

The evolution of the Polynesian chiefdoms

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1

Introduction

The first European explorers to pierce the sea barriers to Polynesia wondered at the vast distribution of the Polynesian ‘Nation’ – from Easter Island to New Zealand, thence to Hawai‘i, enclosing a watery triangle of 20 million square miles. Since Europeans had themselves only recently ‘discovered’ the Pacific Ocean, the idea that mere savages (however noble) had navigated a great ocean and colonized its remotest isles was astonishing. While at Easter Island in 1774 Captain James Cook wrote that ‘it is extraordinary that the same Nation should have spread themselves over all the isles in this vast Ocean from New Zealand to this island which is almost a fourth part of the circumference of the Globe’ (Beaglehole 1969:354). Despite their astonishment, the explorers could not miss the clear similarities in material culture, customs of behaviour, and in speech, which all bespoke a common origin for the Polynesians. As Lieutenant King of the *Resolution* astutely observed: ‘The same language . . . hardly requires any other proof of those who speak it being the same people, and originating from the same country’ (Beaglehole 1967:1392).

Ever since Cook’s and King’s observations, generations of scholars have puzzled at whence, when, and how these Oceanic ‘Vikings of the sunrise’ penetrated and colonized the vast Pacific. Sunken continents, multiple migration waves from both west and east, bizarre racial theories – all were invoked to explain the so-called ‘problem of Polynesian origins’. A compelling explanation has emerged only in the past few decades, largely due to the advent of intensive sub-surface archaeology in the Pacific Islands. Bolstered by ancillary studies in historical linguistics, comparative ethnography, ethnobotany, and physical anthropology, archaeology has resolved the ‘problem of Polynesian origins’ thus: the Polynesians *became* Polynesians within their oceanic realm, their varied cultures the product of millennia of local evolution in island environments. Polynesian prehistory unfolds as an exceptional instance of evolution and diversification.

Having achieved this modern perspective on Polynesia’s myriad cultural and social variations as the product of differentiation and

transformation from a common ancestor, a whole new array of analytical problems confronts the anthropologist and prehistorian. What particular conditions or processes propelled Polynesian societies along sometimes divergent, yet oft-times convergent evolutionary or developmental pathways? How is it that elaborate, hierarchical, and at times oppressive political systems emerged in some islands while others appear to have maintained relatively egalitarian polities? How did varying environmental constraints affect particular pathways of technological and social change? Such are the questions that continually tease the student of Polynesian ethnography and prehistory, and that have inspired the present work.

At this point I must advise the reader as to what I mean (and, as importantly, do *not* mean) by *evolution*, a term the use of which carries a certain risk that one will be pigeon-holed with some particular school of anthropology. In this book, I intend the term to apply simply to technological and social change in the most general sense. Although we are not here concerned with biological evolution, Darwin's classic phrase, 'descent with modification', is probably closest to a definition of evolution in the present context. Certainly, I wish to avoid any prejudice of association with particular theories of mechanisms for cultural or social evolution. I have my own biases, as the reader will discover, but it is upon the evidence for social and technological change in Polynesia that I want to focus, not upon some narrow theoretical argument. The reader should also be forewarned that although I use the term 'chiefdom' to characterize the socio-political organization of Polynesian societies at the contact-era endpoints, this does not mean that I regard them as exemplars of some evolutionary 'stage', or that I subscribe to the 'neo-evolutionary' schemes popular in American anthropology during the 1960s and 70s (e.g., Service 1967; Fried 1967). Indeed, for reasons given in detail below, I believe that a stadial or stagal approach to evolution in Polynesia is something of a 'dead horse', entirely inadequate as an explanatory framework.

Polynesia is as exemplary a setting for such a study of technological and social evolution as we may hope to find. It has been fashionable to speak of Polynesia as a cultural 'laboratory' (Suggs 1961:194; Sahlins 1963; Kirk and Epling 1972; Clark and Terrell 1978; Kirch 1980a; Friedman 1981:275) and the metaphor may well be appropriate, for the region offers nearly unique possibilities for analytical control (Goodenough 1957). Islands and island societies by their very nature provide microcosms for the study of ecological and evolutionary processes. As Loren Eiseley put it, islands are apt to open doorways to the unexpected. The fifty ethnographically known societies that comprise Polynesia were all demonstrably derived from a single ancestral society. Each society presents an ecological and evolutionary isolate which together can be likened to a set of historical, cultural 'experiments', in

which the founding ancestor was identical, but where certain variables – ecological, demographic, technologic, and so on – differed from case to case. Sahlins (1958:ix) invoked a biological analogy when he stated that the Polynesian societies ‘are members of a single cultural genus that has filled in and adapted to a variety of local habitats’. The analogy is appropriate, and just as studies of island biology from the time of Darwin and Wallace have contributed enormously to an understanding of organic evolution, so island anthropology promises to open doorways regarding the nature of social and technological evolution.

Various aspects of analytical control are inherent in Polynesia. Not only does the region represent a spectrum of societies derived from a common ancestor, but isolation between many islands effectively reduces the thorny problem of diffusion and cultural contact following initial colonization (Goodenough 1957). More, the Polynesian islands contrast remarkably in their ecological settings, offering a multi-dimensional spectrum of environmental challenges to which the founding populations variously responded. With climates ranging from tropical to temperate (indeed, sub-antarctic in the Chatham Islands), and with topography encompassing atolls, high islands, and near-continentals, the ecological variability within Polynesia may be greater than that exhibited within any other culture area of the world. One additional aspect of control lies in the diverse population sizes of Polynesian societies at European contact, ranging from a few hundred to several hundred thousand persons. Population densities ranged from truly sparse (*c.* 0.02 persons/km² in southern New Zealand [Anderson 1980a:12]) to among the densest known for horticultural societies worldwide (432 persons/km² in Anuta [Yen 1973b]). Surely here are tantalizing data for testing the role of population growth and ‘pressure’ in relation to technological and social change.

To paraphrase G.E. Hutchinson, each Polynesian archipelago and island was an ecological theatre, wherein was enacted its own evolutionary play. To make sense of Polynesia’s variability, we must ascertain the consistent and meaningful similarities, as well as any significant anomalies, in the developmental sequences represented by each island. Building on that framework, our ultimate aim is to isolate underlying mechanisms and processes of change or evolution. Clearly this goal extends beyond the geographic confines of Polynesia, and is relevant to the wider issue of social transformation, without regard to particular time or place.

Polynesian societies are of wide anthropological interest for another reason, owing to their socio-political structures. Chiefdoms, as an intermediate level of socio-political organization bridging the acephalous society with more complex state societies, hold a special fascination for anthropologists. Polynesian societies not only exemplify the ‘typical’ chiefdom, they display the limits of variation in organizational struc-

ture and complexity of such societies. Within Polynesia we find societies in which chiefs were inseparably linked as kinsmen to commoners, where redistribution was minimal, and production almost entirely a household matter. On the other hand were elaborate chiefdoms such as Hawai'i, where the chiefly class claimed descent independent from commoners, ranked themselves internally into seven or eight grades, practised sibling marriage to maintain those grades, mobilized corvée labour and organized production on a grand scale, and most notably, alienated land from ownership by commoners. These latter Polynesian chiefdoms, which 'approached the formative levels of the old fertile crescent civilizations', have been said to lie at a critical interface between the chiefdom and state (Sahlins 1963; Fried 1967; Service 1975).

Polynesia offers an opportunity to address the development and elaboration of chiefdom socio-political organization, both from the perspective of comparative ethnography and through the evidence of archaeology. What was it that led some Polynesian societies in the direction of increasingly complex, stratified polities, while others remained relatively simple? How did this trend towards increased organizational complexity correlate with population growth, agricultural intensification, or level of inter-group conflict? Since the Polynesian spectrum of socio-political variability represents evolutionary divergence from a shared ancestor, the aspects of analytical control cited above should also permit the isolation of some of the processes that helped to mould each Polynesian chiefdom throughout the course of its historical development.

This task is not entirely novel, and several classic works of anthropology have addressed themselves to a nearly identical theme (of which the most widely read is probably Sahlins [1958]). However, whereas analysis of *synchronic* ethnographic materials characterized earlier comparative studies of Polynesian chiefdoms, we can employ now a large body of archaeological data with direct, *diachronic* relevance to the problems of Polynesian evolution. Alan Howard (1972:822) presaged the role of archaeology in a general synthesis of Polynesian society when he wrote that the ethnographic theorists had provided prehistorians 'with a richer set of competing possibilities concerning social change around which to orient their [archaeological] efforts, and if they do their job well we may yet accumulate sufficient data to produce compelling reconstructions'. Three decades of intensive work in Polynesian archaeology have now brought us to a point where the data, if not totally satisfying, are at least sufficiently rich to demand an attempt at synthesis that ranges beyond mere description. Archaeology, after all, is privileged by the nature of its data to address problems of technological and social change most directly. Polynesian archaeology must avail

itself of the region's analytical opportunities, and inherit the challenge left by the comparative ethnographers.

Methods, aims, and objectives

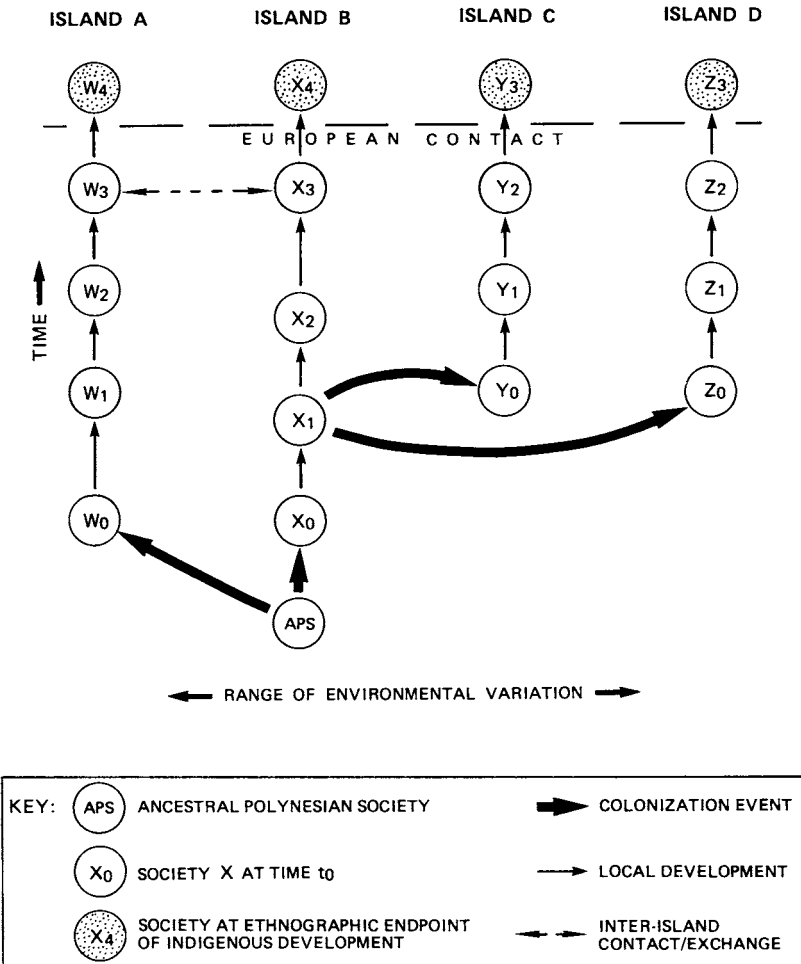
Fundamentally, this book is a study of the internal differentiation of Polynesian societies. Since these were non-literate societies, it is a study in *prehistory*, but by no means restricted to the use of strictly *archaeological* data or methods. Precisely because Polynesia as a region consists of a series of discrete, but historically related societies – all derived from a common ancestor – and because there was direct historical continuity between the 'ethnographic present' and the prehistoric past, we are in an excellent position to draw upon ethnohistoric, ethnographic, and linguistic data, as well as upon strictly archaeological evidence in an attempt to understand the region's prehistory. The Polynesian ethnographic baseline does not provide mere analogies for the interpretation of archaeological data; it illuminates directly the *endpoints* of indigenous developmental sequences.

The method of this study can be clearly described with reference to a simple model of Polynesian differentiation (Fig. 1). In the diagram, the variety of island societies witnessed at European contact is represented by their ethnographic endpoints (shaded circles, e.g., X_4 , Y_3). Each of these societies was the product of an internal sequence of development from the same historical ancestor, which I term Ancestral Polynesian Society (APS). Over time, the differentiation of Ancestral Polynesian Society resulted from colonization of a range of new and environmentally contrastive islands, and from subsequent internal change, generally in isolation. In some cases, contact between island societies (as in the case of W_3 and X_3 in the diagram) may have resulted in later cultural or linguistic borrowing (diffusion) which occurred after initial colonization and differentiation and can further confuse the picture. Despite these caveats, the use of lexical and ethnographic evidence does permit a fuller reconstruction of the ancestral baseline from which the differentiation of Polynesian societies proceeded, than that which archaeology alone can provide.

In and of themselves, however, ethnographic and linguistic methods cannot inform us of the particular *sequences of development* of island societies: they simply illuminate the point of origin (Ancestral Polynesian Society) and the endpoints of indigenous change. To get at sequences of change requires properly diachronic data. Thus, as prehistorians interested fundamentally in sequences of change – and in the processes underlying change – we must rely primarily on archaeological data, the material remains from which technological and social change may be inferred. Only such archaeological data can fill in the record of

change from Ancestral Polynesian Society to the diversity of endpoints that were met by the eighteenth-century European explorers.

In our quest to understand the processes that underlay and initiated change and differentiation among Polynesian societies, there is yet another body of data with potential relevance. This is the corpus of indigenous oral traditions, of which Goldman writes, ‘at the very least they represent a Polynesian viewpoint on their own history, and in this important respect they reveal local historiography’ (1970:xii). Each Polynesian society possessed its own body of traditions, especially of the political events surrounding the ruling elites, and these traditions are invariably tied to genealogies that provide a relative temporal



1. The differentiation of Polynesian societies from a common ancestral society (see text for discussion).

framework. There has been a cyclical debate among Polynesian scholars as to whether such traditions and genealogical records accurately reflect 'real' historical events (Suggs 1960b; E. Leach 1962; Firth 1961; Hooper 1981). My own view, based primarily on close analysis of traditional materials from Tonga, Tikopia, and Hawai'i, is that the traditions pertaining to the last few hundred years of the developmental sequences (the past several generations prior to European intrusion), do indeed represent actual events and affairs of real people, although some distortion of fact, as well as use of metaphor and allegory are obviously problems to be dealt with (cf. Vansina 1965). The Tikopia case clearly shows remarkable correspondence between indigenous oral traditions and archaeological evidence (Kirch and Yen 1982:363-8). What really matters, however, is not whether such oral traditions are literally 'true' in any Western sense of history or pre-history, but that they offer an alternative view of historical *process* and frequently illuminate the motives or inducements to change. They allow us to perceive change as the results of conscious actions on the part of knowledgeable members of society, and not merely as the precipitate of vaguely defined interaction between 'system variables' (cf. Giddens 1981:18). In short, they offer an indigenous perspective which at times may help in the analysis of our own ethnographic and archaeological formulations.

Using these several sources of data pertaining to Polynesian pre-history, each of them serving to supplement and cross-check the others, the specific objectives of this study are three-fold. First, I attempt a reconstruction of the common baseline, Ancestral Polynesian Society. Sahlins (1976:23) has said that 'history begins with a culture already there', and, as Friedman pointed out, evolutionary models begin 'with an . . . "original" structure in order to generate subsequent structures with the consequence that the initial form must remain temporarily unexplained' (1979:32). For Polynesia this baseline is Ancestral Polynesian Society, and Chapters 2 and 3 are devoted to a reconstruction of this society as it flourished in the West Polynesian archipelagos some thousand years before Christ. By combining forces with historical linguistics and comparative ethnography, archaeology can achieve a reasonably detailed outline of this ancestral baseline. The reader must understand that my primary aim is to analyse what happened to this ancestral society as its members were dispersed to the isolated islands of Polynesia, to adapt to, interact with, and modify a range of local conditions. We shall not, however, be concerned with the origins of technological and social patterns already in existence some three millennia ago. The ultimate origins of Ancestral Polynesian Society are another story that we must leave aside for now, a story that eventually must lead us back in space to island south-east Asia, and in time perhaps to the end of the Pleistocene.

My second objective, which forms the central and major portion of this volume, is an analysis of the dominant processes that resulted in the internal differentiation of Polynesian societies. Rather than treat the development of the Polynesian chiefdoms geographically, on an island-by-island basis, or chronologically, I have chosen to arrange my analysis and argument around the several major processes which appear to have dominated Polynesian developmental pathways. Thus, after an initial review of the region's ecological diversity and constraints and the reconstruction of Ancestral Polynesian Society, I turn to a consideration of the reassortment of technological and social systems, and adaptation to new conditions that inevitably accompanied the colonization of new landfalls. Successive chapters each treat other significant processes, namely population growth, environmental change, development and intensification of production, and competition and conflict. In each case I try to show how technological and social patterns already developed in Ancestral Polynesian Society were a dynamic part of the process of change.

The third and final objective is to examine three particular sequences of development, three case studies, and to compare and contrast their unique yet similar pathways of change. For this purpose, I have chosen Tonga, Hawai'i, and Easter Island, and the diachronic analysis of their sequences is the theme of the final third of the volume. In their often radical departure from Ancestral Polynesian Society, these three cases reveal the historical limits to structural transformation within the Polynesian chiefdoms.

In relation to these objectives, I would like to offer a brief comment on the idea of *explanation* in prehistory, borrowing some of the insights of a foremost student of evolution, Ernst Mayr (1961). This book is not so much an argument in favour of a particular explanation, as an attempt to specify some of the various causes, both proximate and ultimate, that lay behind Polynesian technological and social change, and to explore the often complex interrelations amongst these causes. I do not believe that any single paradigm will ever parsimoniously and sufficiently 'explain' the transformation of the Polynesian chiefdoms. What we can hope to achieve is a reasonably clear understanding of the major proximate causes for particular, observed changes in the archaeological record, and the major ultimate causes responsible for channelling evolution in certain general directions. Such an achievement is reward enough, and perhaps of more lasting value than trendy explanations tied to some particular theory of culture or society current at the moment.

Approaches to prehistoric change in Polynesia

Speculation regarding Polynesian origins and prehistory began with the eighteenth-century explorers and continued unabated throughout

the nineteenth century (see Howard 1967 for a thorough review), but serious anthropological studies of the region began only about sixty years ago. The year 1920 saw ‘the problem of Polynesian origins’ proclaimed a major scientific issue (Gregory 1921), with the B.P. Bishop Museum initiating an exhaustive ethnographic and archaeological field survey eventually requiring two decades to complete. Among the young anthropologists enlisted in this programme was E.S.C. Handy, whose subsequent publications typify the strongly diffusionist view of Polynesian cultural origins and development, a view that held sway for several decades.

Handy’s theoretical perspective was actually anticipated, in tenor if not substance, by the formulations of earlier scholars such as J. Macmillan Brown, who explained the ‘strangely varied web’ of Polynesian cultures as the result of ‘a singularly advanced barbaric woof crossing a palaeolithic warp’ (Brown 1907:xxx). In consort with the Boasian anti-evolutionism of the times, Handy maintained that variability in Polynesian societies was to be explained – not as the result of processes of cultural change and divergence within a local ecological setting – but as an amalgam of traits imported by successive movements of colonizing or conquering populations. Based upon field studies in the Society Islands, Handy (1930a; 1930b) proposed a ‘two strata’ theory of origins, in which the multitude of traits comprising Tahitian society was divided into those of an ‘old Tahitian’ or *manahune* population, and those of a later, conquering *arii* people. Such blatant diffusionist schemes appear naive in retrospect, yet it is well to consider that Handy’s viewpoint not only dominated Polynesian studies for nearly two decades, echoes of it linger on in some modern formulations.

Piddington (1939), in a concluding essay to Williamson’s classic works on Central Polynesia, attacked at length the ‘two strata’ theory of Polynesian origins. Piddington rightly criticized the lack of rigour in Handy’s diffusionist approach: ‘using a pair of compasses, and, taking a Polynesian institution as the centre, drawing gradually increasing concentric circles upon the map until the circumference of one of them passes through the venue of some extraneous institution bearing a superficial resemblance to its putative Polynesian offspring’ (1939:341). Piddington convincingly argued that Polynesian cultural variation could readily have resulted from local developmental processes, ‘that there was never more than one cultural “migration” into the area, and that the variations to be found there are due to spontaneous development from a single original culture’ (1939:337). His argument freed Polynesian studies from the shackles of diffusionist logic, and opened the way for modern conceptions of prehistoric change.

In two papers published contemporaneously with Piddington’s critique, Burrows (1939a, b) advocated a parallel notion of internal process in the differentiation of Polynesian cultures. Based upon a detailed trait analysis, Burrows (1939a) proposed a four-fold partitioning

of the region (into Western, Intermediate, Central, and Marginal sub-groups). Cultural differentiation, Burrows argued, had been due to *in situ* historical process, not diffusion from outside Polynesia. Burrows (1939b) likewise examined variability in social organization, specifically addressing the presence within Polynesia of two kinds of social units: kinship-based groups ('breed'), and those organized on territorial principles ('border'). Although diffusion was not entirely ruled out, Burrows rightly stressed 'the role of purely local dynamic factors' in giving each region 'a pattern in some respects unique' (1939b:18). Among these dynamic factors he mentioned intermarriage, adoption, and migration, and 'perhaps most powerful of all – warfare arising from rivalry over land or ambition for enhanced status' (1939b:21).

In addition to stressing social factors, Burrows was aware of the potential role of environmental constraint and diversity in moulding characteristic aspects of each society. Burrows's seldom-cited comparison (1938) of Futuna and 'Uvea in Western Polynesia (both of which he had studied during Bishop Museum's ethnographic survey) dealt with the significant influence of topography and local ecology on social development and differentiation. Some of Burrows's conclusions appear naive or deterministic in the light of a contemporary ecological perspective, but his attempt was seminal, foreshadowing later innovations, including Sahlins's concept of 'differentiation by adaptation' (1958).

By the 1940s the anthropological consensus on Polynesian cultural diversity had shifted from a *Kulturkreise* mentality to an emphasis on the role of internal processes. Peter Buck's work (e.g., 1944), laying out a grand synthesis of Polynesian 'culture stages', exemplified this viewpoint. The role of diffusion was not entirely abrogated, however, for Buck – who held that the original Polynesian ancestors had entered the region via the Micronesian atolls – believed that crop plants and domestic animals were added to the Polynesian cultural repertoire after initial colonization. It is significant, however, that Buck used the term 'evolution', albeit a unilineal evolution synonymous with 'progress'. For instance, in discussing the geographic movement from atolls to high islands, Buck wrote that: 'The Society Islands provided an abundance of basaltic rock, thus the shell age Polynesians had the raw material with which to rise again into the stone age' (1944:474).

Under the influence of Leslie White, Julian Steward, and others, cultural evolution had become fashionable in American anthropology by the late 1940s and early 1950s. One of their students, Marshall Sahlins, saw in Polynesia the inherent advantages for a controlled study of what Steward had termed 'multi-lineal evolution'. In a justly famous though much criticized monograph, Sahlins (1958; see also 1957) advanced the thesis that 'Polynesian cultural differentiation was produced by process of adaptation under varying technological and

environmental conditions. A single culture has filled in and adapted to a variety of ecological niches' (1957:291). Sahlins reviewed the forms of Polynesian social organization, and argued that two basic structural types, 'descent-line systems' and 'ramage systems' were each the result of adaptation to particular ecological conditions, compaction of resources in the former case, and dispersed resources in the latter. In contrast to high islands, the unique constraints of atolls favoured 'a multiplicity of socio-economic groups formed on different principles and connected with production and distribution of different goods or on different scales' (1957:296). In all cases, stratification was to be accounted for *vis-à-vis* its role in spurring production and in organizing the distribution of strategic goods.

Unfortunately, the logical clarity of Sahlins's argument was flawed by ethnographic and ecological inconsistencies. J.D. Freeman (1961, 1964) refuted the attribution of descent-line systems to Samoa, demonstrating instead the existence of ramage organization. Finney (1966) invoked Tahitian ecological data to reject Sahlins's contention that high islands were characterized by widely distributed resources. Instead, the valley-centred, wedge-shaped Tahitian territorial units each contained all necessary resources, and thus could be effectively exploited by a minimal ramage. Despite such criticisms, Sahlins's work had a tremendous impact, and not only within the field of Polynesian studies (see, for example, Flannery and Coe 1968; Sanders and Price 1968; Peebles and Kus 1977). As Howard (1972:822) suggests, the lasting contribution of Sahlins's monograph was to force anthropologists to 'focus our lenses on the relationship between ecological features, modes of production, distribution and consumption, and social institutions'.

Whereas Sahlins saw Polynesian societies building upon an ecological foundation, Irving Goldman (1955, 1970) presented an opposite, though complementary perspective, that these societies were moulded by 'status rivalry' inherent in their aristocratic political structures. Goldman's arguments also suffered criticism on the basis of inattention to ethnographic detail, logical tautology, and other grounds (Hawthorne and Belshaw 1957; Howard 1972), and his thesis received neither the acclaim nor notoriety of Sahlins's. Nevertheless, as Howard (1972:822) asserts, Goldman made a substantial contribution in stressing the distinction between the 'cultural concerns of high chiefs and persons of lower rank. . . . the former were primarily concerned with matters of honor, power, and prestige, while the latter were preoccupied with the pragmatics of making a living'. The ecological perspective of Sahlins and the structural orientation of Goldman together contribute elements for a more sophisticated and compelling theory of Polynesian evolution.

Those uninitiated in the history of Polynesian anthropology may

wonder that in a review of theories of prehistoric change no reference has as yet been made to archaeology. Not until the 1950s did archaeology begin to play a leading role in considerations of Polynesian origins and cultural differentiation, having 'come of age' only within the past two decades. Although limited excavations had been conducted in New Zealand (even as early as the 1870s), up until 1950 Polynesian archaeology was largely confined to surface surveys of the more impressive architectural sites, and to descriptive analyses of stone tools such as adzes. Archaeology was held to offer little more than ancillary, corroborative data to historical ethnography. Even the forward-looking Piddington, while admitting grudgingly that archaeological methods were 'valid' in Polynesia, questioned whether the 'systematic exhumation of pre-European Polynesian artifacts is a profitable and urgent task for science today' (1939:335).

The serendipitous results of a university class in archaeological field techniques, conducted at Kuli'ou'ou Rockshelter, O'ahu by K.P. Emory in the spring of 1950, shattered the dogma that Polynesian archaeology was historical ethnography's poor relation. Not only did the Kuli'ou'ou deposits yield an unanticipated range and abundance of prehistoric artifacts, but a radiocarbon age determination for charcoal from the shelter's lowest level (the first ^{14}C date for the Pacific Islands, 946 ± 180 BP) pushed the initial settlement date of Hawai'i beyond expectations. At the same time Gifford's (1951) excavations in Fiji, at the western gateway to Polynesia, and Spoehr's (1957) work in the Marianas on the Asiatic fringe of Oceania, began to hint at the lengthy time depth of human settlement in the Pacific, and at the extent of local cultural development revealed by archaeological sequences. Amongst Polynesianists, a furore of intellectual excitement was generated by the realization that archaeology could indeed provide a direct means of studying prehistoric change in Oceania.

Since Emory's pioneering excavation, thirty years of increasingly intensive archaeological work has revealed the prehistoric sequences of almost every major Polynesian archipelago. Whereas scholarly consensus of the late 1940s held that most of Polynesia had been settled for no more than 1,000 years (e.g., Emory 1946), it is now evident that a timescale in excess of three millennia is the case, at least in the western archipelagos. Ample time had therefore elapsed for significant local development. Furthermore, the archaeological evidence conclusively demonstrated a single, common origin for all Polynesian societies, and this ancestor was shown to have affinities with eastern Melanesian materials (Green 1968). Finally, even in the shorter sequences of East Polynesia, archaeological data were indicative of substantial and significant change from the time of initial colonization to European contact – in technology, settlement pattern, subsistence systems, demographic patterns, and so forth. *In situ* prehistoric change was at last empirically

demonstrated, rather than a matter of speculative reconstruction based solely upon synchronic comparisons.

A consequence of its pioneering status, Polynesian archaeology has focussed until recently upon descriptive, culture–historical endeavours. Basic archaeological sequences of all major archipelagos have been worked out in some detail, as attested in three recent regional syntheses (Bellwood 1978a, 1979; Jennings 1979). From this wealth of archaeological data, one may abstract several broad and widespread trends characteristic of many (if not all) local developmental sequences. A brief catalogue of these trends should aid in orienting the reader to the main outlines of Polynesian prehistory, and to the central problems addressed in this book.

Dominant trends in Polynesian prehistory

Given that all Polynesian chiefdoms were derived from the same ancestral stock, and that the challenges of island life (despite differences of scale and local constraint) tend to be similar in kind if not degree, it is reasonable to suppose that the evolutionary processes operating on Polynesian societies were parallel in many island groups. A comparison of the dominant trends in the sequences of the well-investigated islands (Samoa, Tonga, Marquesas, Hawai'i, Easter, Societies, and New Zealand) does, in fact, reveal remarkable consistency. I list here some nine trends, each of which will be the focus of considerable analysis and discussion in later chapters.

1. With colonizing populations relatively small in numbers, population growth in the centuries following initial settlement was a fundamental trend in all Polynesian societies. Such growth was evidently rapid in many cases, for substantial population densities had built up in nearly all island groups by the time of European contact. In Chapter 5 I examine in full the proposition that population growth was a significant force (though not a 'prime mover') in the evolution of the Polynesian chiefdoms.

2. Extensive modification of island ecosystems by the colonizing populations was a continuing process, frequently resulting in reduced biotic diversity, and in creation and maintenance of artificial vegetation communities. In many cases, the modification of landscapes, including significant erosion, can only be classed as degradation. At the same time, environmental transformation may in some cases have led to the creation of micro-environments favourable to particular economic activities, such as irrigation.

3. Sequences of agricultural development in Polynesia reflect, as a general trend, increasing intensification. Such intensification can be measured archaeologically in terms of the scale and complexity of agronomic infrastructure and facilities, such as irrigation ditches and