeology*. Edited by A. J. Schofield, pp. 3-8. Oxford: Oxbow.

Schon, R.
2000 On a site and out of sight: where have our data gone? *JMA* 13:107-111.

Schultz - Barrick, M.
2007 *Social Organisation in the Mirabello Region of Crete: From Farm to Palace*, PhD thesis, University of Buffalo, New York.

Semple, E. C.
1932 *The Geography of the Mediterranean Region. Its Relation to Ancient History*. London: Constable & Co. Ltd.

Shennan, S. J.
1985 *Experiments in the Collection and Analysis of Archaeological Survey Data: The East Hampshire Survey.* Sheffield: University of Sheffield, Department of Archaeology.
1988 *Quantifying Archaeology*. Edinburgh: Edinburgh University Press.

Sieber, F. W.
1823 *Travels in the island of Crete in the year 1817*. London: by Sir Richard Phillips & CO, Bride Court.

Simopoulos, K.
1970-76 *Ξένοι Ταξιδιώτες στην Ελλάδα. Δημόσιος και ιδιωτικός βίος, λαϊκός πολιτισμός, εκκλησία και οικονομική ζωή από τα περιηγητικά χρόνια.* Vol. 3, Vols: 333-1700AD, 1700-1800AD, 1810-1821AD. Αθήνα.

Sjogren, L.
2003 *Cretan Locations: Discerning site variations in Iron Age and Archaic Crete (800-500 B.C.). BAR 1185*. Oxford: Hadrian Books Ltd.

Smith, C. A.
1976 "Regional Economic Systems: Linking Geographical Models and Socioeconomic Problems," in *Regional Analysis: Volume I. Economic Systems*. Edited by C. A. Smith, pp. 3-63. New York: Academic Press.

Snodgrass, A. M.
1987 *An Archaeology of Greece*. Vol. 53. *Sather Classical Lectures*. Berkeley, Los Angeles, Oxford: University of California Press.

Soetens, S.
2006 *Minoan peak sanctuaries: building a cultural landscape using GIS*. PhD thesis, Université Catholique de Louvain.

Soyer, J.
1976 Les centuriations romaines en Algérie orientale. *Antiquités africaines* 10:107-.

Spanakis, S.
1940 *Μνημεία της Κρητικής Ιστορίας.* Ηράκλειον.
1957 *Συμβολή στην ιστορία του Λασιθίου.* Herakleion.
1976 *Το Λασίθι, άλλοτε και σήμερο*. *Amaltheia* 7:3-32.

Spencer, N.
1995 *A gazetteer of archaeological sites in Lesbos*. Oxford: Tempus Reparatum: Distributed by Hadrian Books.

Spon, J., and S. G. Wheler
1678 *Voyage d'Italie, de Dalmatie, de Grèce et du Levant: Fait aux années 1675. & 1676*. Lyon: Antoine Cellier le fils.

Spratt, T. A. B.
1865 *Travels and Researches in Crete*. London: John van Voorst.

Stancic, Z., V. Gaffney, K. Ostir-Sedej, and T. Podobnikar.
1997 "GIS Analysis of Land-use, Settlement Patterns and Territories on the Island of Brac," in *Archaeological Applications of GIS. Proceedings of Colloquim II, UISPP XIIIth Congress*. Edited by I. Johnson and M. North. Forli Italy September 1996, Sydney (CD-ROM).

Steel, R. W., M. Fortes, and P. Ady.
1947 Ashanti survey 1945-6: an experiment in social research. *Geographical Journal* 110:149-79.

Steward, J. H.
1955 *Theory of Culture Change*. Urbana: University of Illinois Press.

Stoddart, C. (ed)
2000 *Landscapes from Antiquity*. Cambridge and Oxford: Antiquity and Oxbow.

Strachan, D.
1998 *Essex from the Air: Archaeology and history from aerial photographs*. Essex County Council.

Sullivan, S.
1997 "A Planning Model for the Management of Archaeological Sites," in *The Conservation of Archaeological Sites in the Mediterranean Region*. Edited by M. Torre. Los Angeles: Getty Conservation Institute.

Taylor, J.
2000 "Cultural depositional processes and post-depositional problems," in *Extracting Meaning from Ploughsoil Assemblages*, vol. 5, *The Archaeology of Mediterranean Landscapes*. Edited by R. Francovich and H. Patterson, pp. 16-28. Oxford: Oxbow.

Terrenato, N.
1996 Visibility and site recovery in the Cecina Valley Survey, Italy. *JFA* 23:91-109.
2000 "Surface Thoughts: Future Directions in Italian Field Surveys," in *The Future of Surface Artefact Survey in Europe*. Edited by J. L. Bintliff, M. Kuna, and N. Venclova, pp. 21-28. Sheffield: Sheffield Academic Press.

Thomas, D.
1975 "Nonsite sampling in archaeology: Up the creek without a site?," in *Sampling in Archaeology*. Edited by J. W. Mueller, pp. 61-81. Tucson: University of Arizona Press.

Thomas, J.
1993 "The Politics of Vision and the Archaeologies of Landscape," in *Landscape: Politics and Perspectives*. Edited by B. Bender, pp. 19-48. London: Berg.
2004 "The Great Dark Book: Archaeology, Experience and Interpretation," in *A Companion to Archaeology*. Edited by J. L. Bintliff. Oxford: Blackwell.

Thompson, S. A.
2000 The still hidden landscape. *JMA* 13:111-115.

Tilley, C.
1990 "Michel Foucault: Towards an Archaeology of Archaeology," in *Reading material culture: structuralism, hermeneutics, and post-structuralism*. Edited by C. Tilley. Pp. 281-347. Oxford: Blackwell.
1994 *A phenomenology of Landscape, Places, paths and monuments*. Oxford: Berg.

Tolias, G. (Exhibition Catalogue) and C. Koumarianou (Introduction)
1995 *British Travellers in Greece 1750-1820*. London: Foundation for Hellenic Culture.

Trigger, B. G.
1989 *A History of Archaeological Thought*. Cambridge: Cambridge University Press.

Tsipopoulou, M.
1986 Έρευνα στον Πετρά και τον κόλπο της Σητείας, 1988. *ΑΔ*:340-400.
1987 Έρευνα στον Πετρά και τον κόλπο της Σητείας, 1987. *ΑΑΑ*:11-30.
1988 "Αγιά Φωτιά Σητείας: Το νέο εύρημα," in *Problems in Greek prehistory : papers presented at the centenary conference of the British School of Archaeology at Athens, Manchester, April 1986*. Edited by E. B. French and K. Wardle, pp. 31-47. Bristol: Bristol Classical Press.

1999 "From Local Centre to Palace: The Role of the Fortification in the Economic Transformation of the Siteia Bay Area, East Crete," in *POLEMOS, Le contexte guerrier en Egee a l'age du Bronze. Actes de la 7e Rencontre egeenne internationale (Aegeum 19)*. Edited by P. P. Betancourt, V. Karageorghis, R. Laffineur, and W. D. Niemeier, pp. 179-89. Liège: Université de Liège.

Tzedakis, Y., S. Chrysoulaki, Y. Venieri, and M. Avgouli
1990 Les routes minoennes: Le poste de Χοιρόμανδρες et le controle des communications. BCH 114:43-65.

Ucko, P. J., G. Dimbleby, and R. Tringham (eds)
1972 *Man, Settlement and Urbanism*. London: Duckworth.

Van Andel, T. H., C. N. Runnels, and K. O. Pope
1997 "Five Thousand Years of Land Use and Abuse in the Southern Argolid, Greece," in *Aegean Strategies:Studies of Culture and Environment on the European Fringe*. Edited by P. N. Kardulias and M. T. Shutes, pp. 33-59. Oxford: Rowman & Littlefield INC.

Van Dommelen, P.
2000 «Post depositional Effects and Ceramic Analysis: comment on Jeremy Taylor, 'Depositional and post-depositional effects on ploughsoil ceramic assemblages',» in *Extracting Meaning from Ploughsoil Assemblages*, vol. 5, *The Archaeology of Mediterranean Landscapes*. Edited by R. Francovich and H. Patterson, pp. 27-28. Oxford: Oxbow.

Van Dyke, R. M., and S. E. Alcock (eds)
2003 *Archaeologies of Memory*. Oxford: Blackwell.

Van Hove, D.
2004 "Imagining Calabria. A GIS Approach to Neolithic Landscapes." *Announcement in the 32nd CAA conference, Prato, Italy, 2004*.

Van Leusen, M.
2002 *Pattern to Process: methodological investigations into the formation and interpretation of spatial patterns in archaeological landscapes,* PhD thesis, University of Groningen. www.ub.rug.nl/eldoc/dis/arts/p.m.van.leusen.

Vasilakis, A.
1989 Προϊστορικές θέσεις στη μονή Οδηγήτριας. *Κρητική Εστία* 1989:11-79.

Vidal de la Blache, P.
1926 *Principles of Human Geography*. London: Constable.

Vidalakis, L.
1970 *Η αρχαία Κρήτη και η τότε γνωστή οικουμένη.* Αθήνα: Alpha Press

Wagstaff, M.
2001 "Pausanias and the Topographers," in *Pausanias: Travel and Memory in Roman Greece*. Edited by S. E. Alcock, J. F. Cherry, and J. Elsner, pp. 190-206. Oxford: Oxford University Press.

Waibel, L.
1958 *Capitulos de geografia trapical e do Brasil*. Rio de Janeiro: IBGE.

Ward-Perkins, J. B., A. Kahane, and L. Murray-Threipland
1968 The Ager Veientanus north and east of Rome. *Papers of the British School at Rome* 36:1-218.

Warren, P.
2000 "Early Travellers from Britain and Ireland," in *Cretan Quests. British Explorers, Excavators and Historians*. Edited by D. Huxley, pp. 1-8. London: The British School at Athens.

Watrous, L. V.
1995 "Some Observations on Minoan Peak Sanctuaries," in *Politeia: Society and State in the Aegean Bronze Age. Proceedings of the 5th International Aegean Conference , University of Heidelberg, Archäologisches Institut, 10-13 April 1994*, *Aegeum 12*. Edited by R. Laffineur and W. D. Niemeier, pp. 393-403. Liège: Université de Liège.

Westcott, K. L., and R. J. Brandon
2000 *Practical Applications of GIS for Archaeologists: a predictive modelling kit*. London: Taylor & Francis.

Wheatley, D. W.
1993 "Going Over Old Ground: GIS, Archaeological Theory and the Act of Perception," in *Computing the Past: Computer Applications and Quantitative Methods in Archaeology 1992*. Edited by J. Andresen, T. Madsen, and I. Scollar, pp. 133-138. Aarhus: Aarhus University Press.
1998 Ranters Corner: Keeping the Camp Fires Burning: the case for pluralism. *ACN* 50:2-7.

White, L. A.
1959 *The Evolution of Culture*. New York: McGraw-Hill.

Whitelaw, T.
2000 "Reconstructing a classical landscape with figures: some interpretative exporations in North-West Keos," in *Extracting Meaning from Ploughsoil Assemblages*, vol. 5, *The Archaeology of Mediterranean Landscapes*. Edited by R. Francovich and H. Patterson, pp. 227-243. London: Oxbow.

Whitley, J., M. Prent and S. Thorne
1999 Praisos IV: A preliminary report on the 1993 and 1994 survey seasons. *BSA* 94:215-264.

Wilkinson, T. J.
2000 Regional Approaches to Mesopotamian Archaeology: the contribution of archaeological surveys. *Journal of Archaeological Research* 8:219-67.
2004 "The Archaeology of Landscape," in *A Companion to Archaeology*. Edited by J. L. Bintliff, pp. 334-356. Oxford: Blackwell.
1982 The definition of ancient manured zones by means of extensive sherd-sampling techniques. *JFA* 9:232-333.

Willey, G. R.
1953 *Prehistoric settlement patterns in the Viru Valley, Peru*. Vol. 155. *Bureau of American Ethnology Bulletin*. Washington, DC: Smithsonian Institution.

Williams-Freeman, J. P.
1915 *An Introduction to Field Archaeology as Illustrated by Hampshire.* London: Macmillan and Co.

Wise, A.
2000 "Building theory into GIS-based landscape analysis," in *Proceedings of the 24th CAA held at the Institute of Archaeology and the Al.I.Cuza University, Iasi, Romania, from 25-27th March 1996. BAR-IS*, vol. 845. Edited by K. Lockyear, T. J. T. Sly, and V. M. Birliba, pp. 141-147. Oxford: Archaeopress.
2000 "GIS and Landscapes of Perception," in *GIS and Landscape Archaeology*. Edited by M. Gillings, D. Mattingly, and J. v. Dalen, pp. 13-22. Oxford: Oxbow.

Witcher, R.
2002 *Modelling Roman Imperialism. Landscape and Settlement in Italy*, University of Leicester. PhD thesis.

Witmore, C. L.
2004 On multiple fields. Between the material world and media: two cases from the Peloponnesus, Greece. *Archaeological Dialogues* 11(2):133-164.

Wright, H. T.
1977 Recent Research on the Origin of the State. *Annual Review of Anthropology* 6:379-97.

Wroncka, T.
1959 Pour un atlas archéologique de la Crête Minoènne: Sitia I. *BCH* 83:523-542.

Xanthoudides, S.
1904 *Ο κρητικός πολιτισμός : ήτοι Τα εξαγόμενα των εν Κρήτη ανασκαφών /.* Αθήνα: Π.Δ. Σακελλάριος.
1909 *Επίτομος Ιστορία της Κρήτης από των αρχαιοτάτων χρόνων μέχρι των καθ' υμάς:* Ελληνική ΕκδοτικήΕταιρία.

Xifaras, X.
2004 *Οικιστική της Πρωτογεωμετρικής και Γεωμετρικής Κρήτης: η Μετάβαση από τη 'Μινωική' στην Ελληνική Κοινωνία*, PhD thesis, University of Rethimno.

Zacharakis, C. G.
2004 *"*ΚΡΗΤΗΣ ΝΗΣΟΥ ΘΕΣΙΣ*» , De Situ Insulae Cretae: four centuries of printed cartography of Crete 1477-180*. Heraklion: Mikros Nautilos.

Survey bibliography

Travellers Tradition

Survey id: Sieber
Sieber, F. W.
1823 Travels in the island of Crete in the year 1817. London: by Sir Richard Phillips & CO, Bride Court.

Survey id: Pashley
Pashley, R.
1837 Travels in Crete. London: J.Murray.

Culture History Tradition

Survey id: Pendlebury 1934
Pendlebury, J. D. S., M. B. Money-Coutts, and E. Eccles
1934 Journeys in Crete, 1934. *BSA* 33:80-100.

Survey id: Travels in Crete
Hood, M. S. F., P. Warren, and G. Cadogan
1964 Travels in Crete 1962. *BSA* 59:50-99.

Survey id: Hood 65
Hood, M. S. F.
1965 Minoan Sites in the Far West of Crete. *BSA* 60:99-113.

Survey id: Aghios Vasilios 66
Hood, M. S. F., and P. M. Warren
1966 Ancient Sites in the Province of Ayios Vasilios, Crete. *BSA* 61:163-191.

Survey id: Hood 67
Hood, M. S. F.
1967 Some Ancient Sites in South-West Crete. *BSA* 62:47-56.

Survey id: Ayiofarango 75
Blackman, D. and K. Branigan
1975 An Archaeological Survey of the South Coast of Crete, between the Ayiofarango and Chrisostomos. *BSA* 70: 17-36.

Survey id: Ayiofarango 89
Vasilakis, A.
1989 Προϊστορικές θέσεις στη μονή Οδηγήτριας. *Κρητική Εστία* 1989:11-79.

Human Geography Tradition

Survey id: Lehmann
Lehmann, H.
1939 Die Siedlungsräume Ostkretas. *Geographische Zeitschrift* 45:212-28.

Survey id: Wroncka
Wroncka, T.
1959 Pour un Atlas Archéologique de la Crète Minoènne: Sitia I. *BCH* 83: 523-542.

Survey id: Paul Faure
Faure, P.
1958 Spéléologie et Topographie Crétoises. *BCH* 82:485-515.
1960 Nouvelles Recherches de Spéléologie et de Topographie Crétoises. *BCH* 84:189-220.
1962 Cavernes et sites aux deux extrémités de la Crète. *BCH* 86:36-56.
1964 *Fonctions des cavernes crétoises*. Paris: De Boccard.
1965 Recherches sur le peuplement des montagnes de Crète: sites, cavernes et cultes. *BCH* 89:27-63.
1967 Nouvelles Recherches sur Trois Sortes de Sanctuaires Crétois. *BCH* 91:114-50.
1969 Sur Trois Sortes Sanctuaires Crétois (suite). *BCH* 93:174-213.
1972 Cultes Populaires dans la Crète Antique. *BCH* 96:389-426.

Survey id: Nowicki
Nowicki, K.
1987 Topography of Refuge Setlement in Crete. *Jahrbuch des Römisch-Germanischen Zentralmuseums* 34:213-34.
1988 Investigations in the Cretan Mountains. *Archeologia* 39:189-198.
1990a The West Siteia Mountains at the turn of the Bronze and Iron Ages. *Aegaeum* 6:161-82.
1990b Report on Investigations in Greece. VI. Studies in 1988-1989. *Archeologia* 41:113-125.
1991 Report on Investigations in Greece. VII. Studies in 1990. *Archeologia* 42:137-45.
1992 Report on Investigations in Greece. VIII. Studies in 1991. *Archeologia* 43:113-119.
1993 Report on Investigations in Greece. IX. Studies in 1992. *Archeologia* 44:95-101.
1995 Report on Investigations in Greece. X. Studies in 1993 and 1994. *Archaeologia* 46:63- 70.
1998 Lasithi (Crete): One Hundred Years of Archaeological Research. *Aegean Archaeology* 3:27-48.
1999a "The Historical Background of Defensible Sites in Crete: Late Minoan IIIC versus Protopalatial," in *POLEMOS, Le contexte guerrier en Egée a l'age du Bronze. Actes de la 7e Rencontre égéenne internationale (Aegeum 19)*. Edited by P. P. Betancourt, V. Karageorghis, R. Laffineur, and W. D. Niemeier, pp. 191-95. Liège: Université de Liège.
1999b "Economy of Refugees: Life in the Cretan Mountains at the turn of the Bronze and Iron Ages," in *From Minoan Farmers to Roman Traders: Sidelights on the Economy of Ancient Crete*. Edited by A. Chaniotis, pp. 145-171. Stuttgart: Franz Steiner Verlag.

1999c "The Final Neolithic Refugees or the Early Bronze Newcomers? The Problem of Defensible Sites in Crete in the Late Fourth Millennium B.C.," in *MELETEMATA. Studies in Aegean Archaeology Presented to Malcolm H. Wiener as He enters his 65th Year (Aegeum 20)*. Edited by P. Betancourt, V. Karageorghis, R. Laffineur, and W. D. Niemeier, pp. 575-581. Liège: Université de Liège.
2000a *Defensible sites in Crete c.1200-800 BC (LM IIIB/IIIC through early Geometric)* (*Aegeum 21*). Liège: Université de Liège.
2000b Monastiraki Katalimata (Ierapetras): A Cretan Refuge Site. *Πεπραγμένα του Η' Διεθνούς Κρητολογικού Συνεδρίου* A:2:433-43.

Rutkowski, B., and K. Nowicki
1988 Report on Investigations in Greece. V. Studies in 1986. *Archeologia* 38:177-184.
1990 Report on Investigations in Greece. VI. Studies in 1988-1989. *Archeologia* 41:113-125.

Topographic Tradition

Survey id: Hood Knossos

Hood, M. S. F., and D. Smyth
1981 *Archaeological Survey of the Knossos Area*. *BSA* suppl.14.

Survey id: Schiering

Schiering, W.
1982 Landbegehungen in Rethymnon und Umgebung. *AA* 97: 15-54.

Survey id: Minoan Roads

Tzedakis, Y., S. Chrysoulaki, and L. Vokotopoulos
1988 Ερευνητικό Πρόγραμμα 'Μινωικοί Δρόμοι'. *Κρητική Εστία* 2*:* :342-43.

Tzedakis, Y., S. Chrysoulaki, Y. Venieri, and S. Voutsaki
1988 Δρόμος ΥΜ ΙΙΙ νεκροταφείου. *Κρητική Εστία* 2:297.

Tzedakis, Y., S. Chrysoulaki, S. Voutsaki, and Y. Venieri
1989 Les routes minoennes: rapport préliminaire: défense de la circulation ou circulation de la défense? *BCH* 113:43-76.

Tzedakis, Y., S. Chrysoulaki, and L. Vokotopoulos
1989-91 Ερευνητικό Πρόγραμμα 'Μινωικοί Δρόμοι'. *Κρητική Εστία* 4: 306-319.

Tzedakis, Y., S. Chrysoulaki, Y. Venieri, and M. Avgouli
1990 Les routes minoennes: Le poste de Χοιρόμανδρες et le contrôle des communications. *BCH* 114:43-65.

Tzedakis, Y., S. Chrysoulaki, and L. Kyriopoulou
1990 Ο Δρόμος στη Μινωική Κρήτη. *Πεπραγμένα του ΣΤ' Διεθνούς Κρητολογικού Συνεδρίου* A (2):403-414.

Tzedakis, Y., S. Chrysoulaki, and L. Vokotopoulos
1994-96 Ερευνητικό Πρόγραμμα 'Μινωικοί Δρόμοι'. *Κρητική Εστία 5* : 359-366.

Chrysoulaki, S.
1999 Minoan Roads and Guard Houses-War Regained. *Aegaeum* 19:75-85

Tzedakis, Y., S. Chrysoulaki, L. Vokotopoulos, and A. Sphyroera
1999 Ερευνητικό Πρόγραμμα 'Μινωικοί Δρόμοι'. *Κρητική Εστία* 7:317-326.

In E.B.French 1989-1990. *AR* 36: 76-82
In D.J.Blackman 1997-8. *AR* 44: 120
In D.J.Blackman 1998-9. *AR* 45: 123
In D.J.Blackman 1999-2000. *AR* 46: 147
In D.J.Blackman 2000-1. *AR* 47: 139-140

Survey id: Itanos
Kalpaxis, T., A. Schnapp, and D. Viviers
1995 Rapport sur les travaux menés en collaboration avec l'Ecole française d' Athenes: Itanos, Crète Orientale. *BCH* 119:713-736.

Greco, E., T. Kalpaxis, A. Schnapp, and D. Viviers
1996 Travaux menés en collaboration avec l'Ecole française en 1995: Itanos (Crète orientale). *BCH* 120:941-52.
1997 Travaux menés en collaboration avec l'Ecole française en 1996: Itanos (Crète orientale). *BCH* 121:809-824.
1998 Travaux menés en collaboration avec l'Ecole française en 1997: Itanos (Crète orientale). *BCH*:585-602.
1999 Travaux menés en collaboration avec l'Ecole française en 1998: Itanos (Crète orientale). *BCH* 123:515-530.

Greco, E., T. Kalpaxis, N. Papadakis, A. Schnapp, and D. Viviers
2000 Travaux menés en collaboration avec l'Ecole française en 1999: Itanos (Crète orientale). *BCH* 124:547-559.
2001 Travaux menés en collaboration avec l'Ecole française en 2000: Itanos (Crète orientale). *BCH* 125:637-644
2002 Travaux menés en collaboration avec l'Ecole française en 2001: Itanos (Crète orientale). *BCH* 126:577-582.

In R.A.Tomlinson 1994-5. *AR* 41: 65-6
In R.A.Tomlinson 1995-6. *AR* 42: 45-6
In D.J.Blacman 1999-2000. *AR* 46: 141
In D.J.Blacman 2000-1. *AR* 47: 134
In J. Whitley 2003-4. *AR* 50. 88
In J. Whitley 2004-5. *AR* 51: 100-1

Landscape Archaeology Tradition

Survey id: Ayiofarango 77
Blackman, D. and K. Branigan
1977 An Archaeological Survey of the Lower Catchment of the Ayiofarango Valley. *BSA* 72: 13-84

Survey id: Lasithi
Watrous, L. V.
1975 *An Archaeological Survey of the Lasithi Plain in Crete from the Neolithic to the Late Roman Period.* PhD thesis, University of Pennsylvania.
1975 Explorations on the plain of Lassithi in Crete. *Athens Annals of Archaeology* 8: 206.
1980 Ancient Settlement in the Plain of Lasithi.. *Πεπραγμένα Δ' Διεθνούς Κρητολογικού Συνεδρίου* A 1: 638-642.
1982 *Lasithi: A History of Settlement on a Highland Plain in Crete.* Hesperia, suppl.18. Princeton: American School of Classical Studies in Athens.

Survey id: Kommos
Hope Simpson, R.
1983 Archaeological Survey of the Kommos Area (South Crete) 1970-1980. BAR International Series 155:297-299.
1995 "The Archaeological Survey of the Kommos Area," in *Kommos I: An Excavation on the South Coast of Crete. The Kommos Region and Houses of the Minoan Town. Part 1: The Kommos Region, Ecology, and Minoan Industries*. Edited by J. W. Shaw and M. C. Shaw, pp. 325-402. Princeton, New Jersey: Princeton University Press.

Additional major publications of Kommos:
Betancourt, P.
1990 *Kommos II. The Final Neolithic through Middle Minoan III pottery*. Princeton: Princeton University Press.

Watrous, L. V.
1992 *Kommos III. The Late Bronze Age Pottery*. Princeton: Princeton University Press.

Shaw, J. W., and M. C. Shaw (eds)
1996 *Kommos: an Excavation on the South Coast of Crete. Vol. I: The Kommos Region and Houses of the Minoan Town. Part 2: The Minoan Hilltop and Hillside Houses*. Princeton: Princeton University Press.
2006 *Kommos V. The Monumental Minoan Buildings at Kommos*. Princeton and Oxford: Princeton University Press.

Survey id: Chania
Moody, J. A.
1985 The Development of a Bronze Age Coarse Ware Chronology for the Khania Region of West Crete. *TUAS* 10: 51-65.

1987 *The Environmental and Cultural Prehistory of the Khania Region of West Crete: Neolithic through Late Minoan III*. PhD thesis, University of Minnesota.

Survey id: Palaikastro
MacGillivray, J. A., L. H. Sackett, D. Smyth, J. Driessen, D. G. Lyness, and B. A. Hobbs
1984 An archaeological survey of the Roussolakkos area at Palaikastro. *BSA* 79:129-59.

MacGillivray, J. A., and J. Driessen
1990 "Minoan Settlement at Palaikastro," in *L'Habitat égéen préhistorique*, (*BCH supplement XIX)*. Edited by P. Darcque and R. Treuil, pp. 395-412. Paris: Ecole française d' Athènes.

Survey id: Phaistos
Hadzi-Vallianou, D., and L. V. Watrous
1990 Επιφανειακή Έρευνα Δυτικής Μεσαράς. *Πεπραγμένα του ΣΤ' Διεθνούς Κρητολογικού Συνεδρίου* A(1):113-123.

Watrous, L. V., D. Chatzi-Vallianou, K. Pope, N. Mourtzas, J. Shay, C. Shay, J. Thomas, J. Bennet, D. Tsoungarakis, E. Angelomati-Tsoungarakis, C. Vallianos, and H. Blitzer.
1993 A Survey of the Western Mesara Plain in Crete: Preliminary Report of the 1984, 1986 and 1987 Field Seasons. *Hesperia* 62:191-248.

Watrous, L. V., D. Hadzi-Vallianou, and H. Blitzer
2004 *The Plain of Phaistos. Cycles of Social Complexity in the Mesara Region of Crete.* Monumenta Archaeologica 23. Los Angeles: Cotsen Institute of California.

Survey id: Aghia Photia
Tsipopoulou, M.
1989 *Archaeological Survey at Aghia Photia, Sitia.* SIMA, Poctet-Books, 76. Partille: Astrom Forlag.

Survey id: Pseira
Hope Simpson, R., and P. Betancourt
1990 Intensive Survey of Pseira island. *AJA* 94:322.

Betancourt, P. P., and R. Hope Simpson
1992 The Agricultural System of Bronze Age Pseira. *Cretan Studies* 3:47-54.

Betancourt, P., C. Davaras, and R. Hope Simpson (eds)
2004 *Pseira VIII. The Archaeological Survey of Pseira Island. Part I. Prehistory Monographs 11*. Philadelphia, Pennsylvania: Instap Academic Press.
2005 *Pseira IX. The Archaeological Survey of Pseira Island. Part II. Prehistory Monographs 11*. Philadelphia, Pennsylvania: Instap Academic Press.

Survey id: Vrokastro
Hayden, B.
1987 The Vrokastro Survey Project: Goals, Methodology, and Preliminary Results. *AJA* 93: 252-253.

Moody, J., and B. Hayden
1988 Vrokastro Survey Project: The 1986 - 1987 Seasons. *Κρητική Εστία* 2: 350-353.
1989 Vrokastro. *Κρητική Εστία* 3: 309-311.

Hayden, B., and J. Moody
1990 The Vrokastro Survey Project. Providing a Context for an Early Iron Age Site. *Expedition* 32(3): 42-53.

Hayden, B.
1991 The Vrokastro Survey Project, 1986-1990. *AJA*: 292.

Hayden, B., J. Moody, and O. Rackam
1992 The Vrokastro Survey Project, 1986-1989: Research Design and Preliminary Results. *Hesperia* 61: 293-353.

Hayden, B.
1995 Rural Settlement of the Orientalizing through Early Classical period: the Meseleroi area, Eastern Crete. *Aegean Archaeology* 2: 93-144.
2004 *Reports on the Vrokastro area, eastern Crete, Volume 2: The Settlement history of the Vrokastro area and related studies*. Philadelphia, PA: University of Pennsylvania, Museum of Archaeology and Anthropology.
2005 *Reports on the Vrokastro area, eastern Crete, Volume 3: the Vrokastro regional survey project, sites and pottery*. Philadelphia, PA: University of Pennsylvania, Museum of Archaeology and Anthropology.

In E.B.French 1990-91. *AR* 37: 76
In E.B.French 1991-2. *AR* 38: 69-70
In E.B.French 1992-93. *AR* 39: 80
In E.B.French 1993-94. *AR* 40: 83
In R.A.Tomlinson 1994-5. *AR* 41: 70-71
In D.J.Blackman 1996-7. *AR* 43: 118
In D.J.Blackman 1999-2000. *AR* 46: 146-7
In D.J.Blackman 2001-2. *AR* 48: 113-4

Survey id: Sphakia
Nixon, L., J. Moody, and O. Rackham
1988 Archaeological Survey in Sphakia, Crete. *Classical Views* 32 n.s. 7, 159-173 & http://sphakia.classics.ox.ac.uk/emccv1988.html

Moody, J., L. Nixon, S. Price, and O. Rackham
1989 Archaeological Survey in Sphakia, Crete*, Classical Views* 33 n.s. 8, 201-215 & http://sphakia.classics.ox.ac.uk/emccv1989.html

Nixon, L., J. Moody, V. Niniou-Kindeli, S. Price, and O. Rackam
1990 Archaeological Survey in Sphakia, Crete. *Echos du Monde Classique / Classical Views* 34, n.s.9: 213-220. & http://sphakia.classics.ox.ac.uk/emccv1990.html

Nixon, L., J. Moody, S. Price, and O. Rackham
1994 "Rural Settlement in Sphakia, Crete," in *Structures Rurales et Sociétés Antiques: Actes du colloque de Corfou 14-16 mai 1992*. Edited by P. Doukellis and L. Mendoni, pp. 255-64. Paris: Anales Littéraires de l'Université de Besançon 508: Les Belles Lettres.

Nixon, L., and J. Moody
1995 The Sphakia Survey.*Πεπραγμένα του Ζ' Διεθνούς Κρητολογικού Συνεδρίου* A2:691.

Moody, J., and L. Nixon
1998 The Sphakia survey, SW Crete. *BICS* 42:222.

Moody, J., L. Nixon, S. Price, and O. Rackham
1998 "Surveying poleis and larger sites in Sphakia," in *Post-Minoan Crete. Proceedings of the 1st Colloquium*,. Edited by W. G. Cavanagh, M. Curtis, *et al.*, pp. 87-95. London: British School at Athens.

Nixon, L., S. Price, and J. Moody
1999 "Settlement Patterns in Mediaeval & Post-Mediaeval Sphakia: Issues from the Environmental, Archaeological, & Historical Evidence" for proceedings of the Mediaeval & Post-Mediaeval Greece conference, Corfu, May 1998 despatched in January 1999. http://sphakia.classics.ox.ac.uk/bvtpaper.html

Nixon, L.
2000 "Traditional Bee-keeping in Sphakia, SW Crete, abstract of paper at conference on Bee-keeping in the Graeco-Roman World."*, Lady Margaret Hall, Oxford University, 7 November 2000,* http://sphakia.classics.ox.ac.uk/beeconf/nixon.html., 2000.

Moody, J., and H. L. Robinson
2000 The Fabrics of Life in Sphakia. *Πεπραγμένα του Η' Διεθνούς Κρητολογικού Συνεδρίου* A2:349-357.

Francis, J., S. Price, L. Nixon, and J. Moody
2000 'Agiasmatsi: a Greek cave sanctuary in Sphakia, SW Crete'. *BSA* 95:427-69.

Nixon, L.
2001 Seeing voices and changing relationships: Film, archaeological reporting, and the landscape of people in Sphakia. *AJA* 105: 77-97 & http://www.ajaonline.org/.

Nixon, L., and S. Price
2001 The diachronic analysis of pastoralism through comparative variables. *BSA* 96:395-424.

Price, S., T. Higham, L. Nixon, and J. Moody
2002 Relative Sea-level Changes in Crete: Reassessment of Radiocarbon Dates from Sphakia and West Crete. *BSA* 97:171-200.

Moody, J., H. Lewis Robinson, J. Francis, and L. Nixon.
2003. Ceramic fabric analysis and survey archaeology: The Sphakia Survey. *BSA* 98:37-105.

Nixon, L., and Price, S.
2004 'Paper, video, internet: New technologies for research and teaching in archaeology: The Sphakia Survey', in *Designing and Developing for the Disciplines (Special Issue)*. Edited by Lee, S Journal of Interactive Media in Education 2004 (11). http://www-jime.open.ac.uk/2004/17/nixon-2004-17-t.html

Price, S., and L. Nixon
2005 Ancient Greek agricultural terraces: Evidence from texts and archaeological survey. *AJA* 109:665-94. http://sphakia.classics.ox.ac.uk/

Survey id: Kavousi
Haggis, D.
1991 Survey at Kavousi, Crete: The Iron Age Settlements. *AJA* 95:291.
1995 Archaeological Survey at Kavousi, Crete: settlement development in Middle Minoan and Late Minoan *Πεπραγμένα του Ζ' Διεθνούς Κρητολογικού Συνεδρίου* A:1:369-381.
1992 *The Kavousi-Thriphti Survey: An Analysis of Settlement Patterns in an Area of Eastern Crete in the Bronze Age and Early Iron Age*. PhD thesis, University of Minnesota.
1993 Intensive Survey, Traditional Settlement Patterns, and Dark Age Crete: The Case of Early Iron Age Kavousi. *JMA* 6: 131-174.
1996 Archaeological Survey at Kavousi, East Crete. Preliminary Report. *Hesperia* 65(4): 373-432.
2002 "Integration and Complexity in the Late Prepalatial Period: A View from the Countryside in Eastern Crete", in *Labyrinth Revisited: Rethinking 'Minoan' Archaeology.* Edited by Y. Hamilakis. pp. 120-142. Oxford: Oxbow.
2005 *Kavousi I: The Archaeological Survey of the Kavousi Region*. Prehistory Monograph 16, Instap Academic Press.

Haggis, D. and M. Mook
1993. The Kavousi Coarse Wares: A Bronze Age Chronology for Survey in the Mirabello Area, East Crete. *AJA* 97: 265-93.

Mook, M. S., and D. Haggis
1990 The Kavousi-Thriphti Survey, 1988-9. *AJA* 94:323.

Survey id: Malia
Muller, S.
1990 Prospection de la Plaine de Malia. *BCH* 114:921-930.
1991 Prospection de la Plaine de Malia. *BCH* 115:741-49.
1992 Prospection de la Plaine de Malia. *BCH* 116:742-753.
1996 Prospection archéologique de la Plaine de Malia. *BCH* 120:921-928.
1997 Prospection archéologique de la Plaine. *BCH* 122:548-552.
1998 Prospection archeologique de la plaine. *BCH* 122:548-52.

In E.B.French 1990-1. *AR* 37: 74
In E.B.French 1991-2. *AR* 38: 65-66
In R.A.Tomlinson 1995-6. *AR* 42: 43-44
In D.J.Blackman 1996-7. *AR* 43: 109-113
In D.J.Blackman 1999-2000. *AR* 46:136-8
In J.Whitley 2004-5. *AR* 51: 107-8

Survey id: Aghios Vasilios Valley
Peatfield, A.
1990 Peak Sanctuaries in Western Crete: The Atsipades Korakias Project. *AJA* 94:321.
1992 Rural ritual in Bronze Age Crete: the peak sanctuary at Atsipadhes. *Cambridge Archaeological Journal* 2:59-87.

Markoulaki, S, Moody, J., and A. Peatfield
1991-93 Αρχαιολογικές Ειδήσεις: Επαρχεία Αγ. Βασιλείου, Σπήλι-Ατσιπάδες, *Κρητική Εστία* 4: 279-281.

Moody, J., A. Peatfield and S. Markoulaki
1995 Vallée d'Haghios Vassilios. *BCH* 119(chronique): 1028.
1998 Vallée d'Haghios Vassilios. *BCH* 122(ii): 968.
2000 Report from the Aghios Vasilios Valley Survey. *Πεπραγμένα του Η' Διεθνούς Κρητολογικού Συνεδρίου* A:2:359-371.

In E.B. French 1993-4. *AR* 40: 83-4
In R.A.Tomlinson 1994-5. *AR* 41: 64-65
In D.J.Blackman 1997-8. *AR* 44: 120-1
In D.J.Blackman 1998-9. *AR* 45: 123
In D.J.Blackman 1999-2000. *AR* 46: 148
In D.J.Blackman 2000-1. *AR* 47: 140

Survey id: Gournia
Watrous, L. V., and C. Davaras
1997 Amerikaniki Scholi Klasikon Spoudon: Gournia. *ΑΔ* 47 (1992 *Chronika*):607-8.

Watrous, L. V.
1993 Gournia Again Focus of Exploration. *Newsletter of the American School of Classical Studies at Athens* 32:1-3.

Watrous, L. V., and H. Blitzer
1995 The Gournia Survey Project: A Preliminary Report on the 1992-94 Field Seasons. *AJA* 99:313.
1999 "The Region of Gournia in the Neopalatial Period," in *Meletemata. Studies in Aegean Archaeology presented to Malcolm H. Wiener (Aegeum 20:2)*. Edited by P. P. Betancourt, V. Karageorghis, R. Laffineur, and W. D. Niemeier, pp. 905-909. Liège: Université de Liège.

Watrous, L. V., H. Blitzer, D. Haggis and E. Zangger
2000 Economy and Society in the Gournia Region of Crete. A preliminary report on the 1992-1994 Field Seasons of the Gournia Project. *Πεπραγμένα του Η' Διεθνούς Κρητολογικού Συνεδρίου* A:3:471-483.

Watrous, L. V.
2000 "Gournia," in *Crete*. Edited by J. Muhly and E. Sikla, pp. 127-135. Athens.

In E.B.French 1993-4. *AR* 40: 81
In R.A.Tomlinson 1994-5. *AR* 41: 65
In R.A.Tomlinson 1995-6. *AR* 42: 45
In D.J.Blackman 1996-7. *AR* 43: 114
In D.J.Blackman 1997-8. *AR* 44: 117-8
In D.J.Blackman 2002-3. *AR* 49: 84
In J.Whitley 2003-4. *AR* 50:87-88

Survey id: Gavdos
Kopaka, K., P. Drossinou, and G. Christodoulakos
1994-96 Επιφανειακή Έρευνα στη Γαύδο. *Κρητική Εστία* 5:242-244.

Kopaka, K., A. Alexopoulos, K. Paragamian, and G. Nikolakakis
1997 *Gavdos, an island in the Southeastern bound of Europe. Natural Environment-Society-Culture. Intermediary Report to the Ministry of Environment*. Intermediary Report to the Ministry of Environment, University of Crete.

Kopaka, K., and A. Kossyva
1999 "An island's isles: Crete and its insular components. A preliminary approach," in *Meletemata. Studies in Aegean Archaeology presented to Malcolm H. Wiener (Aegeum 20:2)*. Edited by P. P. Betancourt, V. Karageorgis, R. Laffineur, and W. D. Niemeier, pp. 435-444. Liège: Université de Liège.

Kopaka, K.
2000 Επιφανειακή έρευνα στη Γαύδο. Προσεγγίσεις ενός οριακού νησιωτικού μικρόκοσμου. *Πεπραγμένα του Η' Διεθνούς Κρητολογικού Συνεδρίου* A:2:63-80.

In D.J.Blackman 1997-8. AR 44: 125

Survey id: Praisos
Whitley, J.
1992 "Praisos," in *The Aerial Atlas of Ancient Crete*. Edited by E. E. Myers, J. L. Myers, and G. Cadogan, pp. 256-61. Berkeley and Los Angeles: The University of California Press.
1994 Praisos. *BSAAR* 1993-4:5-26.
1995 Praisos. *BSAAR* 1994-5:26-7.

1998 "From Minoans to Eteocretans: the Praisos Region 1200-500 B.C.," in *Post-Minoan Crete: Proceedings of the first Colloquium*. Edited by W. G. Cavanagh and M. Curtis, pp. 27-39. London: British School at Athens.

Whitley, J., M. Prent and S. Thorne
1999 Praisos IV: A preliminary report on the 1993 and 1994 survey seasons. *BSA* 94:215-264.

Whitley, J., K. O' Conor, and H. Mason
1995 Praisos III: a report on the architectural survey undertaken in 1992. *BSA* 90:405-428.

In E.B.French 1992-3. *AR* 39: 77-79
In E.B.French 1993-4. *AR* 40: 82
In R.A.Tomlinson 1994-5. *AR* 41: 70
In D.J.Blackman 1996-7. *AR* 43: 117
In D.J.Blackman 1997-8. *AR* 44: 119
In D.J.Blackman 1998-9. *AR* 45: 122-3
In D.J.Blackman 1999-2000. *AR* 46: 145
In D.J.Blackman 2000-1. *AR* 47: 138-9
In D.J.Blackman 2001-2. *AR* 48: 112
In D.J.Blackman 2002-3. *AR* 49: 85
In J.Whitley 2003-4. *AR* 50: 88
In J.Whitley 2004-5. *AR* 51: 101-2

Survey id: Ziros (Katelionas, Lamnoni)
Branigan, K.
1998 "Prehistoric and early historic settlement in the Ziros region, eastern Crete." *BSA* 93: 23-90.
2000 Lamnoni-A Late Neolithic Landscape in East Crete. *Πεπραγμένα του Η' Διεθνούς Κρητολογικού Συνεδρίου* A:1:161-167.

In R.A. Tomlinson 1994-5. *AR* 41: 71

Major Surveys Mentioned

Argolid

Jameson, M. H.
1976a "The Southern Argolid: the setting for historical and cultural studies," in Regional Variation in Modern Greece and Cyprus: Toward a Perspective on the Ethnography of Greece, vol. 268, Annals of the New York Academy of Sciences. Edited by M. Dimen, Muriel, and E. Friedl, pp. 74-91. New York: New York Academy of Sciences.
1976b A Greek countryside: reports from the Argolid Exploration Project. *Expedition* 19:2-4.

Jameson, M. H., C. N. Runnels, and T. Van Andel
1994 *A Greek Countryside. The Southern Argolid from Prehistory to the Present Day*. Stanford: Stanford University Press.

Van Andel, T. H., and C. Runnels
1987a The Evolution of Settlement in the Southern Argolid, Greece: An Economic Explanation. *Hesperia* 56:303-334.
1987b *Beyond the Acropolis: a Rural Greek Past.* Stanford: Stanford University Press.

Van Andel, T. H., C. N. Runnels, and K. O. Pope
1997 "Five Thousand Years of Land Use and Abuse in the Southern Argolid, Greece," in *Aegean Strategies: Studies of Culture and Environment on the European Fringe.* Edited by P. N. Kardulias and M. T. Shutes, pp. 33-59. Oxford: Rowman & Littlefield INC.

Biferno Valley

Barker, G.
1995 A *Mediterranean Valley: Landscape Archaeology and Annales History in the Biferno Valley.* London: Leicester University Press.

Boeotia

Bintliff, J. L.
1985 "The Boeotia Survey, Central Greece," in *Archaeological Field Survey in Britain and Abroad*, vol. Occasional Paper n.s. 6. Edited by S. Macready and F. H. Thompson, pp. 196-216. London: Society of Antiquaries, distributed by Thames & Hudson.
1992 "The Boeotia Project 1991: survey at the city of Hyettos," in *University of Durham and University of Newcastle upon Tyne Archaeological Reports*. Edited by P. Lowther, pp. 23-28. Durham

Bintliff, J. L., and A. M. Snodgrass
1985 The Cambridge/Bradford Boeotian Expedition: The First Four Years. *JFA* 12:123-161.
1988a Mediterranean Survey and the City. *Antiquity* 62:57-71.
1988b "The end of the Roman countryside: a view from the east," in *First millennium papers: Western Europe in the First Millennium AD*. Edited by R. F. J. Jones, J. H. F. Bloemers, S. L. Dyson, and M. Biddle, pp. 175-217. Oxford: British Archaeological Reports, vol.401.

Gillings, M., and K. Sbonias
2000 "Regional survey and GIS: The Boetia Project," in *Geographical Information Systems and Landscape Archaeology*. Edited by M. Gillings, D. Mattingly, and J. van Dalen, pp. 35-54. Oxford: Oxbow.

Canadian Palaipaphos Survey Project (CPSP) and Western Cyprus Project (WCP)

List of publications in:

Rupp, D. W.
2004 "Evolving strategies for investigating an extensive terra incognita in the Paphos District by the Canadian Palaipaphos Survey Project and the Western Cyprus Project," in *Archaeological Field Survey in Cyprus: Past History, Future Potentials*. Edited by M. Iacovou, pp. 63-76. London: British School at Athens, Studies II.

Falerii Novi
Keay *et al.*. 2000. Falerii Novi: A new survey of the walled area. *Papers of the British School at Rome* 68:1-93.

Keos
Cherry, J. F., J. C. Davis, and E. Mantzourani (eds)
1991 L*andscape Archaeology as Long-Term History: Northern Keos in the Cycladic Islands from the Earliest Settlement until Modern Times*. Vol. 16. Monumenta Archaeologica. Los Angeles: Institute of Archaeology, University of California.

Kythera Island Project (KIP)
http://www.ucl.ac.uk/kip/publications.php

Laconia
Cavanagh, W. G., J. Crouwel, R. W. V. Catling, and G. Shipley
1996 *The Laconia Survey: Continuity and change in a Greek rural landscape*. Vol. II: Archaeological Data. London: The British School at Athens.
2002 *The Laconia Survey: Continuity and change in a Greek rural landscape*. Vol. I: Methodology and Interpretation. London: British School at Athens.

Megalopolis
Lloyd, J. A., E. J. Owens, and J. Roy
1985 "The Megalopolis Survey in Arcadia: Problems of Strategy and Tactics," in *Archaeological Field Survey in Britain and Abroad*. Edited by S. MacReady and F. H. Thomson, pp. 217-224. London: Society of Antiquaries, distributed by Thames & Hudson.

Melos
Davidson, D., Renfrew, C., and C. Tasker
1976 Erosion and prehistory in Melos: a preliminary note. *JAS* 3: 219-27.

Renfrew, A. C., and J. M. Wastaff (eds)
1982 *An Island Polity: The Archaeology of Exploitation in Melos*. Cambridge: Cambridge University Press.

Messenia
McDonald, W. A., and G. R. J. Rapp (eds)
1972 *The Minnesota Messenia Expedition: Reconstructing a Bronze Age Regioanl Environment*. Minneapolis: University of Minnesota Press.

Mesopotamia
Braidwood, R. J., and B. Howe
1960 *Prehistoric Investigations in Iraqui Kurdistan*. Chicago: University of Chicago Press.

Methana
Mee, C. B., and H. A. Forbes (eds)
1997 *A Rough and Rocky Place: The Landscape and Settlement History of the Methana Peninsula, Greece*. Liverpool Monographs in Archaeology and Oriental Studies. Liverpool: Liverpool University Press.

Mee, C. B., H. A. Forbes, and L. Foxhall
1991 "Rural settlement change in the Methana peninsula, Greece," in *Roman Landscapes; Archaeological Survey in the Mediterranean Region*. Edited by G. Barker and J. Lloyd, pp. 223-232. London: British School at Rome.

Foxhall, L., C. B. Mee, and H. A. Forbes
1987 The Ptolemaic base of Methana. *AJA* 93:247-8.

Mexico
Sanders, W. T., J. Parsons, and R. Santley
1979 The basin of Mexico: the ecological processes in the evolution of a civilisation. New York: Academic Press.

Moni Odigitrias Survey
In Whitley 2003-4. *AR* 50: 82
In Whitley 2004-5. *AR* 51: 114-5

Nemea Valley Archaeological Project: Archaeological Survey (NVAP-AS)
Major publications:
Cherry, J. F., J. L. Davis, E. Mantzourani, and J. C. Wright
1985 The Nemea Valley Archaeological Project, 1984. *AJA* 89:327.

Cherry, J. F., J. L. Davis, A. Demitrack, E. Mantzourani, T. F. Strasser, and L. E. Talalay
1988 Archaeological Survey in an Artefact-Rich Landscape: A Middle Neolithic Example from Nemea, Greece. *AJA* 92:159-176.

Wright, J. C., J. F. Cherry, J. L. Davis, E. Mantzourani, S. B. Sutton, and R. F. Sutton, Jr.
1990 The Nemea Valley Archaeological Project: A Preliminary Report. *Hesperia* 59:579-659.

For a full list:
http://river.blg.uc.edu/nvap/

Nikopolis Project
Wiseman, J., and K. Zachos (eds)
2003 *Landscape Archaeology in Southern Epirus, Greece I*. Hesperia Supplement 32. Athens: American School of Classical Studies at Athens.

Lefkas
Gallant, T. W.
1986 Background noise' and site definition: A contribution to survey methodology. *JFA* 13: 403-18.

Palaikastro
MacGillivray, J. A., L. H. Sackett, D. Smyth, J. Driessen, D. G. Lyness, and B. A. Hobbs
1984 An archaeological survey of the Roussolakkos area at Palaikastro. *BSA* 79:129-59.

Phlius
Alcock, S. E.
1991 Urban Survey and the Polis of Phlius. *Hesperia* 60:421-463.

Phaistos
Watrous, L. V., D. Hadzi-Vallianou, and H. Blitzer
2004 *The Plain of Phaistos. Cycles of Social Complexity in the Mesara Region of Crete*. *Monumenta Archaeologica 23*. Los Angeles: Cotsen Institute of California.

The Pylos Regional Archaeological Project (PRAP)
For list of publications:
http://classics.uc.edu/prap/publications.html

Sphakia
For list of publications:
http://sphakia.classics.ox.ac.uk/publications.html

Sydney Cyprus Survey Project (SCSP)
Given, M., and A. B. Knapp (eds)
2003 *The Sydney Cyprus Survey Project: Social Approaches to Regional Archaeological Survey*. Los Angeles: Cotsen Institute of Archaeological Survey, University of California at Los Angeles.

Given, M., A. B. Knapp, N. Meyer (with Gregory, T. E., Kassianidou, V., Noller, J., Urwin, N., Wells, L., Wright, H.).
1999 The Sydney Cyprus Survey Project: an inter-disciplinary investigation of long-term change in the north central Troodos, Cyprus. *JFA* 26:19-39.

Knapp, A. B., and M. Given
2004 "Social Landscapes and Social Space: the Sydney Cyprus Survey Project," in *Archaeological Field Survey in Cyprus: Past History, Future Potentials*. Edited by M. Iacovou, pp. 77-93. London: British School at Athens, Studies II.

Tanagra Survey

Bintliff, J. L., E. Farinetti, K. Sbonias, L. Sigalos, and B. Slapsak
2000 The Tanagra Survey. Report on the 2000 season. *PHAROS: Journal of the Netherlands Institute at Athens* 8:93-127.

Bintliff, J. L., N. Evelpidou, and *et al.*
2001 The Leiden Ancient Cities of Boeotia Project: Preliminary Report on the 2001 season. *PHAROS: Journal of the Netherlands Institute at Athens* 9:33-74.

Bintliff, J. L., E. Farinetti, and *et al.*
in press. The Tanagra Project: Investigations at an Ancient Boeotian City and in its Countryside 2000-2001 and a Preliminary Report of the 2002 Season. *BCH*.

Terralba, Sardinia

Van Dommelen, P., and L. Sharpe
2004 Surveying Punic rural settlement: the Terralba Rural Settlement Project, Sardinia. *Antiquity* 78:http://antiquity.ac.uk/ProjGall/vandommelen/index.html.

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Abbreviations and Vocabulary

Agrofylakas (pl – agrofylakes): the equivalent of a policeman in the countryside.
Archaiologikon Deltion: Greek journal of archaeological reports
BYZ: Byzantine
BVT: Byzantine-Venetian-Modern
CH: Culture-History
CHRM: Cultural Heritage Resource Management
Dromos (pl - dromoi): Road, trackway
EBA: Early Bronze Age
E.D.: Environmental Determinism
Ephoreia: Archaeological Service (County Council)
Ephor (os): Head of an Archaeological Service (County Council)
EIA: Early Iron Age
EM: Early Minoan
GR: Graeco-Roman
GYS: Geographiki Yperesia Stratou (Geographical Service of the Army)
HG: Human Geography
IT: Information Technology
Kalderimi (pl.-kalderrimia): Stone-paved roads
Kafeneion: traditional café in Greek villages; meeting place
LBA: Late Bronze Age
LN: Late Neolithic
LM: Late Minoan
LT: Landscape Tradition
Madhara (pl. – madhares): Highlands in Lefka Ori in Chania.
Mandinada (pl. –mandinades): Cretan rhymes, used also in traditional songs
Mandra: enclosure used by the shepherd to gather sheep and goat herds for milking etc.
MBA: Middle Bronze Age
MM: Middle Minoan
Metochi (plural metochia): Cretan farmhouse (seasonal) and agricultural land around.
Mitato: shepherd hut in the mountains traditionally made of stones.
PH: Prehistoric
PK: Peak Sanctuary
SCA: Site Catchment Analysis
SM: Sub-Minoan
SMR: Site and Monuments Records
STDEV: Standard Deviation
TT: Topographic Tradition
Visala: Pottery sherds in the Cretan dialect
VEN: Venetian
Xoklisi (pl. - xoxlisia): small independent church in the countryside

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Curriculum Vitae

Marina Gkiasta was born in Athens on the 22nd of April 1970. She graduated from the department of Archaeology at Athens University in 1993, having completed a year of undergraduate studies at the University of Sussex. She completed a post-graduate seminar on Early Bronze Age Aegean and acquired a Masters at University College London on Field and Analytical Techniques. She has been involved in several research projects at Athens University, University College London, the Institute of Mediterranean Studies and the University of Crete, focusing on prehistory, computer analytical techniques and survey. She has participated in numerous field projects mainly in Greece, but also in Italy, England and Barbados. She has always been interested in archaeological method and her love for the landscape resulted in the combination of both that went hand in hand with an ever increasing interest in the history of ideas and the study of knowledge production. The outcome has been this thesis that studies the history of theory and method in landscape archaeological practice in Crete. Key themes in Gkiasta's research interests are the role of landscape in human societies, social identity, archaeological theory and method (especially in landscape studies), prehistory and ethics in archaeology.

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