1. INTRODUCTION: AN INITIAL PERSPECTIVE

COLIN RENFREW AND MALCOLM WAGSTAFF

The spatial and temporal patterns of human culture are never stationary, particularly when viewed in a long-term perspective. Changes may be discerned: cultures emerge, flourish and decay. Their underlying structures of settlement and resource exploitation shift, often in kaleidoscopic fashion, so that different patterns are formed from the same basic elements. Man continually adjusts to the environment which his own activities are unavoidably modifying. The wider geographical context is constantly transformed by, for example, political and administrative developments.

It is not enough, however, for the historian or the archaeologist to reconstruct the changes that have taken place. The study of past change ought to allow the establishment of soundly based starting assumptions for predicting the future. It should permit the formulation of alternative projections for evaluation and it should allow the fixing of probabilities around them. For it is not enough, either intellectually or for a practically minded world, just to describe change, even in its spatio-temporal matrix. The processes of change must be identified; their varying strengths must be assessed. Since causal relations are little understood, there is also a duty to test existing concepts and theories in the real context of space and time.

The emergence of complex society in particular is a process of which archaeologists and geographers have as yet only a limited understanding. The intricate interplay of ecological, technical and social factors in each case where such a society or civilisation has developed in some area of the world makes analysis difficult (cf. Adams 1966; Flannery 1972). It was the principal aim of the project here reported to investigate such processes of change in a particular, well-defined area of study where a flourishing urban society, with its own individuality and originality, twice developed upon well-attested local foundations.

We would argue that at least four preconditions may be stipulated for fruitful empirical investigation into socio-cultural change:

(a) *Defined area of study* The boundaries of the study area must be clearly defined spatially, facilitating a systemic approach which permits a clear distinction between interactions within the system and those with neighbouring systems operating across its boundaries.

(b) *Diachronic perspective* A long time trajectory is desirable to permit the investigation of interactions among potential causal factors and the recognition of any near-cyclic regularities.

(c) *Concrete ecological approach within a systemic framework* The study unit must be such as to allow detailed investigation of environmental and cultural data in the field and a coherent settlement survey strategy, both within an explicit conceptual framework.

(d) *Deductive reasoning based upon specific assumptions* A purely empirical and inductive approach is rejected as failing to generate the broader generalisations whose formulation and validation is the ultimate goal of the project.

Generations of archaeological field projects show that it is rather easier to formulate such precepts than to apply them fruitfully through the practice of excavation and fieldwork. Our own project, like most of its predecessors, found itself both with many theoretical statements which it proved difficult to test against any data which could be collected, and with masses of hard-won facts which did not impinge significantly upon our theoretical framework: facts in search of theories, and theoretical formulations in search of data. Indeed our theoretical framework changed as the project developed. Our fieldwork was not often designed specifically to test particular hypotheses, and the most interesting results were generally those that were unexpected and necessitated the formulation of entirely new generalisations. At the same time we claim that our work was informed by a reasonably coherent outlook, and a determination that the end-product should be more than a series of specialist appendices to the excavation report of an individual site (cf. Evans and Renfrew 1968). It seems worthwhile, therefore, to set out more fully our preoccupations and objectives.

Island biogeography: area of study

The selected area of study, the Greek island of Melos in the Aegean, afforded many initial advantages, some of them merely practical and circumstantial. Yet uppermost in our minds was the clear advantage of choosing a small area or unit of study, neatly self-defining, isolated to some extent. 'In the science of biogeography the island is the first unit that the mind can pick out and begin to comprehend'

(MacArthur and Wilson 1967, 3). The opportunity of studying a localised unit which actually behaves as a region is important: all too often regional analysis starts from a definition of the region formulated by observers, yet with little empirical basis on the ground.

In this case we are dealing with a unit displaying some of the characteristics common to islands everywhere (Blache 1950; Evans 1973), with the associated properties of security versus isolation, limitation of resources versus abundant availability of certain special island products, and the sea as a barrier versus the sea as a medium of communication and important resource in itself. The emergence of complex society in Melos may thus be set in the context of island cultures generally (Vayda and Rappaport 1963). And as always in such cases, fruitful although potentially misleading analogies may be sought between biogeographical and cultural theory (Sauer 1977). As Fosberg (1965, 5) remarks:

> Some of the more significant characteristics of the island ecosystem are relative isolation; limitation in size (space resource); limitation in or even absence of certain other resources; limitation in organic diversity; reduced interspecies competition; protection from outside competition and consequent preservation of archaic, bizarre, or possibly ill-adapted forms; tendency towards climatic equability; extreme vulnerability, or tendency towards great instability when isolation is broken down; and tendency towards rapid increase in entropy when change has set in.

Such qualities of islands facilitate the study of spatio-temporal systems, whether conceived as stable, functional entities or as systems in the process of transformation. Melos has its own special advantages for this type of study.

As a largely volcanic island, distant from the mainland, its geology is susceptible to specific characterisation, while certain of its rocks (obsidian, *mylopetra*, and Kimolian earth) furnished unique products which were widely distributed at various times in the past. Accordingly, it should be possible here, perhaps more than in a continental or large island setting, not only to distinguish artefacts which were produced within the Melian cultural system from those which were not, but also to fit each set into the appropriate areal context of the island and the Aegean region. Melos, however, is not entirely alone on the western edge of the Cyclades, 20 km distant from neighbouring Siphnos. Some 20 km long, it is the largest member of its own group of islands (Melos, Antimelos, Kimolos and Poliagos; fig. 1.1), whose combined population is today about six thousand. Although Kimolos has enjoyed periods

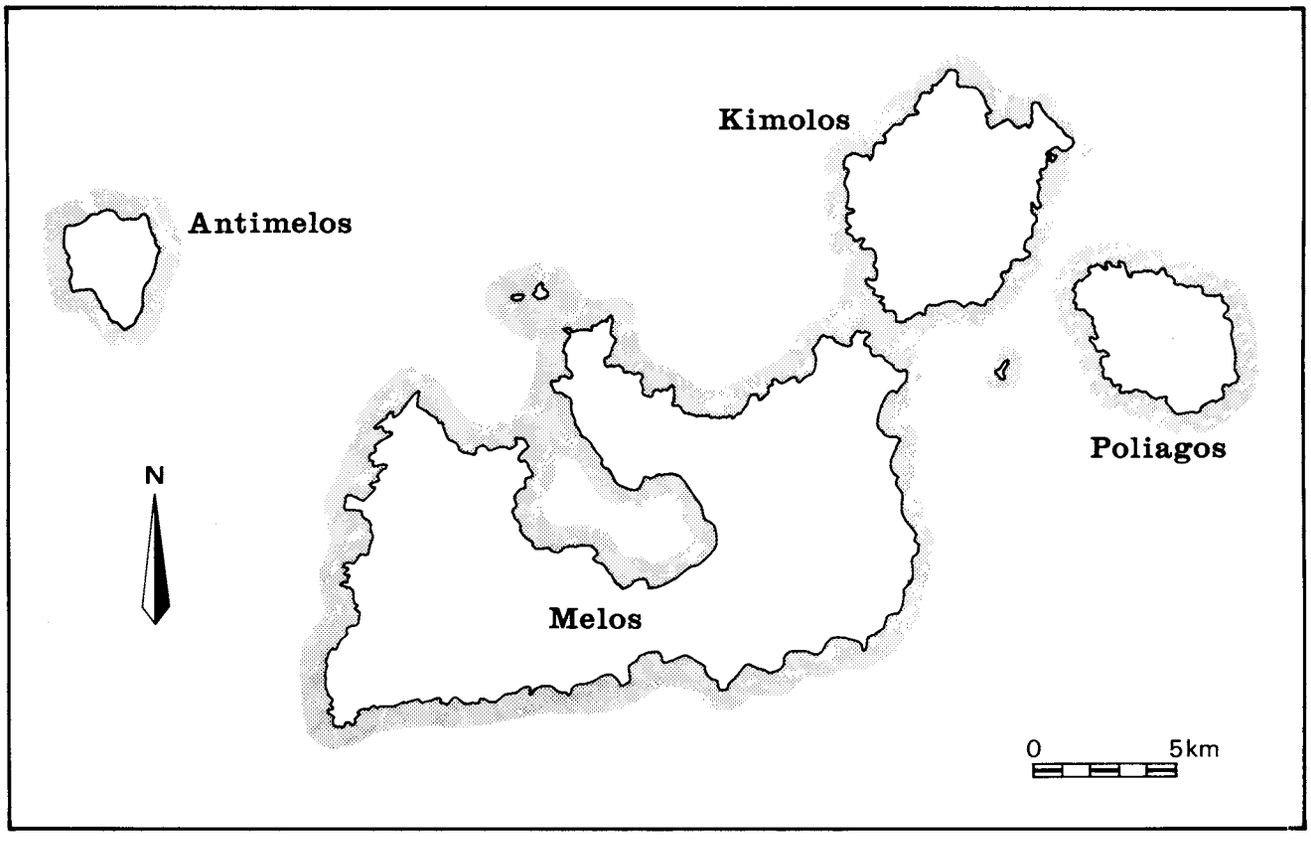

Fig. 1.1. The Melos island group

of relative political independence from Melos, most notably as a city-state in the third century BC, for many purposes the island group may be regarded as comprising a single, interacting spatial system.

At the same time its articulation within the larger regional system must be examined: naturally the nature of this articulation varies through time. Melos is one of a number of islands together forming the Cycladic archipelago, in the south-central Aegean. Culturally the Cycladic islands have often shown marked similarity. When it is necessary to define the boundary of a regional system larger than that of the unit island itself, that boundary may often be set around the Cyclades. The cultural trajectory of Melos cannot be understood unless its position as a member of an archipelago is appreciated: the special interactions in such cases have been indicated by Evans (1973, 519), and further discussed by Davidson (1977, 83) in relation to Polynesia.

The Cyclades in turn (fig. 1.2) belong within the wider area of the Aegean basin. As we shall see, much of the history of Melos is governed by interrelations and exchanges with other regions within the Aegean, notably Crete and the Greek mainland. Indeed at many periods Melos and the Cycladic islands have been outward-looking rather than isolated and inturned, resembling in this respect the Lipari islands rather than Malta in Evans' (1977, 20) West Mediterranean dichotomy.

Beyond the Aegean is the larger, inclusive geographical location, the Eastern Mediterranean, within which Cycladic contacts were largely restricted in prehistoric times. Later, from the early first millennium BC, these contacts embraced the Mediterranean as a whole.

It is possible, then, to set up a spatial hierarchy, of which the smallest unit is, at small island level, exemplified by Melos itself.

Diachronic perspective

Complex societies have twice arisen in the Aegean as a result of a process that may be regarded as largely local and endogenous to the Aegean area. The earliest of these, the Minoan and Mycenaean civilisations, most prominent during the late bronze age, from c. 1600 to c. 1100 BC, were centred upon the palace as an organising centre which served as a base for craft specialists, and as a central store with written accounting systems. Analogous major settlements are documented for several Cycladic islands, including the important centre at Phylakopi on Melos itself (fig. 4.3). The second major urban episode in Melos originates in about the eighth century BC, which sees the emergence of the so-called city-state in the Aegean world. This was often small in size, with a population rarely more than 10,000 and sometimes only one-tenth of that (Pounds 1973, 60). Certainly they often lacked the clear three-level social and spatial organisation which some have claimed as a basic feature of state societies (Wright 1969; Wright and Johnson 1975). Yet they were properly constituted autonomous polities, with a government prescribing and legitimising the use of force: many of them issued their own coinage (fig. 1.3).

Following the destruction of the city of Ancient Melos by the Athenians in 416/415 BC its political and cultural autonomy was never again complete. Yet the Cycladic islands regained a measure of individuality in the middle ages, and to some extent retain it yet. Table 1.1 gives an outline synopsis of the culture sequence for Melos from the earliest activity – the obsidian trade in the eighth millennium bc – down to the present time.

The pattern of development during the evolution and subsequent eclipse of the two major periods of autonomous political existence for Melos suggests some underlying regularity in the process. A dispersed farming population is brought under the apparent jurisdiction of an urban centre which becomes the location of most of the island population. The prosperity of this centre, documented by fine

Table 1.1. *Simplified sequence for the human exploitation of Melos in prehistoric and historic times*

Date	Position of Melos
	Within modern Greek nation
1821	Ottoman domination
1564	Frankish domination
1207	Late Byzantine anarchy
960	Later Roman/Byzantine rule
300 AD BC	Roman Empire
150	Athenian, then Macedonian Empire
416/415	Independent city-state
c. 700	'Dark Age'
c. 1100	Independent polity
c. 1400	'Urban' settlement, perhaps Minoan colony
c. 1600	Nucleated settlement
c. 2300	Dispersed farming settlements
c. 3300	Seasonal exploitation by hunter–gatherers ('neolithic')
c. 5000	Visited by fishermen (evidence of obsidian)
c. 10,000	Initial discovery

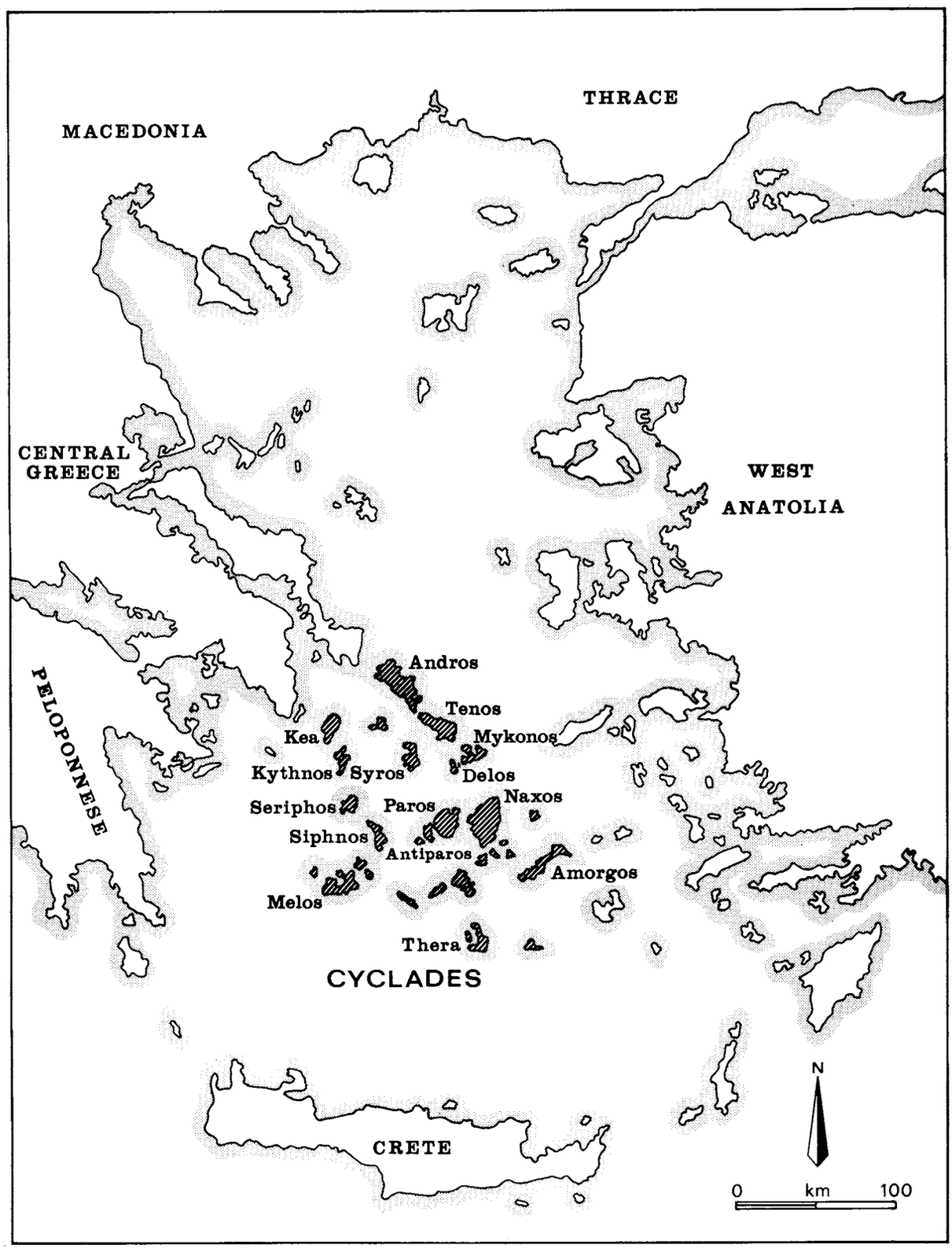

Fig. 1.2. Melos, the Cycladic islands and the Aegean: unit, region and area

craft production and the import of luxury goods, develops, and is threatened but not ultimately diminished by the assumption of political power by an external polity. Larger Aegean issues determine the progress of this polity, and its ultimate collapse entails in each case an end to the continuity of urban life in Melos. This pattern of apparent recurrence is one of the most intriguing features in the history of Melos and of other Cycladic islands, and suggests the operation of a limited range of processes and constraints.

Concrete approach within a systemic framework

Systems thinking allows phenomena co-existing in time and space to be viewed in an integrative way. It stresses relationships. This has two theoretical advantages as far as the present study is concerned. A consistent pattern of relationships can allow lacunae in the formal record to be filled. More importantly, the recognition of patterns of relationships makes it possible to experiment by varying both the

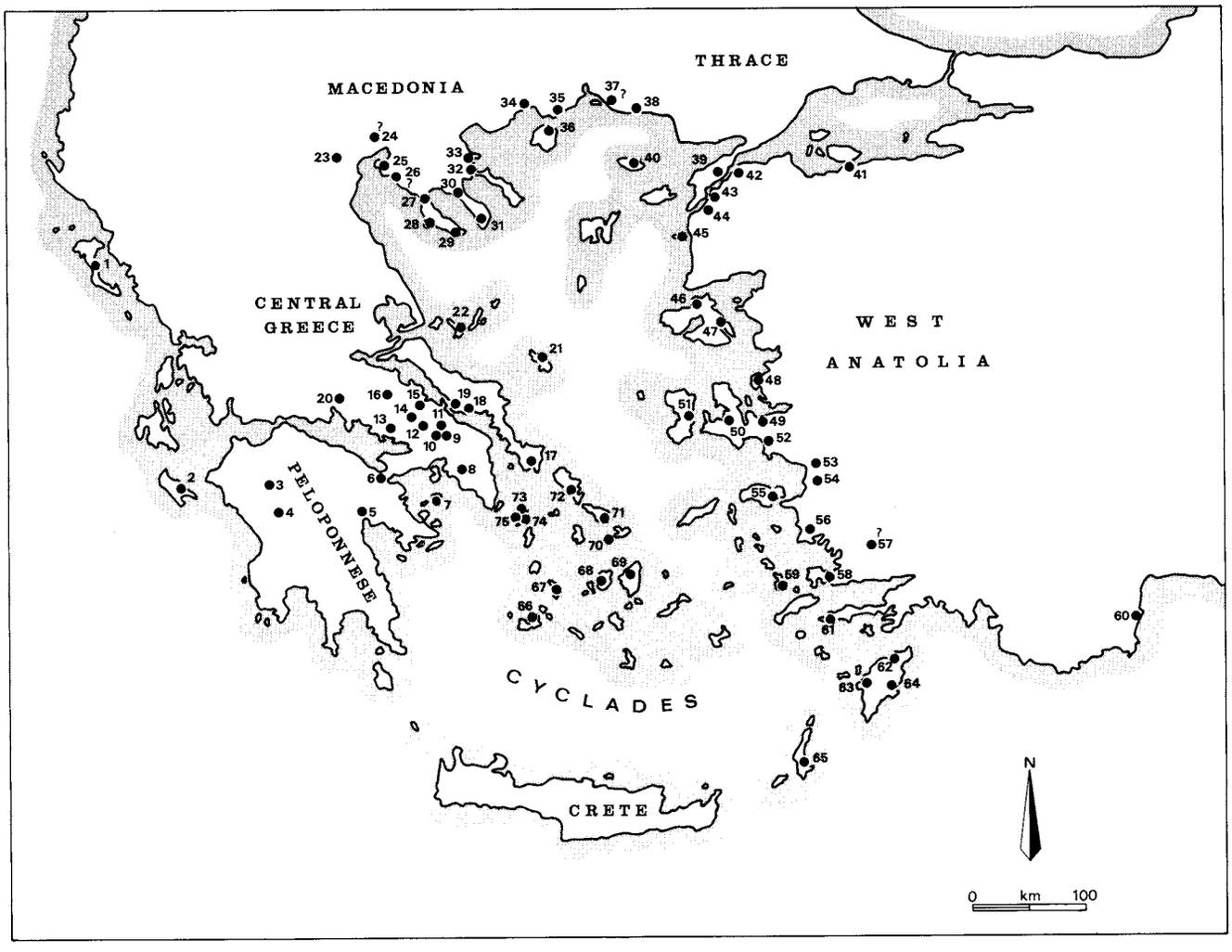

Fig. 1.3. Local autonomy: city-states issuing coinage c. 500 BC (compiled by B.A. Sparkes and C.M. Kraay):
1. Kerkyra, 2. Zakynthos, 3. Psophis, 4. Heraia, 5. Argos, 6. Corinth, 7. Aigina, 8. Athens, 9. Tanagra, 10. Pharai, 11. Mykalessos, 12. Thebes, 13. Koroneia, 14. Haliartos, 15. Akraiphia, 16. Orchomenos, 17. Karystos, 18. Eretria, 19. Chalkis, 20. Delphi, 21. Skyros, 22. Peparethos, 23. Aigai, 24. Ichnai, 25. Aineia, 26. Dikaia of the Eretrians, 27. Potidaia, 28. Mende, 29. Skione, 30. Sermyle, 31. Terone, 32. Akanthos, 33. Stagira, 34. Neapolis, 35. Abdera, 36. Thasos, 37. Dikaia in Thrace, 38. Maroneia, 39. The Thracian Chersonese, 40. Samothrace, 41. Kyzikos, 42. Lampsakos, 43. Abydos, 44. Dardanos, 45. Tenedos, 46. Methymne, 47. Mytilene, 48. Phokaia, 49. Klazomenai, 50. Erythrai, 51. Chios, 52. Teos, 53. Kolophon, 54. Ephesos, 55. Samos, 56. Miletos, 57. Mylasa, 58. Halikarnassos, 59. Kalymna, 60. Phaselis, 61. Knidos, 62. Ialysos, 63. Kameros, 64. Lindos, 65. Poseidion (Karpathos), 66. Melos, 67. Siphnos, 68. Paros, 69. Naxos, 70. Delos, 71. Tenos, 72. Andros, 73. Koressia (Kea), 74. Kartheia (Kea), 75. Ioulis (Kea)
(A question mark on the map indicates doubt about location.)

strength of the various components and the structure of the relationships to discover the likely repercussions on the rest of the system. The study of functions and processes is facilitated and understanding deepened. An island system has already been recognised in this discussion and related to a hierarchy of spatial systems ranging upwards in size from Melos itself to the Melian group of islands, then to the whole of the Cyclades and finally to the system embracing the whole Aegean sea with its other islands and circumscribing mainland (fig. 1.4). Frequent reference will be made to this concept.

Within the wider context of general systems theory, use is made of ecological ideas (Odum 1969). The concept of the ecosystem, for example, offers a way of discussing the interrelationships and interdependence of man and his physical environment. Just like other organisms, man has certain minimum requirements which impose limits on where and how he can live, though in a biological sense his tolerance limits are remarkably wide. Human activity and cultures depend upon the energy which can be produced by the ecosystem and channelled through it. Control of the energy flows may then be seen as basic to the structure of polities and their more obvious cultural manifestations. The exploitative system is thus important. Left in isolation, the exploitative and energy system of an island such as Melos should tend, in theory, towards structural stability through the operations of in-built, self-regulatory mechanisms which, in crude terms, would keep population levels in some sort of balance with the productivity of the ecological system. The productivity of the system and its areal expression, however, would be modified by anthropogenic change in the physical environment. For example, erosion would be increased dramatically under a Mediterranean climatic regime simply by clearing the vegetation and opening the soil for growing crops. But ecological ideas allow a process of adjustment to be envisaged in which a new stability is sought. In open systems, moreover, the inflow and outflow of products tends to prevent the increase of entropy and, theoretically at least, should produce a tendency towards the order and greater organisation seen in emerging polities. Whilst presenting these conceptual opportunities, an ecological perspective retains the fundamental co-ordinates of time and space so that their calibration, as it were, can be used to measure change.

These considerations demanded that the island system and its constraints should be examined on the assumption,

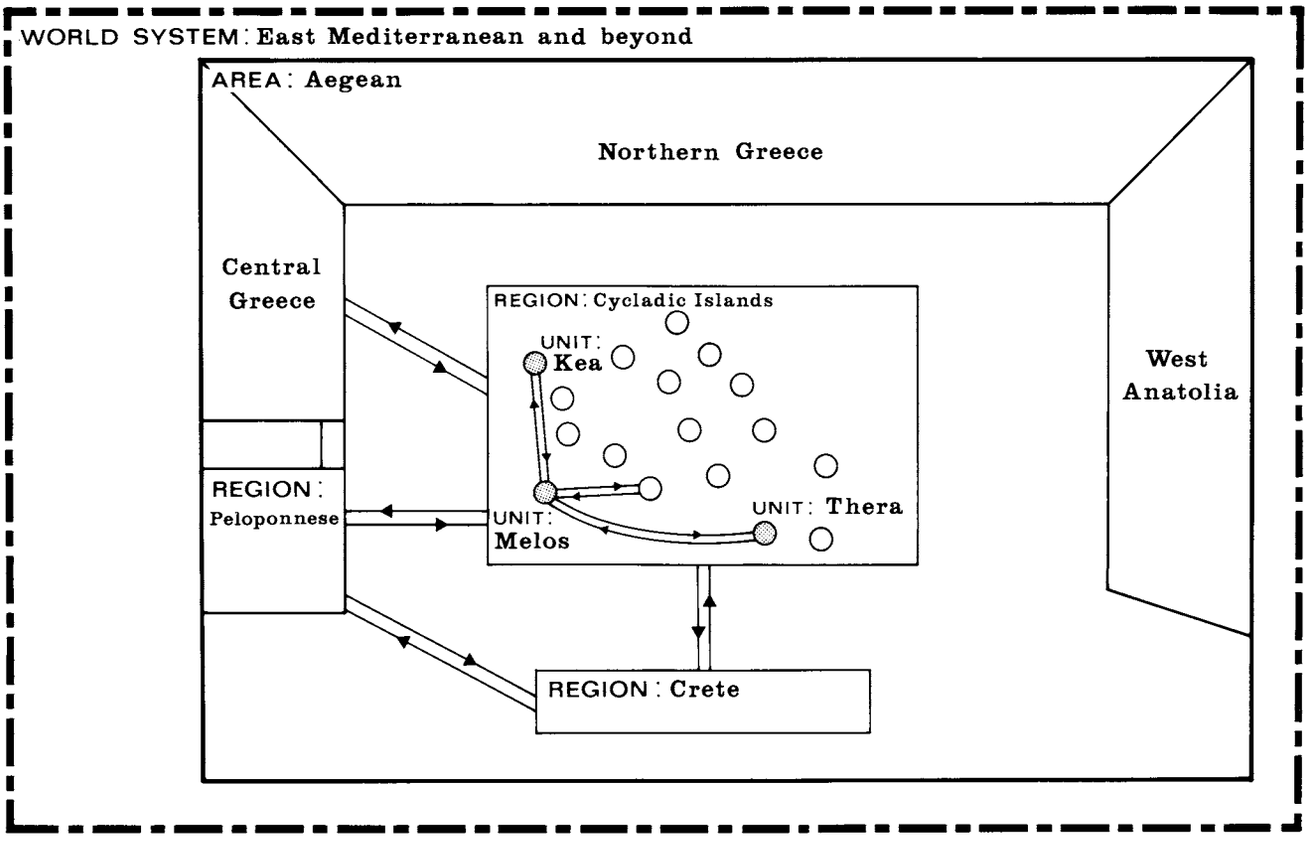

Fig. 1.4. Unit, region, area and world system: the hierarchy of spatial systems

first, that it is, insofar as human interactions are concerned, a closed system, and then, at a later stage, that it is an open one. In this way, its internal productivity and exploitative possibilities can be examined. The role of internal systems can then be assessed in relationship to energy flows known to come into the system as a result of a diversity of outside human contact. The idea of an interplay between socio-cultural systems internal and external to Melos thus becomes another basic element in the structure of ideas.

This framework, which has been used in planning the present volume, is seen in figure 1.5 (cf. Terrell 1977). We consider first an outline of the archaeological and historical data available relating to the chosen unit area, the island of Melos (Part I). There follows in Part II a description and discussion of the environmental system of Melos and of its neighbours, indicated by 'habitat' in figure 1.5. Under 'Intra-systemics' in Part III are considered those processes involving the population of Melos within the specific island environment: activities within the island ecosystem of Melos itself. The wider relations of Melos within the Cycladic and Aegean world, activities beyond the unit area itself, are considered under 'Inter-systemics' in Part IV. Finally in Part V an attempt is made to draw these different approaches together.

Some assumptions and hypotheses

Whilst a systemic approach informed our thinking and ultimately provided the framework for the book, our research efforts were guided by two fundamental propositions formulated early in the project. These underlie the preceding heuristic discussion. The first is that patterns and regularities may be discerned by the observer in the emergence and decay of cultures and polities. If this is correct, then diachronic study should reveal distinctive changes in the settlement patterns which are amongst the basic physical expressions of cultural systems. It might be possible to detect, for example, rises and falls in the number of settlements over time, shifts in the spatial arrangement of settlements (say between nucleation and dispersion) and the existence of distinctive settlement forms, such as fortified villages, in different periods.

The second fundamental proposition is that such changes can be explained in terms of the relationship between the

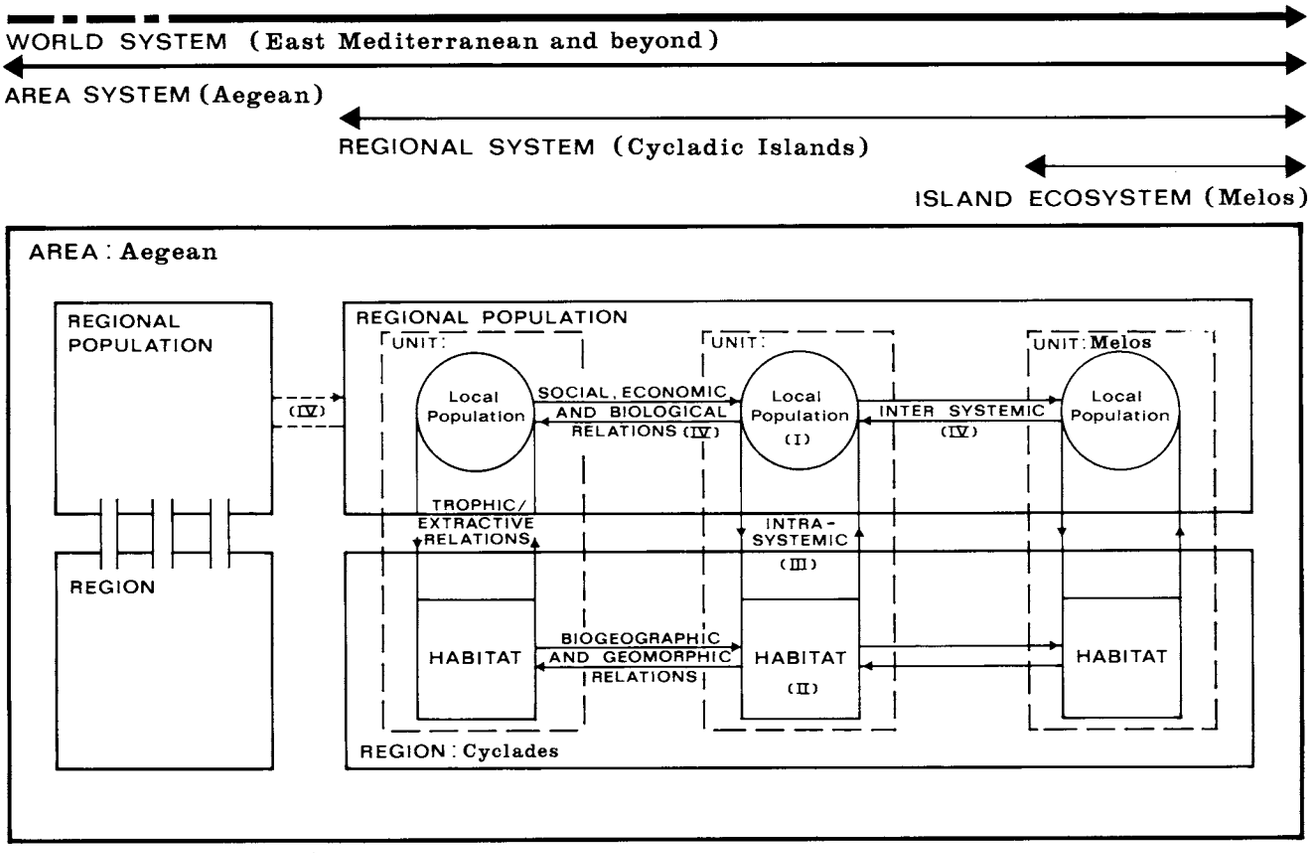

Fig. 1.5. The exploitation of the island ecosystem (e.g. Melos) within the regional and area systems. (Roman numerals indicate the plan of the book, designating the successive parts.)

exploitation of the island's internal resources and the patterns of its external contacts. The validity of this proposition can be established by examining the following hypotheses:

(i) The island system has certain potentials which may be realised in various ways to support a range of population densities.

(ii) Settlement patterns and distinctive settlement types are conditioned by the distribution of Melian resources and related to its points of contact with the outside world, i.e. harbours and landing places.

(iii) The island's input/output system changes through time and its configurations correlate with temporal shifts in the socio-cultural system.

(iv) The pattern of local exploitation (the working of the internal subsistence and settlement systems) and the functioning of the input/output system will articulate precisely at the point where that local exploitation is controlled. Moreover, that organisational control will often be exercised by the upper levels of a social hierarchy which may (when it exists) be documented by means both of the settlement archaeology and the distribution of craft-specialist products.

These general propositions and four more specific hypotheses have dictated the final form of the book. They are discussed and, as far as possible, tested by a team of scholars drawn from various disciplines. Their contributions are individual in character, but they have been informed by the agreed principles and perspectives outlined earlier in this chapter. Conclusions are offered in the final section where the validity of the starting propositions is discussed. The whole is launched, however, with a presentation of the spatio-temporal patterns of human activity in the island, beginning with the evidence upon which settlement patterns and culture change are reconstructed.

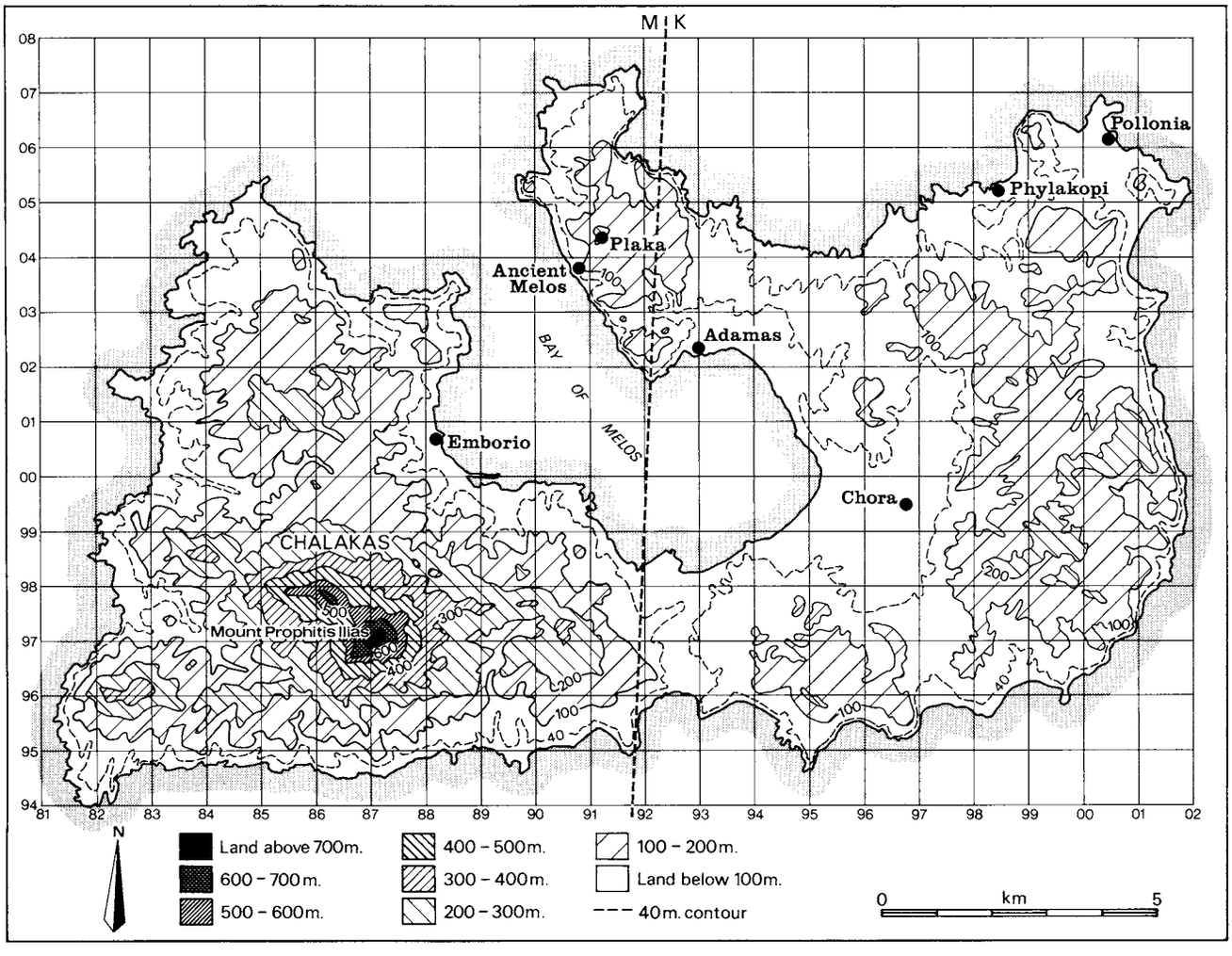

Fig. 1.6. Topographic map of Melos with the Cassini grid

PART I:
THE HISTORY OF SOCIETY IN MELOS

None but those who have borne the toil of many successive months, exposed in boats or tents to the rays of a scorching sun, merciless rains, and strong gales, can justly estimate the dangers of a surveyor's life; and, though last not least, the pestilential fevers of the Levant, which have laid many a poor fellow in his grave, or stricken him with ague for the rest of his days. Let the traveller go where he may amongst the isles of Greece, or along the shores of the Peloponnesus, Attica, Boeotia, Macedonia, Euboia, Ionia, Lycia, Cilicia, etc., and many mournful epitaphs to the memory of the departed will remind him that there repose the remains of men cut short in the prime of their existence, who devoted their lives to science and the benefit of their fellow men.

'Some Account of the Volcanic Group of Milo, Anti-Milo, Kimolo, and Polino.' Leycester 1852, 224–5.

The investigation of the island polity of Melos and of its exploitation begins with a diachronic survey of what is known of its history, from the first visits by man to the island in early prehistoric times down to the present century. The aim in this section is thus culture-historical rather than processual.

Much that is written here was well-established before our project began, through earlier work of the British School of Archaeology at Athens (Atkinson *et al.* 1904) and the useful outline by Chatzidakis (1927, reissued 1972). An important first step, however, has been the intensive site survey reported in chapter 2. Since it was not practicable to walk the entire surface of the island, a systematic random transect sampling strategy was adopted, to establish a firm quantitative base for estimates of settlement and population densities in successive periods. Such a survey differs from the area-extensive approach which has usually been adopted in the Aegean (e.g. Hope Simpson 1965, 1977; McDonald and Hope Simpson 1972; Hope Simpson and Dickinson 1979) which in general seeks to maximise the number of sites recovered. Here the objective is rather to maximise the reliability of estimates of settlement density.

The site survey, whose findings are documented in appendix A, provides a starting base for the period chapters which follow. The number of sites of neolithic date now goes up from one to eight. Knowledge of bronze age Melos has been advanced by the project's excavations at the principal site of the period, Phylakopi. The review of the history of classical Melos is supplemented by a new survey of the city of Ancient Melos itself, based on field work and on new aerial (balloon) photographs. The chapter on post-Roman Melos likewise makes use of the historical sources as well as the material remains.

A historical summary such as this is the final objective of many projects. Here it is the starting point for the discussion in succeeding parts, which moves towards an explanation of the changes observed, via a consideration of the basic resources of the area and of its exploitation.

2. A PRELIMINARY DEFINITION OF SITE DISTRIBUTION ON MELOS

JOHN F. CHERRY

The principal aim of this chapter is to introduce and present the archaeological site data which serve as the indispensable basis for the discussion in a number of subsequent chapters. They derive from two sources: previous work on the island and the results of a sample survey organised by the author in 1976. For convenience and brevity, the sum of information, as it now stands, has been condensed to a sequence of chronological distribution maps (figs. 2.2–2.8) and a descriptive site gazetteer (appendix A); interpretative and analytic treatment of these data appears elsewhere in the volume, notably in chapters 3, 4, 5, 11 and 19. In the body of this chapter, therefore, the emphasis lies on the working concepts and procedures which have largely controlled the type and quality of data collected. First, I sketch the course of archaeological exploration and discovery over the past two centuries which provided the foundation for our own work on Melos. Then, consideration is given to the relationship between the acquisition of regional archaeological data of the kind appropriate to the problems with which this volume is concerned and the types of survey traditionally employed in the Aegean. It is only in this context that it is profitable to describe the design, execution and basic results of the 1976 sample survey: in archaeology, questions control methods at all times.

Previous archaeological investigations on Melos

Although Melos was visited and described by a number of European travellers and antiquaries prior to the early nineteenth century (e.g. Buondelmonti (1424), Thevenot (1665), Tournefort (1718), Choiseul-Gouffier (1782), Olivier (1801), Sonnini (1801), Turner (1820)), few of them reported much of archaeological interest. A handful of inscriptions was transcribed and/or removed to western collections, both public and private; amongst these was a marble column, first published in 1755, bearing what is still the earliest Greek text from the island in the characteristic Melian script (*IG* XII.3.1075), dated by Jeffery (1961, 320–4) to around the last quarter of the sixth century BC. There can be no doubt, however, that it was the chance discovery by a peasant in April 1820 of that most celebrated of Melian antiquities, the so-called 'Venus de Milo' (pl. 5.4), which first drew the serious attention of antiquaries to the island. The circumstances of its discovery and the frantic intrigue which led to its ultimate acquisition by the French were described shortly afterwards by the Vicomte de Marcellus (1840) and others (cited in Chatzidakis 1972, 120–35; Alcard 1874; Reinach 1906; Vaos 1963; Bracken 1975, 159–71). The statue itself, found in a sort of niche in association with several inscriptions (*IG* XII.3.1091, 1092, 1241) and two herms, was published promptly (e.g. Clarac 1821; cf. Furtwängler 1895, 365–401) and attracted international interest as a recognised artistic masterpiece of classical antiquity.

The hope of further finds of this quality, as Bent (1885, 84) observed, 'made the vale of Klima the Eldorado of collectors' in the mid-nineteenth century. A number of pieces of statuary and inscriptions were indeed collected during the 1820s and 1830s, giving substance to the previous assumption that the ruins between Trypiti and Klima did indeed represent the principal town of the *polis* of Melos, whose sack by the Athenians in 416/415 BC was described by Thucydides (V.84–116). The small theatre of the town, discovered in 1814 according to the Vicomte de Marcellus (1840), was cleared in 1836 by King Ludwig I of Bavaria, but suffered damage in subsequent years. Fortunately, a carefully drawn plan and elevation made shortly after its excavation was published as part of the report of the French *Expédition scientifique de Morée*, which also illustrates parts of the classical city walls, inscriptions, and several sculptural fragments (Le Bas 1838, pls. 25–9).

The travels and research of the Germans Prokesch and Ross in the years after 1825 saw the initiation of more systematic archaeological work on Melos. In volume three of his *Reisen auf den griechischen Inseln* Ross (1845a, 3–21, 145–51) provided a description of the observable ruins of the ancient town, noting for the first time the extensive early Christian catacombs (site 7) below Trypiti (*ibid.* 145). Tomb robbing on Melos seems to have accelerated significantly in the years following the Greek War of Independence (1821–30), drawing attention to the archaeological richness of the environs of the town; Ross cleared out a good number of graves of the archaic and classical periods on the east side of the town, between Trypiti and Klimatovouni (ch. 5, fig. 6.3; Chatzidakis 1972, 96–9). Inscribed grave stelae from these excavations, together with several