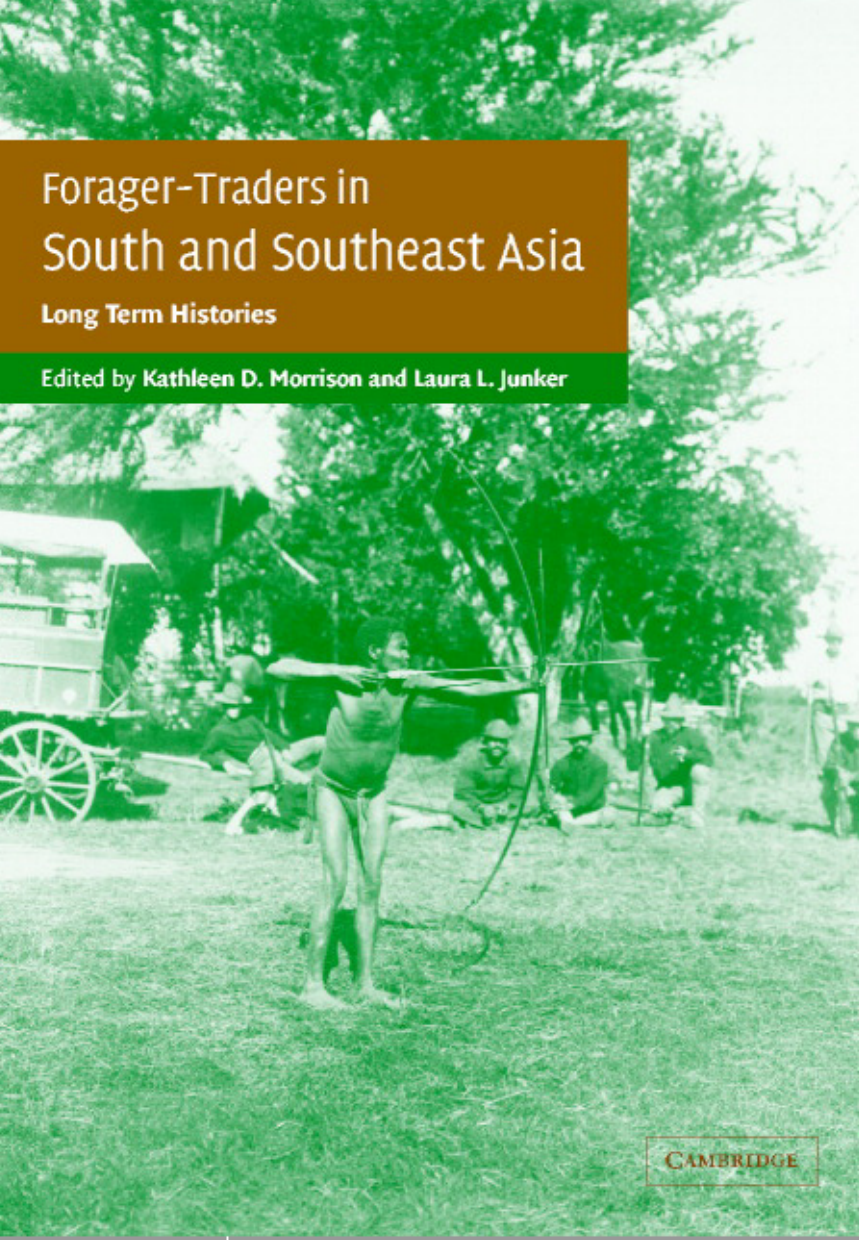
Forager-Traders in South and Southeast Asia

Long Term Histories

Edited by Kathleen D. Morrison and Laura L. Junker



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In both South and Southeast Asia, many upland groups make a living, in whole or part, through gathering and hunting, producing not only subsistence goods but commodities destined for regional and even world markets. These forager-traders have had an ambiguous position in ethnographic analysis, variously represented as relics, degraded hunter-gatherers, or recent upstarts.

Forager-Traders in South and Southeast Asia adopts a multidisciplinary approach to these groups, presenting a series of comparative case-studies that analyze the long-term histories of hunting; gathering; trading; power relations; and regional, social, and biological interactions in this critical region.

This book is a fascinating and important addition to the current "revisionist" debate, and a unique attempt to reconceptualize our knowledge of forager-traders within the context of complex polities, populations, and economies in South and Southeast Asia.

Kathleen D. Morrison is Associate Professor of Anthropology at the University of Chicago. She is the author of *Fields of Victory: Vijayanagara and the Course of Intensification* (1995, reprinted 2000) and the editor, together with S.E. Alcock, T.N. D'Altroy, and C.M. Sinopoli, of *Empires: Perspectives from Archaeology and History* (Cambridge, 2001).

Laura L. Junker is Associate Professor of Anthropology at the University of Illinois at Chicago. She is the author of *Raiding, Trading and Feasting: The Political Economy of Philippine Chiefdoms* (1999).

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TO MARK AND JOHN

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PREFACE

In both South and Southeast Asia, many upland groups make a living, in whole or part, through some combination of gathering and hunting, activities which produce not only subsistence goods, but, critically, commodities destined for regional or even world markets. The emergence of such specialized foraging and trading has been responsive to many factors, including local environmental contexts, regional political economies, and contingent historical circumstances; processes and conditions which are complex and interconnected but which still admit the construction of more generalized understandings of cultural, biological, and ecological processes. In this volume we present perspectives on South and Southeast Asian forager-traders which are both comparative and historical, which work toward integrating functional/organizational perspectives on hunting, gathering, trading, regional interaction, politics, biology, and social and power relations with nuanced views of the long-term histories of such strategies.

What are the stakes of such an analysis? If, as we argue they should, gathering and hunting in the Holocene are seen as viable, persistent, and widespread strategies – strategies variably interpretable in terms of continuity of historical lifeways, responses to economic and political pressure, resistance to sedentarization or peasantization, encapsulation, specialization, or simply efficient and agreeable modes of survival – then we need to integrate the analysis of foraging, including foraging for exchange, into more general analyses of the recent past, recognizing the importance of both long-term historical experience and immediate environmental and sociopolitical contexts in shaping human action.

Beyond this, however, the reintegration of foragers into both history and process has even more profound implications for both scholarly practice and substantive understandings of the past. Put simply, if people who gather and hunt in the post-Pleistocene have always been integral parts of complex political economies, if they have always been a part of the larger issues of complexity that interest us as anthropologists (regional power dynamics, biological exchanges, state formation, world markets, etc.), then perhaps we need to reconceptualize these research problems rather than simply reinvent the foragers. The scholarly analysis of foragers has tended

to be a specialized field, but perhaps foraging and its flexible deployment by people across most of the earth and through all of human history is too important to be left to a small subfield. Certainly, the study of forager-traders pushes the boundaries of our systematics, prompting reconsideration of categories such as food-producer, trader, hunter-gatherer, agriculturalist (see chapter 1), but more than this we see in the long-term integration of forager-traders in South and Southeast Asian regional polities, populations, and economies a powerful argument for reconceptualizing those polities, populations, and economies themselves.

This reconceptualization again is both substantive and conceptual. We need to examine the extent to which these institutions and entities were predicated on or built in conjunction with integration with foraging peoples. Did Harappan craftspeople and thus the larger Harappan society *need* mobile hunter-gatherers and pastoralists? Was the structure of the precolonial and Early Modern spice trade in both South and Southeast Asia *predicated on* the creation and maintenance of specialized forager-traders? Were state formation and political practice of the lowland polities of the Philippines critically *dependent on* both upland foragers and swidden farmers? Has the continued importance of foraging strategies *significantly shaped* aspects of the biology of Malay populations? In all cases, the affirmative requires us then not only to reject perceptions of foragers as isolated, outside "civilization," or non-complex, but also, perhaps more radically, to reconsider these larger worlds themselves. Integrating foragers into actual historical trajectories – a core issue of the so-called revisionist debate – results in much more than simply a need to reconceptualize the archaeology and anthropology of hunter-gatherers. If strategies of foraging, and the people who practice them, must now be admitted into complex societies, world systems, and political economies, then clearly our understanding of these networks will be depauperate without a concomitant understanding of foraging strategies, including their ecological and organizational possibilities. Too much is at stake to have separate camps of hunter-gatherer specialists and to have hunting and gathering lie outside the purview of those who study complex societies.

In this volume we make an argument for attending to the terms of the revisionist debate in hunter-gatherer studies while at the same time transcending the terms of the debate – viewing foraging, trading, agriculture, and other activities not as markers of essential identities but as strategies knowingly and flexibly deployed by people living in complex circumstances. Both "putting history in" and retaining process helps us to resist seeing gatherer-hunters in various temporally distorted ways – in

typological time (stages in an evolutionary classification), out of time (ahistorical), or ancient (representatives of a primeval substratum of humanity) – as well as continuing to build on the very real insights gained by anthropologists and others about the organization of gathering and hunting, about the ways in which people can and do structure aspects of their lives around wild resources in the contexts of what are often (though not always) mobile, small-scale groups. At the same time, the contributors to this volume come from and contribute to debates outside the usual scope of hunter-gatherer studies, consonant with our argument that foraging, as a strategy that is, among many others, integral to the history and operation of complex political economies, needs to be understood in light of more general processes including specialization, marginalization, resistance, cooperation, the maintenance of cultural identities, marriage and kinship patterns, exchange, and many others.

The organization of the chapters in this volume reflects our dual aims of engaging in this broader anthropological discourse on hunter-gatherers, while at the same time bringing together the relevant work of scholars in a part of the world that has received relatively limited attention in revisionist debates. Chapter 1, written by Morrison, expands on many of the general issues raised in this preface and provides the wider theoretical context for the chapters to follow. The remaining chapters of the book are divided into two parts, focused on South Asian and Southeast Asian forager-traders. We integrated research on South Asian and Southeast Asian foragers in this volume because we see notable parallels in the long-term social and economic dynamics of forager-traders in the two regions. These parallels broadly relate to similar ecological parameters of foraging (e.g. upland–lowland contrasts, heterogeneous tropical environments with diverse resources and ecological niches), the apparently long-term co-existence of foragers in the two regions within a heterogeneous regional cultural matrix with widely differing social and economic modes, and historical circumstances connecting the two regions over the past two millennia as participants in the vast Indian Ocean–South China Sea trade. The congruities between the two regions are emphasized in the general introduction to the volume (chapter 1), in later theoretical chapters (chapters 2 and 7), and in many of the empirical studies (most notably Morrison's in chapter 6). At the same time, we chose to group chapters by their regional focus because we wish to emphasize unique aspects of the cultural matrices and historical trajectories of South Asia and Southeast Asia foraging populations, as well as highlight the integration of work by archaeologists, ethnographers, ethnohistorians, and biological anthropologists in each of the regions.

Because many of the volume's readers will lack in-depth knowledge of the history of empirical studies and theoretical debates on foragers in one or both of these regions, the lead chapter in each of the two parts of the book is synthetic in nature. In addition to providing an overview of geography, environments, and empirical work on foragers in each region relevant to the volume theme, chapters 2 and 7 also serve to integrate the diverse approaches and research foci of the chapters in each part and to place them in broader theoretical and empirical contexts. As emphasized throughout this preface, we believe that anthropological analysis of long-term foraging strategies requires diverse avenues of inquiry, and we have sought to include in this volume scholars who integrate ethnographic, historical, archaeological, and biological approaches in their research and who address the theme of this volume from varying theoretical perspectives.

In part I on South Asian forager-traders, John Lukacs (chapter 3) presents a strong argument for an integrated biocultural approach to develop more dynamic models of how foragers and agriculturalists interacted in Indian prehistory. Drawing on bioarchaeological analysis of Mesolithic and Harappan skeletal material, archaeological work at sites of these periods, and ethnographic and historic observations on recent foragers of India, Lukacs concludes that the nature and intensity of forager–farmer contacts have varied considerably from the Mesolithic Period to the present and over different regions of India, and that models which incorporate the idea of opportunistic versatility may describe past forager strategies better than either isolate or interactive models. Gregory Possehl (chapter 4) focuses more narrowly on archaeological evidence for Harappan Period and earlier trade in Gujarat, demonstrating that, for this region of India, trade interactions between foragers and the agriculturalist-herder populations of developing complex societies were ancient, continuous, and integral to the regional political economy of the mature Harappan state. Moving to another region of South Asia and to a primarily ideational rather than materialist analysis of exchange, Allen Zagarell (chapter 5) combines oral histories, historic sources, and the textual analysis of scenes on "hero-stones" at archaeological sites in the Nilgiri Hills of southwestern India to illustrate how upland "tribal" peoples (both foragers and swiddening populations) mimic status concepts of the state-level lowland societies with whom they come into trade contact (in this case in the form of erecting commemorative "hero-stones"). However, Zagarell also shows that the Nilgiri uplanders often subtly alter the meaning of emulated material symbols to fit indigenous notions of social valuation and social relations (particularly gender relations). The South Asia section ends with a chapter

by Morrison (chapter 6) which illustrates the historically constructed nature of forager-trader relations in South Asia through an ethnohistoric analysis of changes in the organization of forager-trader groups in southwest India with the expansion of the coastal spice trade between AD 1400 and 1700. Comparisons with the response of Malay hunter-gatherers to the fifteenth- and sixteenth-century Melakan spice trade suggest that forager-traders in both regions can be viewed as strategic agents of change as they negotiate dynamic and complex political worlds.

In part II on Southeast Asian forager-traders, Sandra Bowdler (chapter 8) attacks the stereotyped myth of Australia as a continent of isolated Aboriginal foragers, combining historic sources, oral traditions, and archaeological evidence to argue that Aboriginal foragers along the northern Australian coast were engaged in regular contacts with Southeast Asian maritime traders over several millennia, with significant cultural consequences. Chapter 9 by Alan Fix focuses primarily on biological evidence to demonstrate the disjunction between cultural notions of ethnicity and biological measures of relatedness between Semang "Negrito" foragers and agricultural populations on the Malay Peninsula. Fix's chapter reminds us of the importance of caution in our interpretations, since different conjectural "histories" of forager pasts can be empirically supported by biological patterning, archaeological distributions, and cultural categorizations. In the final chapter on Southeast Asian foragers, Junker (chapter 10) integrates archaeological, ethnographic, and historic data to argue that, in the Philippines archipelago, forager trade contacts with agriculturalists who were part of ranked and even stratified societies were relatively ancient and core to forager survival strategies, but varied significantly over time and space. In the Philippines, situationally shifting strategies of interaction with non-foragers created very dynamic patterns of economic and social flux in Philippine hunter-gatherers, echoing the views of many of the volume authors that flexibility may have been the most enduring long-term strategy for Southeast Asian foraging populations.

This volume had its distant beginnings in a session organized by Morrison at the World Archaeology Congress (WAC) in New Delhi in 1994. Only the chapters by Morrison and Possehl, as well as parts of the general introduction (chapter 1), remain from that original session. All of the other chapters were commissioned and we extend our thanks to all the authors for their patience in the long evolution of the volume. Several scholars who wished to contribute were, in the end, unable to, and we thank them as well for their contributions to the project which, while less obvious, are still substantial. Laura Junker signed on as co-editor partway

through the process, contributing to both the regional and intellectual balance and depth of the work. The final product is very much a joint editorial effort. Despite the clear differences in our approaches, we have found broad areas of agreement that could be developed, along with both the unity and disagreement among our contributors, to try and define a new path for the analysis of forager-traders in the two regions. More generally, we have attempted to transcend some entrenched divisions between, on the one hand, ecological vs. historical accounts of hunter-gatherers and, on the other, between hunter-gatherer studies and the analysis of complex political economies. As noted, there is much to be gained by stepping outside the existing bounds of these divisions, though there is also a great challenge to such research inasmuch as it requires expertise and information beyond the scope of any single scholar. Chapters in this volume incorporate data from such diverse sources as material culture, art, texts, human biology, ecology, and climate history; all of the chapters would be enriched by additional research and perhaps collaboration integrating the insights of these various fields.

A book with such a complex long-term history inevitably creates a field of obligation. Among the many people who have contributed in one way or another to this work, we mention Greg Possehl, who suggested the WAC as a venue for the original session, Teresa Raczek, who compiled the bibliography and conducted the initial technical editing, Peter Johansen, who drafted several of the figures, and Lauretta Eisenbach, who assisted with the logistics of compiling the revised manuscript. We also thank Jessica Kuper at Cambridge University Press for her support of the volume and assistance in moving it through the publication process.

Kathy Morrison would like to thank Mark Lycett, in particular, for his comments and suggestions, and for comments and readings by Jim Anderson, Jim Brown, Micaela Di Leonardo, Jim Enloe, Thomas Headland, Beppe Karlson, Belinda Monahan, and Robin Torrence. Naturally, not all suggestions, including sensible ones, were heeded. Sections of chapter 6 were presented at the University of Iowa, New Mexico State University, Northwestern University, and the University of Pennsylvania; thanks to all who attended and discussed the paper in those places. Students in the seminar "Long Term Histories of Tropical Forager-Traders" at the University of Chicago in 1996 helped test and refine some of the ideas presented in the book and also showed the scope for much broader application of some of the intellectual themes presented here.

Laura Junker would like to express appreciation for the always sage advice of Karl Hutterer on this manuscript, and for stimulating discussions

and correspondence over a great number of years with Peter Brosius, Rowe Cadelina, Bion Griffin, Tom Headland, Karl Hutterer, Willie Ronquillo, and Rasmi Shoocondej (and more recently Sandra Bowdler, John Krigbaum, Michael Nassaney, and Allen Zagarell) who shaped her views on the archaeology, ethnography, and history of Southeast Asian foragers. The bulk of the volume editing and the preparation of chapter 7's overview of work on forager–farmer relations in Southeast Asia were completed while in residence as a visiting scholar at the Department of Anthropology at University of Oklahoma in the 1999–2000 academic year. Patricia Gilman kindly provided the facilities and resources on campus to complete this project and she, along with Paul Minnis, Lesley Rankin-Hill, Ross Hassig and others at Oklahoma offered helpful comments on this research when it was presented in a department lecture series. Junker would also like to express her gratitude for the warm reception granted by new colleagues at the University of Illinois at Chicago and the Field Museum when she presented portions of her book chapters in a lecture at the Department of Anthropology in 2001.

1 Historicizing adaptation, adapting to history: forager-traders in South and Southeast Asia

KATHLEEN D. MORRISON

In South and Southeast Asia today, as in many other parts of the world, there exist people who subsist, in part, by the gathering of wild plants and the hunting of wild animals. Many of these people are also engaged in larger-scale national and international political, social, and economic relationships. They may speak the same languages as others who plant, trade, herd, and rule; they may trade with them, marry them, work with and for them. Archaeological, historical, and biological data lead us to believe that this is not a new situation but instead one of long duration, perhaps nearly as long as the Holocene itself. In this volume we consider the long-term histories of some of these people who gather and hunt and their relationships to agriculturalists and states, in the process grappling with issues of the complex nature of these interactions. In moving beyond polemics to consider the substantive cultural and biological histories of South and Southeast Asian forager-traders, we aim both to focus on the historical specificity of our cases and to forge broader comparisons within and across regions. While close reading of individual cases reminds us to resist the urge to reify such fluid and often partial categories as "farmer," "forager," and even specific ethnic/cultural labels, the exercise of comparison reminds us that such categories can have an *analytical* utility, and that the similarities and differences between the complex histories of interaction in these two regions may help us to forge better understandings of the cultural, biological, and historical processes that shaped them.

Hunter-gatherers, history, and the revisionist debate

It has become fashionable to assert that contemporary hunter-gatherers have histories and that hunting and gathering lifeways constitute historically, politically, and ecologically specific responses to circumstances in which people find (and found) themselves. The so-called revisionist debate in hunter-gatherer studies centered around a much-trumpeted recognition of the long-term historical entanglements of hunter-gatherers with

differently organized others (e.g. Denbow 1984; Schrire 1980, 1984; Wilmsen 1983, 1989, 1993; Wilmsen and Denbow 1990). In particular, the debate concentrated on particular foraging groups of southern Africa and on the degree to which they can be seen as having been (until recently) isolated from others, or at least self-sufficient. Although the debate played out largely in terms of ethnographic and especially historical specifics, the intellectual stakes are much larger. The revisionists point out, in contradistinction to those whom they accuse of an ahistorical scientism that imposes temporally evacuated behavioral models on to the past, that neither contemporary foragers nor strategies of gathering and hunting in themselves reflect timeless throwbacks to an earlier "stage" of human cultural evolution. This is an important point. Simply because we may agree, for example, that humans hunted and gathered during the Palaeolithic, and that some humans hunt and gather now, there is no reason to see these contemporary people as necessarily either (enduring) representatives or appropriate models for the Palaeolithic.[1]

This revisionist formulation highlights the work of archaeologists and historians, for whom issues of long-term change have always been central. It is difficult to find fault with this position, if not with its rather messianic tone. While revisionist observations are not entirely novel, the message is still an important one for those who have looked to contemporary hunter-gatherers to find invariant or universal features of this "mode of production" (cf. Sahlins 1972; Johnson and Earle 1987) that can be used to characterize prehistoric societies. Such features have included, among others, qualities such as flexibility, sharing, small group size, mobility, and egalitarian social organization (Conkey 1984; Leacock and Lee 1982; Lee 1979; Wiessner 1982; and see Gardener 1991). In the archaeological record, where one finds a greater range of behavioral variation in hunting and gathering than is recorded ethnographically, these characteristics, rather than being seen as typical of all foragers, have been supplemented by the addition of new foraging forms such as "complex hunter-gatherers" (e.g. Price and Brown 1985) and by more sophisticated approaches to, most notably, the diversity of hunter-gatherer mobility strategies (Binford 1983, 2001). While recognition of this broader range of organization has been productive, such new labels have sometimes simply been absorbed as new types or modes of categorization (cf. Gunther 1995); trait bundles rather than complex outcomes of contingent social and ecological parameters and processes. The revisionist debate, despite or perhaps because of the acrimony it has engendered, forces us to re-examine the shorthand economic labels (hunter-gatherer, horticulturalist, specialist, farmer) we often use

to describe particular peoples, labels whose associated cultural-historical baggage implies much more than simply a way of making a living and which can veer toward essentialism.[2]

It is also possible, however, to see something in the other side of the recent debate over the status and history of hunter-gatherers in the contemporary world. What I mean by this is not the ongoing arguments about whether particular peoples enjoyed periods of isolation (Lee and Guenther 1991, 1993, 1995; Wilmsen 1993), but instead the presumed goals of the less fashionable side in the revisionist debate. The recognition of history, while long overdue, does not negate the considerable interest in and importance of understanding how past and present people employed hunting, gathering, trading, agriculture, and wage labor in complex and varied ways to cope with the real challenges of subsisting in the world. In this sense, then, post-Neolithic and contemporary hunters and gatherers are certainly not "spurious" (cf. Solway and Lee 1990). They really hunt and they really gather, and the fact that they may employ strategies more diverse than previously imagined, may have changed their strategies, and even their cultural identities through time does not imply that our interest in understanding their lives is misplaced. Gathering and hunting, in themselves, as strategies, are worth studying, and the observation of contemporary peoples who hunt and gather is one way to go about doing this.

The charge of essentialism, furthermore – and hunter-gatherers are often seen as having something like the purest of essences, the oldest, or the most primitive and as such are the quintessential foils for discussion of the "civilized"[3] – is not to be wielded solely by the revisionist camp against those who employ general models of hunter-gatherer behavior. In fact, the most rabid revisionists also partake in this search for essential identity, in particular through their insistent denial of the value of ethnographic work and of its utility for coming to understandings of the past. If pre-revisionist anthropologists are to be chided for ignoring the complex, entangled pasts of certain groups once seen as iconic of the hunting and gathering "mode of production" or way(s) of life that, we are endlessly reminded, has been typical of 99 percent of human existence,[4] the revisionists have established their own (absent and seemingly unattainable) archetype of the primeval human. The way out of this conundrum, it seems, is to shed typological/essential thinking so that the fact that foragers have histories of interaction and interdependence can no longer be seen as challenging our understandings of them. If our understandings are processual rather than essential, then we can step out of the parameters of the revisionist debate altogether.

This volume addresses the substantive histories of some people in South and Southeast Asia who, among other things, hunt and gather, paying particular attention to histories of interaction and exchange between people organized in different ways. We aim to move beyond the rather narrow, partisan confines of the revisionist debate. I suggest that, at its worst, this debate revolves around a kind of shared essentialism in which both sides seek an archetypical hunter-gatherer form, one side finding it (or locating it as having just disappeared) and the other finding only sullied, impure, and thus unworthy examples of it. In this volume, I hope we can move beyond this argument to examine actual long-term histories and to come to terms with at least some of the complexity of the biological, cultural, political, and social processes of change in these regions. In focusing on history, I am making the argument, consonant with points raised by revisionists, that we can often (but not always) expect significant long-term change rather than deep stability. In fact, the chapters in this volume suggest that South and Southeast Asian histories are inflected *both* by periods of large-scale change and by significant long-term commitments to particular ways of life.

In stressing the historical, I do not mean to suggest that synchronic ecological and other relationships are unimportant. On the contrary, synchronic relationships do have something to say about ways in which strategies of subsistence, mobility, and so on can be structured and maintained in non- or minimally food-producing societies. However, such relationships in no way constitute explanations for, or total accounts of, the situations of particular people at particular points in time. Synchronic ecological and functional analysis is, by definition, ahistorical, and runs the risk of reifying contingent historical moments into cultural-historical or other normative categories. This does not, in itself, indicate that such momentary studies are somehow wrong; it simply points to their inherent limitations. Although I would argue that an integration between historical and presentist modes of analysis in the study of gathering and hunting – including what has aptly been termed "wage hunting and gathering" (Breman 1994) – is urgently needed, it is also clear that we are not yet at the point where such integration is the norm. In trying to challenge intellectual practice, we also confront its history. That is, just as contemporary hunting and gathering strategies may be best seen as the contingent outcomes of long-term interactions, historical creations made from generations of dynamic human and environmental action, so too must we build on existing scholarly traditions. The relative abundance of environmental and recent ethnographic information on Southeast Asian foragers, for example, contrasts markedly with the relative scarcity of such information for South Asia. In South Asia,

much of the ethnographic work on groups who gather and hunt was carried out early on in a tradition that stressed social organization rather than adaptation, and which in a sense also operated in the shadows of South Asia's large agrarian population, factors that have certainly shaped approaches taken by later scholars. If environmental contexts and ecological relations of Southeast Asian groups are more fully studied, then it must also be said that in the South Asian context, hunter-gatherer studies, as a separate field, has never fully developed and as a consequence, foraging groups are less ethnographic objects than pieces of a larger social puzzle worked on by historians (e.g. Guha 1999; Hardiman 1987a; Skaria 1999) and others as well as anthropologists and archaeologists. It may be, then, that issues of power relations and interactions with differently organized others are further along in South Asian studies, while a developed understanding of the critical environmental and ecological contexts of South Asian foragers is still largely undeveloped.

One feature missing in many ecologically oriented analyses of prehistoric and recent foragers is specific consideration of social and political contexts, and specifically power relations. If we agree that foragers (including those who farm, trade, keep animals, and labor for a wage) must engage a real, material world, then it seems analytically indefensible to study hunting and gathering behavior as if all choices could be freely made and as if there were never external constraints to action in past or present forager worlds. Such worlds may be best conceived as total landscapes, largely dependent on environmental parameters beyond human control but which may also have been modified, to a greater or lesser extent, by human action. These landscapes are also social landscapes in which differential relations of power exist and which are differentially perceived and acted on by humans. Such socionatural landscapes reflect, one suspects, a widespread Holocene condition rather than simply a colonial and postcolonial phenomenon. By power, I mean not only coercive and restrictive forces, something imposed on foraging groups by outside polities or peoples, but also issues of internal social and political power, the ability of foraging groups to define themselves, to move freely, to give meaning to their own actions. Skaria (1999), for example, discusses the meanings given by Bhils and other forest groups in western India to their own "wildness," a highly gendered notion whose valorization by the Bhils inverted the negative connotations of that same "wildness" when seen through colonial eyes.

The solution, then, at least as I see it, rejects the terms of the revisionist debate altogether, at least in its more typological manifestations, and

highlights the need for, on the one hand, *both* history and process. A fuller understanding of past and present forager-traders, as well as the larger worlds in which they lived and continue to live, must take into account both the contingent outcomes of particular contexts (and hence accept that human trajectories, even those involving foragers, are never fully predictable) while still working toward understandings of general historical and ecological processes. That South and Southeast Asian forager-traders followed, in many cases, roughly parallel lines of development (while still, of course, maintaining important cultural and other differences) and can be so fruitfully compared itself accentuates the critical role of such general understanding. Furthermore, this comparison also highlights the need for greater analytical integration of both organization and structure – foundational synchronic analytical forms – as well as change through time or trajectory. As noted, few studies achieve this kind of integration, though perhaps Junker's analyses (1996, chapter 10 this volume) come the closest. As noted, the differential research traditions of South and Southeast Asia might be held to account, in part, for this disjunction.

The solution, then, to the impasse of the revisionist debate will not be to ignore environmental and ecological relations in favor of interpersonal relations, nor will it be the reverse. It will not be to try and pluck hunter-gatherers from their current position as creatures uniquely linked to the natural environment, nor will it be to force other groups into that ethological mode. Instead, these dichotomies must themselves be overcome. To step outside the terms of the existing debate we must develop a balanced – and thus necessarily multidisciplinary – political ecology which both keeps humans in (and of) the natural environment while at the same time does not elide the critical cultural dimension of human experience. Furthermore, this new human ecology, as suggested above, needs above all to be a historical political ecology (cf. Biersack 1999; Peet and Watts 1996), where long-term histories matter. It is one thing, of course, to prescribe and quite another to practice. As noted, few single studies, especially those that can be outlined in an article, incorporate all aspects of this approach. It is our intention that the diversity of approaches, data sources, and emphases taken by the authors in this volume should go some way toward building this more balanced account of forager-trader (and other) lives past and present; no one scholar or discipline will be able to construct this edifice alone. Further, our focus on both comparison and long-term histories, on both process and trajectory, is meant to suggest a way into this historical political ecology. To set the stage for this comparison, we turn now to the region itself.

South and Southeast Asia in the hunter-gatherer scene

South and Southeast Asian hunter-gatherers have often played supporting roles in hunter-gatherer studies. Unlike African, Australian, or North American foragers who have become textbook exemplars of this way of life,[5] South and Southeast Asian gatherers and hunters have long been recognized as less "pure," more sullied by external forces, and as poor representatives of the type, at least in more popular treatments. This is not to say that there has not been a rich and productive tradition of anthropological and historical scholarship on Asian hunter-gatherers, as the chapters in this volume make clear. However, it is certainly the case that both ethnographic (from patrimonial bands [Steward 1938] to optimal foragers [Smith and Winterhalder 1992; Winterhalder and Smith 1981]) and archaeological (focal vs. diffuse foraging strategies, for example [Cleland 1966]) models of hunter-gatherers are overwhelmingly constructed on the basis of research outside Asia. Archaeological research on gathering and hunting peoples in South and Southeast Asia has lagged somewhat behind ethnographic work, hampered both by specific contextual difficulties in regional archaeological records (preservation problems in the humid tropics, depositional integrity of Palaeolithic sites, to name only two examples), as well as by a tendency to de-emphasize studies of hunter-gatherers in time periods after the initial emergence of agriculture (but see Junker 1996).

The evident integration of South and Southeast Asian foragers into larger-scale economies and political structures may be a factor in their perennially ambiguous status as "proper" hunter-gatherers. In the now-classic *Man the Hunter* symposium and volume, for example, B.J. Williams (1968:128) seemed both slightly apologetic and defiant about the utility of his data on the Birhor of South Bihar, India:

> In some important ways the Birhor do not meet the conditions assumed in the model of hunting-gathering society. They are neither politically autonomous nor are they economically autonomous.
>
> They live in an area that has been inhabited by tribal agriculturalists for a very long period of time. During the past 100-plus years the area has seen a large influx and growth of Hindu and Muslim agriculturalists that now far outnumber the tribal population.
>
> The Birhor trade hunted and collected items to the villagers in exchange for rice . . . The Birhors also spend some time making rope from the inner-bark fiber of certain vines. These they also trade for rice . . . Not only do the Birhor live a form of economic parabiosis with agriculturalists, but also they are in some ways a politically subjugated minority . . . These conditions which are the result of intensive interaction with dominant groups makes [*sic*] the

> Birhor less than ideal as a basis for inferences about possible forms of social organization in hunting groups living only among hunters. On the other hand, they have the great advantage of being hunters now.

The apparent problem of "impure" cases (cf. Lee and DeVore 1968b:4) of hunter-gatherers of course presupposes the existence of a "pure" form or archetype. Certainly Pleistocene peoples lived in a world of hunter-gatherers, as did later peoples in some parts of the world, but the existence of a single or even a few archetypes for even these cases may not be realistic. All historically and ethnographically known foragers present problems, however, in the quest for archetypes. Schrire (1980:11) sums up this problem:

> The actual study of living hunter-gatherers is fraught with practical problems: very few modern groups fall in this classification; those who do generally live in remote and unattractive areas; and despite their isolation, nearly every known group has some measure of contact with pastoralists, agriculturalists, or landowners today. Contact is regarded as an "impure" overlay on the previously "pure" hunter-gatherer base. If its effects are slight, it is usually treated as a recent intrusion that may be subtracted easily from the pure hunter-gatherer base, whereas if its manifestations are more complex, the whole situation may be regarded as transitional, representing an intermediate stage in the evolutionary scale from hunting to urban dwelling. This stage is usually defined as being analogous to a Neolithic economy – *sensu latu* – which allows the "impure" form of hunter-gatherer behavior to retain its intrinsic importance in the study of human behavior.

Thus, contemporary foragers might be seen, if not as models for the Palaeolithic, then as examples of sedentism, acculturation, or some other early Holocene process.

Schrire does not, however, note the other way in which "impure" hunter-gatherers – those involved with non-foraging others or even having non-foraging pasts – have been studied without abandoning cultural-historical schemes; they can be products of "regression" or "devolution." In fact, the participants in the *Man the Hunter* conference concerned themselves at some length with "devolution" and the problem of "failed" agriculturalists. The Sri Lankan Veddas, studied by Seligman and Seligman (1911), were included in this category as were the Siriono of South America (Lee and DeVore 1968b:4; and see Lathrap 1968; Murdock 1968). That such language can be used to describe this shift points to the pervasiveness of progressivist evolutionary schemes and the persistent belief that gathering and hunting are "primitive" and "simple," and hence "early" in

the usual scheme of things.[6] Lathrap (1968:29), for example, has made much of the fact that the ancestors of some South American foraging groups formerly practiced agriculture, a pattern that follows in part from the colonial experience of the Americas and its catastrophic demographic and social-political effects. Such transitions, although historically specific, should, it would seem, tell us a great deal about foraging strategies in general. Rather than argue about whether such hunter-gatherers are "real" or "devolved,"[7] we might see in such shifts an opportunity to combine both historically specific and general organizational understanding of foraging and its role in larger strategies of survival, resistance, and cultural persistence and change. Both South and Southeast Asian foraging peoples present similar opportunities for scholarly understanding. We know that we face complex and long-term histories of engagement between people organized in very different ways, a situation which was probably more common in the past several millennia than anthropologists have generally acknowledged.

In a sense, then, we can see that the concerns raised by the revisionists, including their attacks on the myth of the primitive isolate (Headland and Reid 1991; Kuper 1988), are partially prefigured in earlier scholarship (and cf. R.G. Fox 1969; Steward and Murphy 1977). What this debate did accomplish, however, besides promoting a vitriolic public exchange over the history of southern African San peoples and the history of scholarship relating to them, was to highlight the ways in which isolationist models are *used*, particularly in archaeological reconstructions (Shott 1992). This is an important contribution, especially given the tendency in archaeology to rely on ideal types or categories that can be used to flesh out difficult reconstructions (cf. Morrison 1996).

While we can probably agree that naive attempts to create analogues for Palaeolithic lifeways based on heavy-handed applications of San ethnography, for example, are to be avoided, the question remains as to what the recognition of complex historical interaction implies for constructive research. In this, we hope that the experiences of South and Southeast Asian forager-traders will have something to contribute. Extreme revisionist views, that studies of contemporary and historically known hunting and gathering peoples have little or nothing to tell us about prehistoric hunting and gathering, are not only incorrect, in my view, but they also reveal, as noted above, an underlying essentialist bias sometimes shared by its fiercest opponents. This is the idea that "hunter-gatherer" or "forager" is to be constituted as an ideal type, so that "corrupted" or "devolved" contemporary examples have nothing to contribute to examination of presumably

purer past examples of the type. To return to the concept of "base" as raised by Schrire (1980), one might ask whether or not hunting and gathering constitutes some kind of a base or foundation (cultural, if not economic, cf. Bird-David 1992a, 1992b) on which later (or different) strategies are simply built. Or, should the metaphor perhaps invoke concentricity, as in the layers of an onion? Perhaps we should abandon the notion of the forager archetype, of bases and foundations, altogether. In South and Southeast Asia, it is clear that contemporary foraging peoples are not isomorphic in their lifeways with, for example, Palaeolithic or Mesolithic hunter-gatherers. In some cases, like those described by Lathrap, they are clearly not remnant populations of people with an unbroken history of hunting and gathering but are instead people who, in the face of both opportunity and restraint, rearranged their subsistence activities to become specialized forager-traders. Both these people *as well as* those who can claim an unbroken ancestry involving gathering and hunting are no less "modern" than agriculturalists or craftspeople, no less contemporary, no less enmeshed in complex political, cultural, and economic worlds. In some cases, we can view hunting, gathering, and trading as related to oppression and domination, but it is also apparent that many people have worked hard to retain their ability to practice various foraging lifeways, suggesting a kind of resilience and strength on the part of foragers that views of their disappearance or imminent demise tend to deny them.

As noted, the solution to the apparent deadlock of the extremes of the revisionist debate – a relentless historicism and anti-comparativist bent on the one hand, an ahistorical scientism on the other – may be for both sides (and those on the sidelines) to abandon the worn-out typological constructs that have been the source of such acrimony. Rather than imagine that contemporary "bands" (*sensu* Service 1971) can tell us all about "bands" in the past, we may instead consider strategies and processes, which although historically variable and contingent (inasmuch as strategies and processes are always realized in specific contexts) have utility as general analytical categories that iconic depictions of societal types do not.

Building comparisons: South and Southeast Asia

South and Southeast Asia, beyond their potential to contribute to broader debates in anthropology and hunter-gatherer studies, also present us with an interesting historical comparison. In both places, upland peoples are known to survive by gathering forest products[8] and trading with lowland

agriculturalists for essential goods such as rice (or other crops), cloth, and metal (Dunn 1975; Eder 1988; R.G. Fox 1969; Headland and Reid 1989, 1991; Hockings 1985; Hoffman 1984; Hooja 1988; Junker 1996; Morris 1982b; Spielmann and Eder 1994). Although both South and Southeast Asia incorporate a great deal of environmental variability, in both places upland/lowland trading relationships took place (and still do) in the context of tropical and semitropical environments and involve a similar range of products. In both areas, topographic and associated environmental variation is a salient dimension of residence and social-economic organization, with vegetation distributions and transport considerations playing important roles in the ability of lowland polities to penetrate and successfully navigate the uplands. In both places agriculture was developed relatively early, but was adopted rather selectively so that diversity in economic strategies has been the norm throughout the latter part of the Holocene (and perhaps before). Thus, upland agriculturalists may practice swidden farming at the same time as nearby groups forage and trade, while lowland farmers may engage in swidden agriculture, trade, and intensive rice agriculture – and, significantly, the same people may vary their practices through time (e.g. Griffin 1984).[9]

Further, specific historical experiences tie the two regions together. Most importantly, these include a common participation in regional exchange networks, beginning by at least the last few centuries BC. This broad network of commerce and culture stretched ultimately from the Mediterranean to China via many intermediate links (Junker 1990b; Morrison 1997). The scale and intensity of interaction waxed and waned through time, but we can point to particular periods of high connectivity (e.g. Abu-Lughod 1989; Arasaratnam 1986; Liu 1988; Meilink Roelofsz 1962; Ray 1994; A. Reid 1993b; Risso 1995). The nature of this connectivity is multifaceted, including not only commercial relationships, but also religious exchanges (the expansion of Buddhism, Hinduism, and Islam, for example) and political domination (common experiences of colonization by the Portuguese and English, as well as by other powers [Bouchon 1988; Stoler 1985; Subrahmanyam 1993]). Both South and Southeast Asia played key roles in the expanding spice trade of the sixteenth century and later, with particular regions supplying raw materials (many of them forest products) and others serving as redistribution or food supply centers. Separate introductory sections (Morrison, chapter 2, Junker, chapter 7, this volume) lay out the particular histories of South and Southeast Asia and of forager-traders within them, but it is worth stressing here the comparative as well as historical enterprise of this volume.

Problems of naming: when is a hunter-gatherer?

Throughout this volume we grapple with problems of terminology. People who gather wild plants and hunt wild animals are generally called hunter-gatherers unless they also engage in agriculture. In that case, they become agriculturalists, with agriculture enjoying a priority in naming. If people who hunt and gather also engage in trade or craft production, then again these latter activities are often accorded priority and they become known as specialists (who also hunt and gather). The difficulties with these easy labels have been widely discussed, for example in the context of hunting and gathering by agriculturalists (Kent 1989). The term forager presents similar difficulties,[10] even if we eschew any necessary association of adjectives such as "optimal" (cf. Winterhalder and Smith 1981).

We thus experience some difficulty in discussing South and Southeast Asian peoples differentially involved in gathering, hunting, trading, agriculture, and wage labor because the shorthand categories we employ are based on economic labels for modal (or most important,[11] or most "advanced" in some evolutionary scheme) forms of food getting and the peoples we are considering here employ a wide variety of food-getting strategies.[12] The use of shorthand modal labels flies in the face of empirical evidence for considerable economic diversity and flux apparent in the archaeological, historical, and ethnographic records. This diversity and flux is both synchronic, with spatial and social variability in gathering, hunting, and trading strategies, and diachronic, changing through time. Such staggering diversity encourages the construction of such awkward monikers as "hunter-gatherer-farmer-trader." In the end, we have opted, first of all, not to restrict the terminology of individual authors, but to let them use whatever constructions seemed most relevant. Second, we have emphasized both foraging (used here as a synonym for hunting and gathering) and trading in the volume title because these are two important dimensions behind the selection of cases and in the comparison between South and Southeast Asian histories that we wish to highlight.

If economic labels present certain problems of focus and definition, cultural labels create other difficulties. In this volume we consider a broad range of ethnic, linguistic, biological, and social groups – dimensions of difference that may be either mutually coincident or cross-cutting – some of whom are difficult to distinguish from their non-foraging neighbors on these same grounds (cf. Hoffman 1984; Fix, this volume). Further, archaeological and historical analyses are not always suited to recover self-ascribed cultural classifications. Nevertheless, in some cases it will be possible to follow the history of a single "people," while in other cases

the economic activities that led to, for example, the formation of a certain kind of archaeological deposit will be much more evident than the social or cultural identity of its creators. Thus, the discussions in this volume vary in both scale and specificity, depending on the nature of their information and the scope of their analysis.

Having pointed to the difficulties of naming (what makes someone a forager-trader? Does such terminology elide other activities such as farming, serving in an army, etc?) and the sometimes-insidious way in which terminology can be employed (farming tends to cancel out gathering, for example), it is worth examining the utility of the analytical category of forager-trader. The unity we see across the cases in this volume is multifaceted. On the one hand, this unity is one of strategy: the exploitation of wild plants and animals (and in some cases, of minerals) is, in the contexts discussed here, a specialized economic and social strategy for surviving in a complex and stratified world. The unity among cases is also one of engagement. The ecological, social, and political relationships between, for example, late precolonial "hill peoples" of the Western Ghats of India and the wider nexus of political power and international exchange were remarkably similar to those of upland forest dwellers in the Malay Peninsula at about the same time (Anderson and Vorster 1983; Morrison, chapter 6 this volume). Considerations of power, marginality, contestation, cooperation, and exploitation figure in almost every discussion in this volume, even if implicitly. Finally, the chapters in this volume contribute to the consideration of an analytical unity of historical process. From the very beginnings of hunter-gatherer engagement with differently organized others, we have to abandon the idea of a "pure" hunting and gathering world and to begin to conceptualize and investigate what turns out to be an ongoing process of engagement. In the agricultural origins literature, this realization has long been present (e.g. Dennell 1985a; Green 1991; Tringham 1971; Zvelebil 1986), but is sometimes cast as the opposition between "types" of peoples or "stages" of society and as an engagement that effectively ended with the triumph of the Neolithic. Holocene hunting and gathering may not be best understood as a persistent strategy of the tattered but tenacious remnant of the losers in the wave of advance (cf. Ammerman and Cavalli-Sforza 1984), but instead as a viable (although sometimes marginally so) strategy for surviving, even prospering, in a complex world. It is this long-term history – or histories – that may allow us to see what regularities there may be in historical process without requiring that we construct our understandings solely out of bounded and rigid categories such as "agriculturalist," "hunter-gatherer," "merchant," or "state."

Long-term histories in South and Southeast Asia

The contributors to this volume have two immediate goals. First, and more immediately, we wish to consider the long-term histories of several groups of forager-traders and their neighbors in South and Southeast Asia. As noted, many contemporary groups in this part of the world subsist through various combinations of gathering, trading, hunting, wage labor, and agriculture; all of these groups are articulated into national and international markets and polities. The relationships between people and their environments, within and between various groups of forager-traders, and between forager-traders and their agricultural, mercantile, and military neighbors are complex and variable across this region. Further, relations of exchange, of interdependence, of domination, and of inter-group awareness are of long duration in South and Southeast Asia, extending back as far as the initial shift from hunting and gathering. Far from existing in isolation, South and Southeast Asian peoples have a long history of maintaining multiple diverse – sometimes opposing – lifeways. There is merit in focusing on this part of the world, for the histories we see here have much to say about the long-term possibilities for the creation, destruction, and reinvention of strategies of hunting, gathering, and exchange in the contexts of both tropical and subtropical environments and of expanding state power.

The chapters in this volume employ a variety of approaches and information from ethnography, history, biology, linguistics, and archaeology, fields it will ultimately be necessary to bring to closer accord if the vision of a historical political ecology sketched above is to be realized. It should be noted that several authors contributing to this volume do not specialize in hunter-gatherer studies but instead come to their interest in the engagement of forager-traders with agriculturalists, states, and empires from the other side of the equation. In this, I think that we may balance the debate somewhat, moving between studies that focus closely on the foragers themselves but that may view external forces as large and undifferentiated, and studies that lack the rich detail and close reading of foragers' strategies and dilemmas but that work to situate the relationships between hunter-gatherers and others in the context of the larger political economy. This location in larger political economies raises fundamental concerns for those of us who do not consider ourselves specialists in hunter-gatherer studies. If forager-traders are truly part of larger societies, then their activities are of concern not only to hunter-gatherer specialists, but also to those concerned with the operation of states and empires. Sahlins once noted (1972:8), half-humorously, the misconception that "The anthropology of hunters is largely an anachronistic study of ex-savages – an inquest

into the corpse of society . . . presided over by members of another." The body is, however, alive and, it seems, a real part of the overall body politic. "They," in this construction, are truly a part of "our" society, and the study of foragers thus moves into the mainstream.

The second goal of this volume is more general. By approaching the problem of long-term history not as a study in typology – hunter-gatherers behave in such and such a way – but as a study in long-term patterns of adaptation,[13] adaptation *to* environment, to polity, to power, and adaptation *of* these same forces, we hope to transcend the current debate in hunter-gatherer studies. We agree that history matters, but we also aim to move beyond polemics. By accepting that even small-scale societies have histories, we are not reduced to mere biographers. Putting people back into history does not require that we abandon the search for more general understandings of human strategies, including strategies of subsistence, mobility, social organization, resistance, and indeed change itself. A historicized understanding of forager-traders need not imply that they have been mere pawns of history. Instead, a search for the ways in which such peoples, successfully and unsuccessfully, sought to adjust and adapt to changing circumstances can actually strengthen ecological analyses, leading us toward a more historically and humanly informed ecology.

NOTES

1 Indeed, one might say as models *of* the Palaeolithic (an argument of persistence) or as models *for* the Palaeolithic (grounds for analogy).

2 It is interesting to consider the conclusions drawn by participants in the revisionist debate about its implications for future work. Compare, for example, the statements of Burch (1994) and Gunther (1995).

3 The use of "primitives" (often pure figments of the imagination) as conceptual foils for understanding "ourselves" has a long history in both scholarly and popular writing. For the former, I note the way in which Adam Smith created just-so origin stories for various economic and social institutions based on his conception of (economically rational) primitive humans. He explains the origins of the division of labor in just this way ([1776] 1976:19):

> In a tribe of hunters or shepherds a particular person makes bows and arrows, for example, with more readiness and dexterity than any other. He frequently exchanges them for cattle or venison with his companions; and he finds at last that he can in this manner get more cattle and venison than if he himself went into the field to catch them. From a regard to his own interest, therefore, the making of bows and arrows grows to be his chief business, and he becomes a sort of armourer.

Di Leonardo (1998) discusses popular use of this trope, including its deployment by popular sociobiology.

4 This formulation is a set refrain of textbooks.

5 For example, an examination of indexed references in Bettinger (1991), a general treatment of hunter-gatherers, yields thirty references to African groups, twenty-five to South American, fifteen to North American, seven to Australian, and only three to Asian hunter-gatherers.

6 Johnson and Earle write (1987:27), for example, "Foraging economies have the simplest form of subsistence production, gathering wild plants and hunting wild animals."

7 Or "primary" or "secondary" (Hoffman 1984:144; see also Woodburn 1980).

8 What are usually referred to in both places by the colonial term "minor forest products" meaning gums, resins, honey, dye products, wax, animals, spices, etc. Just about any product of the forest other than bulk wood products may be included in this category. It is also significant to consider that in both cases, forests were originally more extensive than they are today and that the upland forests themselves may be more legitimately considered remnant than the people who live in and use them.

9 Some scholars have argued that the survival of hunter-gatherers in tropical forest environments is simply not possible due to constraints on the productivity of biomass edible to humans (Bailey et al. 1989; Headland 1987), thus suggesting that interaction between agriculturalists and foragers is always essential. For discussion of this issue, see the introduction to Southeast Asia by Junker, this volume (chapter 7). The issue is far from resolved for South Asia, where relatively little work on either human ecology or archaeology (especially of non-agriculturalists) has been conducted in tropical forest environments.

10 Pianka (1974:108, 202) makes it clear how the forager concept, which is derived from ethological studies of animal behavior, is based on explicit metaphors of the market economy (profits, costs) and on assumptions about the optimizing nature of behavior.

11 And, of course, we can ask how importance is to be gauged. For example, the high social visibility of hunting and its cultural importance often eclipse its sometimes modest contribution to caloric intake.

12 In a discussion of "post-pastoral" and "post-agricultural" foragers in Kenya, Cable (1987:11–12) notes, "The adoption of a generalist or mixed economic strategy seems to have been more common for foragers and farmers than traditional archaeological classifications might suggest. The implication is that purely economic criteria may be poor differentiators between groups that see themselves socially and ideologically as practicing quite different subsistence adaptations." He also complains that archaeological work in Kenya has rarely focused on post-pastoral and post-agricultural foragers, suggesting that field

methods and the expectations of archaeologists may be equally to blame for this state of affairs (1987:2–3).

13 Here the term adaptation is employed in its most general sense of adjustment, change, and accommodation rather than as a precise ecological concept. Clearly, I do not wish to suggest that forager-traders, or states, empires, or any other group for that matter, somehow lie outside of or do not have to respond to environmental dynamics.

PART I

South Asia

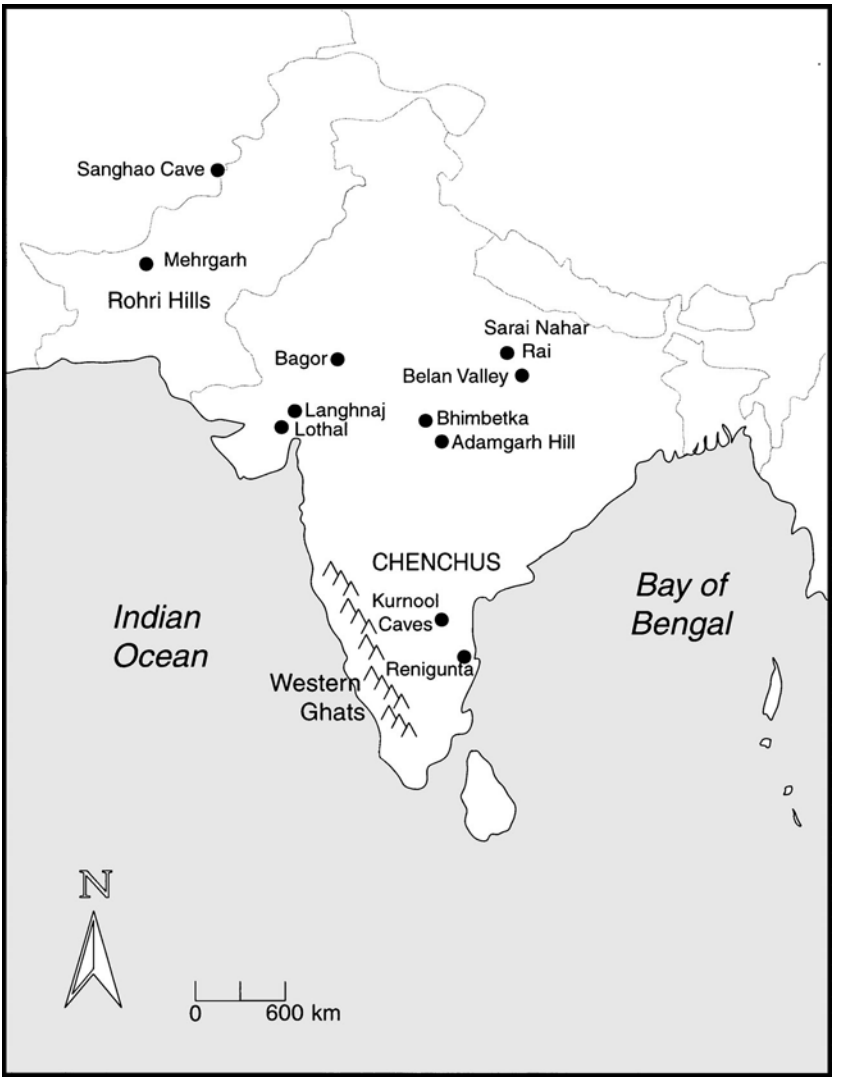
2 Introduction

KATHLEEN D. MORRISON

If any theme can be discerned in the long archaeological and historical record of South Asia, it may be that of simultaneous diversity and interconnection. Groups of people differently organized into (to name just a few possible dimensions of difference) linguistic and ethnic associations, classes, occupations, lifestyles, castes, and religious traditions have coexisted, sometimes very closely, over long expanses of time.[1] One of the most striking examples of close interaction between groups of people organized in radically different social and economic forms must be the sets of relationships between specialized forager-traders, many living in upland environments, and agriculturalists, merchants, and states, many based in the lowlands. That these kinds of relationships have a long history is one of the primary points raised by all the chapters in part I. However, in order to approach this world, in which foraging strategies, although important, came to constitute just part of a larger behavioral repertoire, it is necessary to consider them in the context of the long record of human habitation on the subcontinent.

In South Asia, humans and their ancestors have made a living by gathering and hunting for perhaps as long as two million and certainly as long as half a million years. However, that deep archaeological record incorporates a significant degree of diversity in lifestyles through time and across space. While Pleistocene and earlier inhabitants of South Asia lived in a sparsely populated world of hunter-gatherers, Holocene hunter-gatherers had to co-exist with agriculturalists, and later with pastoralists, states, armies, and traders. Thus, the later archaeological and historical record of South Asian hunter-gatherers is a record of variable levels of integration between hunter-gatherers and others and of a certain fluidity in subsistence practices so that the same people may have at different times hunted and gathered for their own subsistence and for trade, grown food or commodity crops in their gardens and fields, worked for a wage, or paid tribute to distant kings.

Throughout this long history and into the present, gathering and hunting have remained as important components of both subsistence and sociocultural identity, especially in more forested upland regions. This long-term continuity of foraging is a critical factor in understanding South Asian



2.1 South Asian archaeological sites

history in general; the viability of foraging as a flexible component of complex socioeconomic strategies suggests that the history of gathering and hunting – and of the people who deploy these strategies – needs to be understood in light of its long history from the Palaeolithic to the present. Although it is possible, even probable, that some contemporary groups can claim a history in which gathering and hunting always played a major economic role, it is also the case that some foraging and trading groups adopted gathering and/or hunting relatively recently (Morrison, chapter 6

this volume). Given the fact that archaeological and palaeoenvironmental remains most clearly reflect the consequences of past activity rather than ethnic or cultural affiliation,[2] it is very difficult to say precisely which contemporary groups – if indeed, such categories have long-term stability – may have a very long history of gathering and hunting and which ones may have shifted economic strategies more recently. This should, however, in no way suggest that archaeological and historical/ethnographic information cannot be linked. If we think of foraging as *strategic* rather than *essential*, then it is clear that foraging itself has a long and unbroken history from the Palaeolithic to the present. If particular *groups of people* have been more flexible in their deployment of this and other strategies than the received view suggests, it is still the case that this dynamic human history requires an allied analysis of gathering and hunting activities and their organization over time.

The first part of this review outlines the archaeological and historical record of hunting and gathering in South Asia, sketching a chronological framework for situating the arguments presented in the chapters by Lukacs and Possehl. The second half of this introduction links the long temporal perspective afforded by the archaeological and biological data with the rich detail of the ethnographic and historical records, introducing several themes that emerge from the chapters as a whole, themes of "primitivity" (with its associated cultural-evolutionary correlates), "indigenousness," "tribal organization," and history, or as I put it, with the "newness" vs. the "oldness" of foraging and of interaction. The chapters by Morrison and Zagarell link environmental, archaeological, historical, and art-historical data in addressing time periods from the last few centuries BC to the seventeenth century.

Archaeological perspectives

The Lower Palaeolithic

South Asia has an important place in the history of archaeology, with the recognition of human antiquity in the region established early on by Robert Bruce Foote, a British colonial officer and geologist who first published a description of Acheulean handaxes from Pallavaram, near Madras, in 1863 and who went on to conduct pathbreaking descriptive work on the Palaeolithic and Neolithic of southern India (Foote 1887, 1914, 1916). Early research on the Indian Palaeolithic was directed toward defining a chronological sequence to match that of Europe and toward establishing correlations between glacial sequences, as reflected in river terrace deposits,

and stone tool assemblages (e.g. De Terra and Patterson 1939). The British Archaeological Mission to Pakistan has recently published a revision of this early chronology and has also presented controversial new evidence for very early hominid occupation of South Asia with the discovery of chipped stone artifacts from the Potwar Plateau dating to 2.2 million years before the present (Dennell et al. 1988). This contention, and the dates of the Potwar Plateau artifacts, remain controversial but may be resolved by ongoing work on the chronology of *Homo erectus* finds across Asia.

Nearly all parts of mainland South Asia were occupied during the Lower Palaeolithic, a period falling within the Middle Pleistocene or about 500,000 to 50,000 years before the present. Climatic conditions during this period were broadly similar to those of today. Lower Palaeolithic stone tool assemblages have been divided into two major contemporaneous types or traditions: the Acheulean or Madras handaxe tradition (similar to material found in Africa and Europe), and the so-called chopper/chopping tool tradition (Davis 1984; Sankalia 1963). The latter are made on small packages of raw material, cobbles or pebbles, hence their other appellation of pebble tools. Pebble tools are found primarily (but not exclusively) in the north and northeastern parts of the subcontinent and in Sri Lanka, Southeast and East Asia. Whether or not these two different forms of lithic technology actually relate to different "traditions," in a cultural or quasi-cultural sense, to differences in the availability of lithic raw material, or to other factors is not clear. These distinct techno-typological forms sometimes co-occur in the same contexts, as in the gravels of the Belan Valley.

Excavated early Palaeolithic rockshelter sites include Adamgarh Hill in central India and Bhimbetka, a series of rockshelters containing artifacts spanning a range from the Lower Palaeolithic to the Mesolithic (V.N. Misra 1985a). Bhimbetka is well known for its parietal rock paintings, most dating to the Mesolithic (Misra et al. 1977; Wakankar 1985). Unfortunately, there is little preservation of bone or other organic material in any of the Palaeolithic strata. The only hominid material is the Narmada skull cap, identified by Kennedy (1999) as an early *sapiens* and not, as originally proposed, as *Homo erectus*. Lower Palaeolithic tools at Bhimbetka, as elsewhere, are made on locally available raw materials and consist of Acheulean assemblages dominated by flake tools. Lower Palaeolithic open-air sites include the important sites of the Hunsgi Valley in southern India, excavated by K. Paddayya (1982, 1987; Paddayya and Petraglia 1997), and the Madras coastal "sites" – the latter a continuous spread of artifacts over tens of square kilometers. These coastal assemblages include many finished artifacts and seem to represent continuous reuse of and movement over a large region.

Most of the well-excavated Lower Palaeolithic sites in primary contexts (that is, not in river gravels) have Acheulean rather than pebble-tool assemblages (see also Pappu 1985). This pattern may, however, reflect the undeveloped state of research in the northeast (cf. Chakrabarti 1993), a region with extensive tropical and semitropical forests and where many contemporary people include gathering and hunting in their subsistence regimes.

The Middle Palaeolithic

The Middle Palaeolithic, or Nevasian, falls during the Upper Pleistocene, with radiocarbon dates placing it between approximately 50,000 and 17,000 years before present (Ghosh 1989:28; Sankalia et al. 1960). This was a period of increasing regional diversity in stone tool forms. Central and southern India, for example, have broadly similar artifact assemblages while the tools of the desert northwest are somewhat different. This period also represents a more humid climatic phase, at least across parts of the subcontinent, and settlement appears to have expanded accordingly. Technologically, Middle Palaeolithic stone tools were primarily made on flakes, and show the use of more complex reduction techniques, with Levallois flakes becoming common. There are also consistent changes in raw material in most areas, so that the larger blocks of local material such as quartzite that are common in the Lower Palaeolithic (in areas with Acheulean materials) give way, in part, to smaller pieces of high-quality raw materials.

During the Middle Palaeolithic, archaeological sites were located all across mainland South Asia, but in this period there is also good evidence for occupation of Sri Lanka by anatomically modern *Homo sapiens* at the sites of Batadomba Lena (*c.* 28,000 BP; Deraniyagala 1992) and Fa Hien (*c.* 31,000 BP; Kennedy and Zahorsky 1997), among others. As discussed below, Batadomba Lena also contains geometric microliths, suggesting that many chronological assessments based on lithic technology are likely to be in error. Other important sites include Bhimbetka and Sanghao Cave in the far northwest (present-day Pakistan). The latter holds great promise, having both good faunal and charcoal preservation. Unfortunately, this site has not yet been dated and there is no complete publication of work done so far. Specialized sites such as the factory sites of the Rohri Hills in Sind (an important source of lithic raw material as early as the Lower Palaeolithic and as late as the first millennium BC) are also known, indicating specialized procurement of high-quality Rohri flint (Biagi and Cremaschi 1990). Very large workshops covering several hectares and containing thousands of finished tools as well as flaking debris are also found near Bhimbetka.

The Upper Palaeolithic

Although the broad categories Lower and Middle Palaeolithic seem to fit South Asian data reasonably well, the imposition of Eurocentric categories has been resisted by many researchers, particularly in light of the difficulty archaeologists have had in defining an Upper Palaeolithic period matching the European one. In 1961, the First International Conference on Asian Archaeology formally agreed to adopt the terms Early, Middle, and Late Stone Ages, corresponding roughly to Lower and Middle Palaeolithic and Mesolithic in the European scheme. Since then, however, Upper Palaeolithic-style blade and burin (or flake-blade) assemblages have been identified by several scholars, notably at the sites of Renigunta and in the Kurnool Caves of east-central India (Murty 1968, 1981; Ghosh 1989; and see Sali 1989). The presence of assemblages with a blade-based lithic technology stratigraphically superimposed over flake-based Middle Palaeolithic tools prompted many archaeologists to revert to the older terminological scheme. In any case, the new names had only been partially adopted, with the term "Microlithic" often used in place of Late Stone Age. The result of these changes has been a confusing and inconsistent use of terminology. Coupled with a scarcity of absolute dates, this situation leads one to suggest caution since the same term may be used to refer, for example, to either a time period, a lithic technology, or both.

Putting aside for the moment terminological difficulties, the recently defined Upper Palaeolithic begins around the end of the Middle Pleistocene humid phase and extends through the Late Pleistocene into a major dry period (*c.* 17,000 to 10,000 years before present). Unfortunately, our understanding of subsistence is sketchy for all Palaeolithic periods of South Asia, due partly to poor preservation of animal bones and plant remains. At the Kurnool Caves, however, faunal preservation is good and faunal analyses suggest heavy semitropical forest cover. Upper Palaeolithic cave sites include Bhimbetka, where the stone tools include short, thin blades and burins, along with "older" tool forms made on flakes. At both Renigunta and the Kurnool Caves, stone tools are accompanied by bone tools (Ghosh 1989; and see Raju 1988).

As noted, the sites of Batadomba Lena and Fa Hien Cave in Sri Lanka date to about 28,000 and 31,000 years before the present, respectively (Deraniyagala 1992; Kennedy and Zahorsky 1997), and thus to the Middle Palaeolithic as defined above. However, both have microlithic stone tool industries. Microliths are small tools made out of blades, usually blades that have been snapped into several pieces. Clearly, blade tools and microliths are closely related technologically. This distinction is important, however,

in understanding the confusion over the Mesolithic period (below), and illustrates why there has been resistance to using European categories that create a sharp break between Palaeolithic and Mesolithic.

The elaborate bone artifacts and other mobilary and parietal art of the European Upper Palaeolithic have no parallel in South Asia. This is not to say that decorative artifacts are absent, however. In stratified gravel deposits of the Belan Valley, G.R. Sharma and colleagues have identified an Upper Palaeolithic stratum containing blade tools and what they call a "mother goddess" figurine, although others have described this object as a bone harpoon (Ghosh 1989:267). There is also good evidence for production and use of elaborate non-lithic artifacts, including ornaments. At a site in western India, Sheila Mishra and the Archaeological Survey of India have located an Upper Palaeolithic ostrich eggshell bead manufacturing site containing beads in various stages of manufacture. Drills of chalcedony and carnelian were also found, as were microlithic stone tools (Ota 1996). Other specialized sites include Baghor I, where a feature hypothesized to be a shrine has been dated to the late Upper Palaeolithic (Kenoyer et al. 1983).

The Mesolithic or Late Stone Age: hunter-gatherers in a changing world

The Mesolithic is used here to refer to a time period that begins with the Holocene, about 10,000 years ago. The end of the Mesolithic is difficult to fix; conventionally the term is used loosely to refer both to a hunting and gathering way of life[3] and to a time period. As an archaeological phase designation, it often includes all time periods after the start of the Holocene and prior to the development of agriculture, i.e. the Neolithic (thus, as late as *c.* 2500 BC in South India, and as early as the seventh millennium BC in the northwest). Indeed, in a review of the Mesolithic (Late Stone Age, in this case), V.N. Misra (1976:45) notes that the persistent association of microliths with, subsequently, Chalcolithic, Early Historic, and finally Gupta (fourth to seventh centuries AD) ceramics indicates "yet another instance of the persistence of stone tool technology into historic times in the backwaters of central India." Of course, the use of the term Mesolithic to describe contemporary people is also not unknown, so in some (not very useful) sense one might imagine that the Mesolithic period has not yet ended.

The term microlithic is sometimes used as a synonym for Mesolithic, but will here refer only to a form of lithic technology. This distinction is important because sites with microlithic artifacts evince a very broad range of dates (Lycett and Morrison 1989), and need not belong to the

Mesolithic (cf. V.N. Misra 1985b). In fact, a large number of the sites that have been identified as Mesolithic seem to have been produced by small-scale groups of microlith-using people who gathered and hunted, but who also sometimes maintained close relationships with others, as the chapters by Lukacs and Possehl in this volume make clear. Thus, in the interests of clarity, I will use the term Mesolithic to refer to a (still poorly defined) chronological period and the term microlithic solely as a technological category of stone tools.

The Early Holocene: diverging ways of making a living

The Early Holocene was marked by world-wide climatic changes. In India, the aridity of the Upper Palaeolithic ended; pollen data from western India show a climate slightly wetter and more favorable than that of today (Singh et al. 1990). Lakes in Rajasthan that are now saline were freshwater, but the typical monsoon pattern with seasonal dry periods continued. In this period, the earliest part of the Mesolithic, there were still no agricultural communities and we see a continuation of (but a greater diversity in) hunting and gathering ways of life. The Mesolithic also saw the expansion of occupation into new areas and a large increase in the number of sites, probably reflecting larger regional populations.

Microlithic stone tools, many formed into geometric shapes, were made out of small blades, mass-produced by the pressure-flaking technique. These geometric microliths (some of them amazingly small, most made on high-quality raw materials including semi-precious stones) were probably hafted to form sophisticated composite tools with multiple small blades that could be repaired or replaced as needed. Across South Asia, stone tools show significant regional differences in size, shape, and raw material, pointing to the increasing differentiation of strategies and traditions among those living in this part of the world. Environments occupied range from dry to humid, and this range is reflected in material culture. At several sites we see grinding stones for the first time, as well as doughnut-shaped groundstones that may have been used as digging stick weights. Pottery also appears in some Early Holocene contexts, replacing or supplementing less bulky containers such as baskets or woven bags.

Although we know little about how people made a living during the various Palaeolithic periods, it is at least clear that South Asians were mobile gatherers and hunters. In the Holocene, some hunter-gatherers were sedentary, particularly along the southern coasts where they engaged in fishing as well as gathering and hunting terrestrial game. Elsewhere, seasonal mobility continued. The Mesolithic site of Baghor II, dating to between 8600

and 7600 BC (Possehl and Rissman 1992), was repeatedly occupied on a semi-permanent basis. Many of the important cave and rockshelter sites of central and western India (Bagor, Langhnaj, Adamgarh, Bhimbetka) were occupied seasonally, some filling with blown sand in the dry season. Both Adamgarh and Bhimbetka contain bones of domesticated animals, suggesting that they were occupied by people not totally dependent upon wild taxa (see below). Until recently, there has been little work explicitly devoted to reconstructing patterns of mobility (see Lukacs, this volume), but it is interesting that some Mesolithic sites contain structures, stone floors and, at Sarai Nahar Rai, a floor of rammed burnt clay nodules with postholes and hearths (V.N. Misra 1976:50). Some rockshelters contain small walls and huts, suggesting perhaps a longer-term occupation of or investment in these locations.

The Holocene also saw an explosion of rock art in South Asia. The various caves of Bhimbetka contain thousands of paintings. The early paintings are more naturalistic, while later ones are more abstract (Brooks and Wakankar 1976; Wakankar 1985). Common themes include animals and gathering and hunting scenes. Rock art has only recently become a popular topic of enquiry in South Asia and we can expect much more scholarship on this material in the future.

The Mesolithic continues into the period of initial plant and animal domestication. Agriculture changed the conditions of life quite dramatically for some people, less so for others, but no group remained fully outside the changes brought about by this shift. It is useful to think of the process of domestication as mosaic: the earliest domesticates are found in the northwest where, at the site of Mehrgarh, agriculture based on wheat and barley was present by the seventh millennium BC (Constantini 1984; Jarrige 1984; Meadow 1984). In West/Central India, domesticates were well established by the fifth millennium, in the Vindhyan Neolithic of North/Central India cultivation of barley (and later rice) by the fifth millennium, and in the Southern Neolithic millet-based agriculture was established by the third millennium BC. While some domesticates appear to have been introduced from outside South Asia (including wheat, rice, certain millets, grapes), others were domesticated locally (including cattle, barley, and other millets).[4]

Similarly, the density and size of agricultural settlements and the degree of social-political inequality associated with agrarian societies vary a great deal across the subcontinent. By the third millennium BC, large urban sites were established on the floodplain of the Indus and its tributaries. The Harappan civilization, as discussed by Possehl in this volume (and see

Possehl 1998), was contemporaneous with smaller agricultural and pastoral communities (Neolithic or Chalcolithic) elsewhere in South Asia; cities were not established in most of the region until the so-called "second urbanization" of the Early Historic period, roughly 300 BC to AD 300. In light of the regionally diverse and changing picture of South Asian sociopolitical and economic change, it is thus not surprising that intensity of interaction and forms of relationships between foragers and others also seem to have varied.

Hunting and gathering in a larger world

If one considers the contexts of microlithic sites from all time periods, particularly those after about the fourth millennium BC, there is ample evidence for interaction between hunter-gatherers and others (Possehl and Kennedy 1979; Possehl and Rissman 1992). These microlithic contexts represent the material remains of small-scale communities that were very much a part of the larger economic, ecological, and perhaps political contexts of their day (see V.N. Misra 1976 for a review). Well-excavated sites from this period include the important open-air site of Langhnaj, in Gujarat, discussed by Lukacs and Possehl in this volume. The occupational sequence of Langhnaj was divided by its excavators (Sankalia et al. 1960) into three phases. Phase I deposits contained microliths, remains of wild animals, including wild cattle (*Bos indicus*) and water buffalo (*Bubalis bubalis*), a number of burials, groundstone fragments, dentalium shell beads, and what are referred to as "stray" potsherds (V.N. Misra 1976:30). Phase II deposits contain a larger number of microliths, along with a faunal assemblage and human burial population similar to that of Phase I. Deposits assigned to this phase also contained a quartzite ringstone, two miniature ground schist axes, a long copper knife, and a number of fragmentary potsherds. The sole radiocarbon date for Langhnaj is 2495–2180 BC (two sigma range, calibrated; Possehl and Rissman 1992:462) from mixed Phase I/II deposits, making it contemporaneous with Indus cities. The copper knife is morphologically similar to Harappan forms and was probably obtained in trade from the Kutch Harappans of Gujarat. Phase III, tentatively dated to the later half of the first millennium BC, or later (V.N. Misra 1976:32), was without microliths, but did contain ceramics, including some wheel-made ceramics, a tanged iron projectile point, and a stone bead.

Although the movement of artifacts from urban contexts to locations used by more mobile peoples is easier to see than any reverse flow of goods, hunter-gatherers should not be viewed simply as the recipients of technological treats, nor urban peoples as the only agents of change.

Instead, the presence and activities of foraging and pastoral peoples in the region may be seen as also shaping the strategies of agriculturalists and urban dwellers. For example, evidence of trade by small-scale groups practicing gathering and hunting with nearby agricultural communities, including the urban Harappans, prompted Possehl to suggest (1976, this volume) that the urban site of Lothal was a "gateway community," located to take advantage of the specialized procurement of raw materials by hunter-gatherers for manufacture by urban artisans. Dhavalikar et al. (1995) argue for a similar role for the small Harappan port and manufacturing site of Kuntasi, in Kutch. In his chapter, Lukacs makes a strong case for the utility of biological information in elucidating the existence and nature of such contacts. He points out that biological data are of two basic types: those that are genetically controlled and those related to environment or experience. With regard to the former, he notes evidence for biological relatedness between those buried at Lothal and those buried at Langhnaj, indicating that relations were more than simply economic.

In addition to metal and ceramics, foragers (that is, people who gathered, hunted, traded, kept domestic animals, and perhaps even planted a few crops) obtained domestic plants and animals from their agricultural neighbors. Here Lukacs' focus on environmentally influenced biological features comes into play. In the case of Langhnaj, rates of dental caries fall squarely within the range usually associated with agriculturalists, suggesting a soft, starchy diet of carbohydrates, possibly traded food grains. This kind of analysis, combined with archaeobotanical research, has great potential to add to our understanding of forager–agriculturalist interaction (or its absence, as Lukacs shows for the Early Holocene on the Gangetic Plain).

Although the faunal assemblages of both Sarai Nahar Rai and Langhnaj suggest hunting as the sole means of animal procurement, the bones of domestic Indian cattle (*Bos indicus*) are found at Adamgarh, Bagor, Tilwara, and other Mesolithic sites from about 5000 BC onwards, as are domestic sheep, goats, and pigs (Ghosh 1989). Microlithic Bagor, in Rajasthan, has a faunal assemblage containing some 60–80 percent sheep/goat, suggested by Ghosh (1989:41; and see V.N. Misra 1976) to reflect a pastoral way of life. At Tilwara, faunal remains came from both domestic (*Bos indicus*, *Capra hircus*, *Sus scrofa cristatus*) and wild animals, suggesting both animal husbandry and hunting. Tilwara deposits include, in Phase I, both microliths and ceramics, and in Phase II, microliths, wheel-made ceramics, and glass and stone beads. There is also good evidence for several small structures with hearths (V.N. Misra 1976:34). Unfortunately, the Tilwara deposits

are in dune contexts and are likely to be deflated. There are no published radiometric dates from Tilwara.

Better information is available from the site of Bagor, a fairly substantial site with remains of shelters and a radiocarbon sequence indicating some 3,000 years of occupational history (V.N. Misra 1976:35). Phase I deposits, which begin around 5000 BC, contain microliths, abundant fauna of both wild and domestic animals (including, as noted above, a significant proportion of sheep/goat), groundstone, and evidence of several small round shelters. Phase II deposits contain smaller quantities of lithics and fauna, and include copper tools, stone beads, a spindle whorl, and handmade ceramics. The copper objects all came from burial contexts; three of these objects were Harappan-style projectile points. Although two radiocarbon dates place Phase II at around 4000 BC, this is clearly too early for copper artifacts and V.N. Misra suggests a date in the middle of the second millennium BC. In Phase III, for which there are no radiometric dates, there were yet fewer microliths and animal bones. New artifact classes included wheel-made ceramics, iron projectile points, iron, and glass beads. Shelters in Phase III were paved with brick fragments and some dressed stones (V.N. Misra 1976:35–8).

Many more examples along these lines could be enumerated. For example, levels at Lekhania, in central India, contained microliths, iron tools, and Iron Age ceramics, suggesting to V.N. Misra (1976:42) both sustained interaction and peaceful co-existence of agricultural "Megalithic" (Iron Age) people and microlith-using foragers up to (and possibly into) the first century AD (and see Lukacs, this volume). Archaeological evidence for gathering and hunting after the first millennium AD is spotty, though this is almost certainly a consequence of research emphasis and not an absence of foragers, as discussed below. In a paper on the post-Iron Age occurrence of stone tools, Lycett and Morrison (1989) found not only a large number of reports of associations between microliths and historic sites but also a time span for reported radiocarbon dates of microlith-bearing deposits that covered the entire Holocene. Late stone tools cannot, of course, be assumed to uniquely mark the presence of foragers, as there is some evidence from my own survey data in South India to suggest that impoverished rural farmers may have also used lithic technology as late as the fifteenth century AD. Archaeological evidence from post-first-millennium contexts for the nature of food procurement and production of all kinds is generally lacking in South Asia and until this situation improves, we must rely primarily on texts.

South Asian foragers and text-based history

It is clear, then, that archaeological locales with microliths, sites often labeled Mesolithic on the basis of lithic technology, economic activities, or both, span a very long period of time. As noted, archaeological research has focused more consistently on time periods before about 300 AD than on periods after this, and we quickly begin to lose material evidence for foraging activities after this time. Partly for this reason, but also because of the nature of archaeological data themselves, there are at present no really reliable links that can be established between named contemporary hunting and gathering groups and specific sets of archaeological remains, though as noted above this does not imply a complete lack of historical continuity.

Nevertheless, even very early written records do mention foragers in a general way. Among the earliest deciphered written texts in India are inscriptions commissioned by the North Indian Mauryan emperor Ashoka during the third century BC. These inscriptions note the presence of undefeated forest groups on the borders of the Mauryan empire in East/Central India (Kulke and Rothermund 1990). Thapar (1997:118) notes government interest in forests within the Mauryan empire, mentioning the existence of taxes both on timber and on hunters "who maintained a livelihood from the animals of the forest," suggesting groups of people differentially incorporated into that polity. Similarly, Tamil Sangam poetry of the far south, dated to the Early Historic period (*c.* 300 BC–AD 300), describes a cultural classification in which there are distinct ecological zones, each with its own type of inhabitant. Mountains are said to be the abode of hunters, with lower elevation forests and brush lands are described as the home of herding peoples and dry farmers, and lowlands the home of rice farmers. Subrahmanian (1966:251–2) claims that Sangam texts recognize a distinction between tribes and castes (see below). He notes the names and occupations of several tribes, occupations that include hunters and robbers, wandering minstrels, the beaters of drums and proclaimers of royal orders, professional fighters, bowmen, and fishermen, suggesting that these named communities were integrated into the larger society while still maintaining a separate identity (and see Morris 1977; Murthy 1994).

Later inscriptional records from South India make reference to hill peoples and note their role in the specialized procurement of forest products such as honey and medicinal and aromatic plants. Other historical data from southwestern India indicate that some gathering and hunting peoples had regular relationships of obligation to lowland kings, supplying

them with tribute in the form of forest products, including elephants. Other special roles of hunting people included serving as guides for royal hunting parties. In Middle Period (medieval) South Indian literary traditions, forests were seen as the abode of both hermits and hunting peoples, both clearly distinct from but not unengaged with larger society. As I discuss in chapter 6, beginning around the sixteenth century AD there was an expansion of the international trade in spices, particularly black pepper from southwest India. The demand for both cultivated and wild products of the western forests, combined with expansion of agriculturalists into the foothills of the western mountains, may have increasingly forced gatherers and hunters into marginal economic and social positions in this expanding world economy (and see Guha 1999).

If historical notices of foragers are consistently present, but spotty and brief before the sixteenth and seventeenth centuries, then they become abundant by the eighteenth and nineteenth centuries, especially with the advent of European anthropological, missionary, and colonial administrative record-keeping. Around this time it becomes possible to identify the names of particular groups who still exist today, and from this time we inherit the peculiar systematics of South Asian group classifications, in which so-called "tribes" were set apart from "castes," the former sometimes being viewed as aboriginal and the latter as intrusive. All of these later historical accounts stress the interrelation between hill tribes and lowland groups, describing both the system of "renters" or middlemen in the trade in forest products (Morrison, chapter 6 this volume) and patterns of allegiance of particular groups to specific polities (Morris 1977; Murthy 1994). The power valences of "tribal" groups in the eighteenth and nineteenth centuries were not always ones of oppression or submission, however. Many forest peoples were regarded with fear and respect, both because of their reputations as fierce raiders and because of their reported prowess in sorcery or other religious sources of both power and danger.[5]

Tribes and tropes: the newness and oldness of gathering and hunting

South Asian tribal groups have inspired the generation of such a quantity of scholarly and quasi-scholarly writing that it is somewhat surprising there are any forests left. From the beginning, "tribals" constituted an active field of discussion and contestation for anthropologists, missionaries, government officials, and others. Representations of South Asian tribals have been deployed to serve various political agendas as diverse as Nehruvian industrialization and modernization to, more recently, scholarly depictions of a pristine, aboriginal, "state of nature" and ecological harmony that contrasts

with the evils of western imperial and industrial models (Gadgil and Guha 1992; Shiva 1988; cf. Mosse 1999). At both extremes, forager groups are employed as foils for particular intellectual and political programs; certainly the use, both inside and outside anthropology, of notions of primitivity in constructions of nature, history, and humanity has a long heritage and there have been several excellent general critiques of this history and practice (e.g. Fabian 1983; Kuper 1988). However, to point to the rhetorical manipulation of South Asian foragers in various games of representation is not to minimize or ignore their actual political, economic, and social exploitation, even oppression throughout much of recorded history (see, as a beginning, Fürer-Haimendorf 1982).

The notion that South Asian peoples are divided into caste society, on the one hand, and tribal societies, on the other, has a long history in British thinking about this region. The concept of tribe, a cultural entity even now sometimes seen as being coterminous with biological ("racial") divisions, is pre-anthropological, being consistently applied by the end of the nineteenth century (e.g. Forsyth 1889; Kitts 1885). Even before this, British efforts toward social classification and enumeration (the census being one example, and various monumental compilations of tribes and castes of a region, such as that of Thurston [1909], being another) worked to reify and stabilize identity groupings, inasmuch as census categories came to define the contours of group membership, and it was primarily through collective action that resource mobilization became possible (cf. Dirks 1993; H. Bayly 1999).

The designation of a particular group as "tribal" contained within it assumptions of both primitivity and originality. Designations of primitivity reflect value judgments about the degree of "advancement" of the economic base (shifting or swidden cultivation was seen by the British as wasteful, irrational, and as simpler and less developed than plow agriculture; hunting and gathering even more so). Originality, or aboriginality, followed naturally upon primitivity under the powerful intellectual structure of cultural evolution. As Béteille (1998:187, emphasis in original) puts it, "The 19th-century view was that the tribe represented not only a particular *type of society*, but also a particular *stage of evolution*." Simpler forms were seen to be earlier; hence simpler people ought also to be earlier. This is the logic that made "tribals" into the "original inhabitants of India," that gives us "living Mesolithic peoples," that compelled Murdock (1934) to include the South Indian Todas in his volume *Our Primitive Contemporaries*, and, of course, that was under fire in the revisionist debate discussed in chapter 1 of this volume.

In South Asia, this intellectual tradition is complicated by various indigenous and introduced ideas about historical movements of peoples on the subcontinent, of which the notion of "Aryan invasions" is the most important. Without delving into the tangled history of this historical construction, one can simply point out the association of "Aryan" identity with high social and ritual status. The kind of logic that makes presumably *simpler* people into *earlier* people finds a convenient mechanism for contemporary co-existence of peoples in such migrationist scenarios.

In addition to the logic of a relentless progressivism, another dimension to early constructions of tribes and castes is a pervasive orientalist bias that sees progress (civilization, evolution) as something which is, in contradistinction, not truly "indigenous" to India, as something which is imposed, brought to it, new. By having tribals be India's indigenes (both primitive and old), successive generations of scholars were free to construct historical edifices out of waves of migration and invasions, again mostly built on a logical structure which substitutes space for time, creating quasi-historical sequences out of contemporaneous variation (cf. Morrison 1996; Leach 1990).

In a recent essay, Béteille (1998) cogently outlines the reasons for eschewing the notion of South Asian tribals as "indigenous peoples," noting that such groups, for whom tribal classifications have come to denote important legal entitlements, are not necessarily any more indigenous than others in what is generally glossed as caste society. It is difficult to mount a convincing argument, he notes, for any coherent distinctiveness of tribal habitats, lifeways, biology, language, or even religious practice, especially in light of the long history of interactions between tribal and non-tribal populations. Béteille's perspective stands in contrast to that of many ethnographers, most notably von Fürer-Haimendorf, who conducted fieldwork among various tribal groups across the subcontinent between 1936 and 1980. Von Fürer-Haimendorf, who also worked closely with tribal welfare programs and served as a consultant on tribal issues for the government of Hyderabad, reproduces the language of a shared tribalism[6] and primitivity, not neglecting to see biological associations (1982:4–5, italics added):

> Until two or three generations ago, the Jungle Chenchus seem to have persisted in a life-style similar to that of the most archaic Indian tribal populations, and their traditional economy can hardly have been very different from that of forest dwellers of earlier ages . . . Of special interest are the parallels between the Chenchus and the Veddas of Sri Lanka . . . The Veddas have virtually given up their traditional life-style, but during some brief encounters with a group of semi-settled Veddas I was struck by a

> physical similarity between Veddas and Chenchus so close that it would be exceedingly difficult to distinguish members of the two populations if brought together in one place. Though separated by a distance of hundreds of miles and a stretch of sea, *the two groups may well be remnants of the most archaic human stratum of South Asia.*

In this citation we can also see several other tropes of South Asian hunter-gatherer studies. First, that until "very recently" (which of course varies, depending on the time of the ethnographic fieldwork) foraging groups are seen as having been entirely "traditional"; integration is always placed by the ethnographer in the recent (but undefined) past (e.g. Ehrenfels 1952:47–8). Secondly, foraging groups are often viewed as being on the verge of disappearing, which might follow both from the concept of tribalism itself (tribes must be autonomous groupings, unlike castes, so that integration with others threatens their tribal identity) and from the perception that contact with others is a recent phenomenon.

If the ethnographic[7] view from inside tribal studies suggests only recent integration of previously autonomous and isolated tribes (Fürer-Haimendorf 1982), then the perspectives of historians, archaeologists, and anthropologists not specializing in tribal groups provide a sharp contrast. Murthy (1994), for example, uses historical documents to describe the wealth of the Chenchus, the existence of Chenchu royalty, and the ways Chenchus served various governments in eastern India from about the fifth century AD (note that these are the very same Chenchus discussed by Fürer-Haimendorf, above). Similarly, S. Guha (1999) has traced the changing political fortunes of several groups of foragers and especially forager-agriculturalists in western India between the seventeenth and nineteenth centuries. Guha's close historical study tracks the development of "tribal kingdoms" in west-central India and the changing alliances of "tribal" military leaders with larger polities. In fact, the degree to which ethnographically and historically known gatherer-hunters of the South Asian mainland and Sri Lanka are integrated into the economies, polities, and religious practices of their agricultural neighbors has prompted some to view them as economic specialists. As early as 1969, Richard Fox referred to South Asian hunter-gatherers as "professional primitives," in recognition of their integration into the larger society and their specific roles as occupational specialists.

What we see in this volume is that such integration has an even longer history than such accounts imagine. This recognition should not, however, be taken to mean that South Asian gatherer-hunters are somehow not "real"; instead we should recognize that diversity and flexibility in lifestyle and

subsistence have been a feature of South Asian life for a very long time, and that gathering and hunting are important parts of a broad economic repertoire that have lasted for a very long time. Further, the chapters in this volume point to a great degree of variation in strategies and degrees of connection between foragers and others, suggesting that a single model of interaction or isolation will never be satisfactory. We have come a long way from a choice between "primitive isolates" and "professional primitives," from the battle-lines of the revisionist debate which, while it hardly touched the South Asian literature, resonates in some the disagreements about the changing histories of foragers on the subcontinent. Certainly the lessons South Asianists have learned about the complexity and fluidity of subsistence strategies and of interactions ramify beyond the subcontinent and suggest that relations between different forms of production and procurement and between differently organized groups of people have probably always been complex; if foraging in the context of South (and Southeast) Asian history is best viewed as strategic rather than essential, this insight is unlikely to be applicable only to this region.

Archaeology will probably never provide a direct link between specific sets of material remains and named contemporary groups who, among other things, hunt and gather, but there is certainly the promise that archaeological research will soon begin to address more recent time periods and thus round out our still rather sketchy ideas about the long-term histories of South Asian gatherers and hunters. Recent trends toward the integration of textual, material, environmental, and biological information are particularly welcome, and as the chapters in this volume illustrate, such approaches represent our best hope for the future. If such multidisciplinary historical scholarship can only rarely approach issues of indigenousness (after Béteille 1998) and specific cultural continuities (or ruptures), it is, however, in a position to comment on both the newness and oldness of hunting, gathering, and trading, activities which have a long genealogy, but which have also been reinvented and reconfigured again and again, in response to the complex circumstances of history.

NOTES

1 This has led, not surprisingly, to many discussions about what, if anything, unifies South Asia as a geographic entity. This debate has been closely connected to British colonial assertions about the lack of an "Indian" identity prior to the construction of their colonial empire, and has engendered a large and often contentious literature. Perhaps the most interesting of the early work of the twentieth century is B. Subbarao's (1958) *The Personality of India*, modeled on

Sir Cyril Fox's (1932) *The Personality of Britain*. Subbarao identified what he called "areas of attraction or nuclear regions," "areas of relative isolation," and "areas of isolation or cul de sac," the former being places where centralized, hierarchical political systems emerged and the latter depicted as marginal zones, outside the mainstream of cultural development. Of course these are the areas where specialized forager-traders are known ethnographically and historically, and thus this distinction is of some interest here (see also Sankalia 1963). For more extended discussion of the concepts of "India" and "South Asia" see, for example, Inden (1990) and Spate (1954).

2 I am *not* saying here that there are no material consequences of ethnic and cultural identities or that such issues cannot be addressed archaeologically. It is, however, my opinion that we are on much firmer ground in discussing the consequences of human action – whatever complex causal relations lie behind those actions – than in attempting to correlate material remains with ethnic or cultural labels. At the very least, the ambiguous, sometimes fluid nature of self-ascribed or externally assigned identities known historically and ethnographically should make us cautious about attempting to project contemporary cultural categories back in time. The biological perspective is especially important here, as biological relations between peoples seem, in many cases, to cross-cut apparent cultural categories, while in other contexts distinctive biological populations can be isolated. All this points to the complex nature of group identities (ethnic, biological, cultural, economic) through time and over space.

3 This is the case even though it is now clear enough that there was never a *single* hunting and gathering way of life, especially after the onset of Holocene climatic changes. Nevertheless, the use of the term "Mesolithic" as a shorthand for gatherer-hunter is well established in the literature (e.g. Allchin and Allchin 1982).

4 In general, we can identify two main zones of agriculture in South Asia: a northern/western zone of winter wheat and barley cultivation and a southern/eastern zone of summer rice and millet cultivation, with some regions of overlap where double-cropping regimes were possible. In both zones, animal domesticates include sheep and goats, cows, pigs, and water buffalo. Obviously, this greatly oversimplifies regional agro-ecological patterns, but holds true in a general sense. The introduction of African millets has been recently reviewed by Weber (1998). Domesticated rice appears to have come into India through Southeast Asia. Constantini (1984) reviews the evidence for local vs. introduced plant cultigens at Mehrgarh while Meadows (1984) presents the faunal data. See Kajale (1994) for a review of early agriculture in peninsular India.

5 Discussing eighteenth-century North and Central India, S. Bayly (1999:44) describes relations between newly established post-Mughal lordships and "the supposedly fierce and carnal" Bhils, Gonds, and Santals, noting that hill peoples constituted an important market for lowland produce as well as a

critical source of manpower for military levies. She explains (1999:45): "There was always a delicate balance between aggression and harmony in these relationships. Even so, until relatively recent times, plains peoples tended to hold the bearers of 'tribal' titles in mingled fear and reverence. Their hills and forests commanded respect as the domains of blood-taking deities whose powers of *sakti* or activated divine energy empower both kings and gods to contend with the unclean or 'demonic' forces which continually menace the ordered dharmic world."

6 Evidently, any tribe can be compared with any other. When this results in comparisons between, for example, peoples of the far northeast and the far south, who have virtually nothing in common beyond their shared tribal label and citizenship in the Indian republic (cf. Fürer-Haimendorf 1982), the curious resilience of the tribal label becomes clearer. If tribals are relegated to anthropology, while others are the subject of history and archaeology, then interaction between tribals and non-tribals need not be addressed, nor indeed need the whole conception of tribalism be re-examined. Clearly, however, if the whole notion of "tribe" is suspect, as I would argue it is, then comparisons between tribals *as such* lose their automatic justification. All this is not to say that comparisons are not warranted and useful, as indeed the project of this volume asserts that they are.

7 For more recent ethnographic perspectives on South Asian hunting and gathering groups, especially those from the northeast which are, unfortunately, not well represented in this volume, see Lee and Daly (1999).

3 Hunting and gathering strategies in prehistoric India: a biocultural perspective on trade and subsistence

JOHN R. LUKACS

Hunter-gatherers, trade and subsistence: introductory models

The vital role of trade to the origin and florescence of early civilizations is a topic of considerable interest to prehistorians (Algaze 1993). The analysis of Harappan trade networks is often sub-divided into internal systems of distribution and external trade contacts. The significance of Harappan long-distance trade, the items exchanged, and the mechanics of interaction are topics of continuing debate. Harappan trade relations with prehistoric cultures of the Arabian Peninsula, Central Asia, and Mesopotamia are exciting, of wide interest, and have been extensively documented.[1] Pre-Harappan settlements at Mehrgarh (Baluchistan) provide evidence for trade networks extending to the Makran coast and Central Asia during early Chalcolithic (*c.* 4500 BC) and even Neolithic (*c.* 6500 BC) times (Jarrige 1985; Lechevallier and Quivron 1985). The archaeological focus on long-distance trade systems in prehistory diverts attention from another important form of exchange and population interaction: small-scale, localized interaction between nomadic hunter-gatherers or pastoralists and settled agriculturalists. Although certainly less spectacular than the nature of indicators for long-distance trade, evidence for this type of interchange should be archaeologically detectable and may have constituted a primary means by which urban centers acquired widely dispersed raw materials essential to a variety of manufacturing goals.

The purpose of this chapter is: (1) to review the development of a biocultural perspective on "interactive trade" between hunter-gatherers and agriculturalists in Indian prehistory; (2) to stress the importance of an integrative biocultural perspective on interactive trade systems past and present; (3) to review and refute the recent application of interactive exchange suggested for microlithic hunter-gatherers and agriculturalists of the mid-Ganga Plain; and (4) to summarize recent research accomplishments in the ethnography of modern hunter-gatherers and pastoralists with special attention to new models of cultural interaction and their implications for understanding prehistoric population boundaries.

While controversy surrounds the utility of ethnographic models as heuristic devices to aid in understanding and interpreting the archaeological evidence, and while numerous paradigm shifts have occurred in the perception of hunter-gatherers (Morrison, chapter 1 this volume), a fresh examination of interactive trade in Indian prehistory in light of recent developments in South Asian ethnography may prove worthwhile. As an anthropology undergraduate at Syracuse University, my first acquaintance with hunter-gatherer lifeways was through films and readings about the !Kung San, Mbuti Pygmies and Australian aboriginals. In the 1960s anthropological consensus was that the hunter-gatherers were isolated or marginalized populations that were economically independent and self-sufficient (Lee and DeVore 1968a). Subsistence activities and other types of labor were calculated to be considerably less arduous than those typically encountered among agricultural and industrial societies, giving rise to the idea of a leisurely lifestyle, often referred to as "the original affluent society" (Lee 1969). This perspective on hunting-foraging societies, recently labeled the "evolutionary ecological approach" (Stiles 1993), originated in part from the Harvard Kalahari Project and used ethnographic evidence for subsistence, settlement, and social behaviors to build models for understanding similar adaptations among prehistoric peoples and ancient hominids (Kelly 1995).

An alternative approach to hunter-gatherers, designated "historical particularism" (Stiles 1993), developed in the late 1970s and 1980s and placed greater emphasis on historical evidence of interdependence between foragers and their agricultural neighbors (Headland and Reid 1989; Kelly 1995; Kent 1996). Also at issue is the question of whether hunter-gatherers could ever have lived in tropical rainforest independent of agriculturalists (Headland and Bailey 1991; Junker, chapter 7 this volume). Extensive surveys of hunter-gatherer diets and subsistence patterns essentially confirm the "carbohydrate scarcity hypothesis," and support the idea of vital links with agricultural neighbors or some reliance on food production as a prerequisite to life in the tropical rainforest. The historical particularist paradigm embraces a broader adaptive flexibility in subsistence for hunter-gatherers that includes some experience with food production and occasionally "wage-gathering" (Bird 1983). In contrast with the evolutionary ecological approach to modern foragers, this paradigm is less concerned with the use of ethnographic models as aids in the interpretation of archaeological evidence.

A more recent model based on nomadic pastoralists of Tibet and hunter-gatherers of South India represents an eclectic adaptive pattern in which societies vacillate between periods of contact and interdependence with

agriculturalists and strict isolation from settled neighbors with different cultural values and norms. This model, developed by Gardner (1985), is labeled "oscillating biculturalism." It emphasizes the opportunistic versatility of some hunter-gatherers, is especially appropriate for certain modern South Asian foragers, and may provide a valuable new model for interpreting prehistoric population interaction. Hunter-gatherers that know and can easily function in two distinct cultures and have the ability to choose between them on the basis of economic, social, and emotional factors are bicultural. The ethnographic analysis of modern cultural frontiers or culture contact zones should provide insight into the mechanisms and processes of cultural exchange relevant to archaeological interpretation. While archaeological theory regarding cultural frontiers and contextual evidence of hunter-gatherer/farmer contact has been considered at some length for European prehistory (Dennell 1985b), the interpretation of culture contact zones in Indian prehistory can be dramatically improved by integrating recent developments in the ethnology, archaeology, and biological anthropology of South Asia. Fostering a synthetic biocultural approach to trade and subsistence in Indian prehistory is the immediate goal of this contribution.

The biocultural approach to hunter-gatherers and prehistoric populations

A biocultural approach to living and prehistoric cultures relies upon the cooperation of archaeologists, biological anthropologists, and ethnologists in an effort to develop research designs, methods, and interpretations that meld concepts and ideas from these diverse subdisciplines of anthropology. The goals of a biocultural approach include a holistic and unified reconstruction of subsistence economy, behavioral patterns and associated cultures through synthetic integration of biological data from human skeletons with archaeological data from artifactual evidence. The ethnographic record is a crucial component in the conduct of biocultural research. The biocultural approach, or bioarchaeology, originated during the excavation and analysis of Native American mortuary sites and skeletal remains. This perspective on past cultures has historical depth and a well-established methodology, and has dramatically improved our knowledge of the dynamic nature of biocultural change in prehistory.[2] While at the cutting edge of anthropological research, a biocultural approach has not been extensively employed in the analysis of Old World cultures, cemeteries, and human skeletal samples. In Asia a few notable exceptions include the University of California excavations of cemetery R-37 at Harappa, Pakistan (Dales and Kenoyer 1993; Lukacs 1992), and the excavation of the early farming village of Inamgaon in India (Dhavalikar et al. 1988; Lukacs 2002;

Lukacs and Walimbe 1996, 1998, 2000; Lukacs et al. 2001; Lukacs and Pal 2003).

A biocultural approach to hunter-gatherers developed with comprehensive studies of demography and health status in the late 1970s (Howell 1979; Nurse and Jenkins 1977). This work led to the realization that small group size, nomadism, dietary diversity, and routine exercise result in better average health among hunter-gatherers than among residents of pre-industrial urban centers (Cohen 1989). The "healthy hunter" model was subsequently used to interpret variation in health and mortality among prehistoric peoples with distinctive lifeways, subsistence systems, or settlement patterns. Palaeodemographic analysis of a low-status residential compound at Teotihuacan suggests that the "Law of Natural Urban Decrease" documented for pre-industrial Europe may apply to early agricultural urban centers of the New World as well. The Teotihuacan workforce required continual recruitment of laborers from healthy rural areas to urban centers that had higher morbidity and mortality rates (Storey 1992). Agricultural peoples are characterized by larger and denser populations, a sedentary existence, a less diverse and more refined diet, and living in close association with domesticated animals. A lifestyle based on agricultural subsistence often leads to numerous health hazards, including an increased prevalence of parasitism, infectious disease, and degenerative skeletal conditions (Larsen 1995). The popular best-seller *The Paleolithic Prescription* makes the same point: that the level of exercise and dietary quality of our ancestors resulted in a healthier existence than the inactive lifestyle and unhealthy diet (low fiber, high fat, high calorie) of many modern humans (Eaton et al. 1988). Although this perspective may overly idealize and romanticize the lifeways and diets of our ancestors (Garn and Leonard 1989), who were undoubtedly exposed to plant toxins, animal parasites, and hazardous natural materials, the basic contentions of the model are probably correct (Eaton 1989). Archaeological and ethnographic discussions of hunter-gatherer/agriculturalist exchange often overlook the important health implications that derive from contact between people practicing different subsistence strategies (Lukacs 1990; Spielmann and Eder 1994).

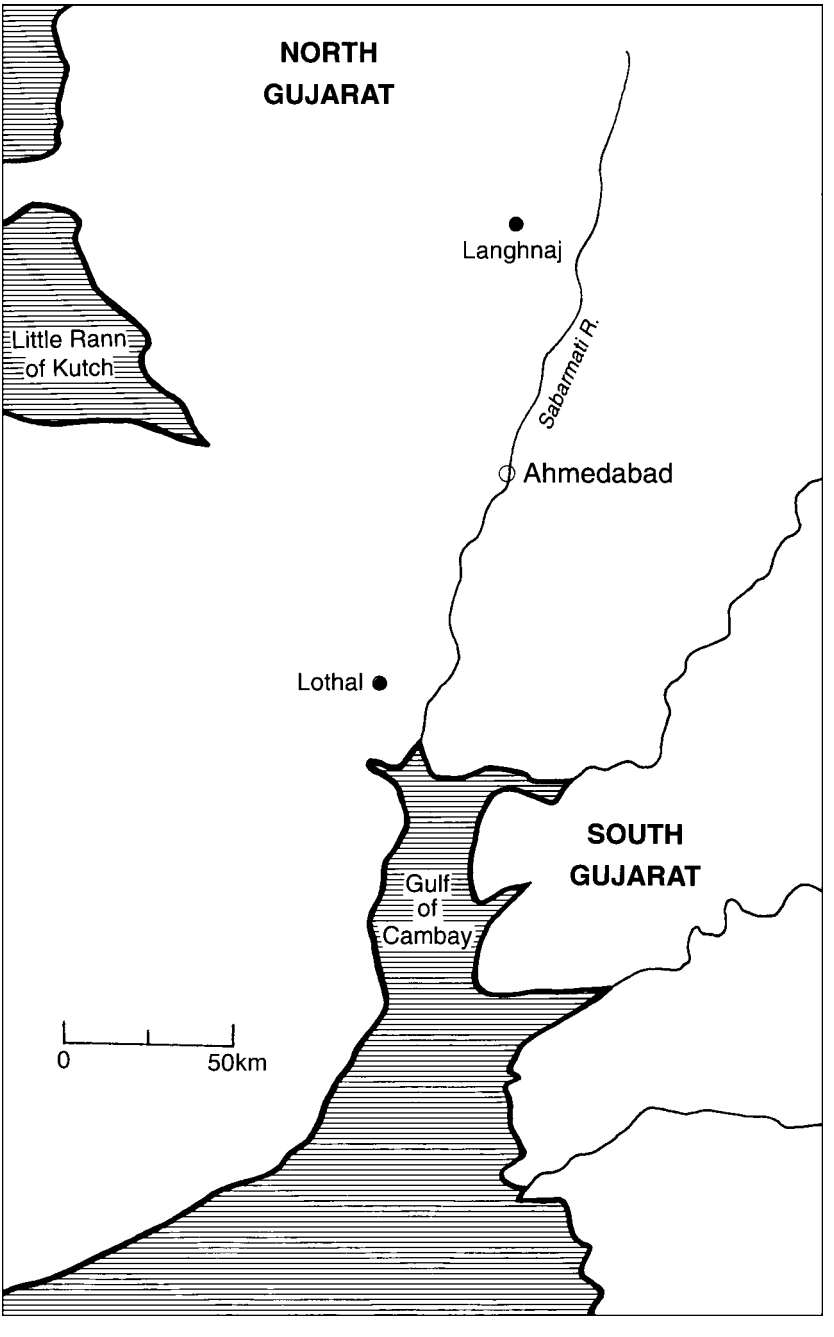
A biocultural perspective is often missing from ethnographic analyses of population interaction at culture contact zones (Spielmann and Eder 1994). However, Weitz (1984) refers to the marketplace cities such as Peshawar (Northwest Frontier Province, Pakistan), with which rural agriculturalists traded surplus produce, as "disease reservoirs" from which traders brought communicable diseases home to rural villages, thereby influencing demographic patterns (see also McNeill 1976). Recent work by Gardner (1993) on the Paliyans of Tamil Nadu, South India, calls attention to the biological

dimensions of trade and culture contact as a fruitful area for further investigation. The prior success record of biocultural research in the Americas, and its initial success in the Indian subcontinent, recommend its routine adoption in planning and conduct of archaeological and sociocultural research in South Asia. Toward this goal, a biocultural approach is adopted here in reviewing the development of an interactive exchange model in prehistoric Gujarat, and in evaluating the potential role interactive trade may have served in subsistence activities among Mesolithic foragers of the Ganga Plain. The primary contention of this chapter is that human patterns of behavior, especially trade and subsistence activities, cannot be fully comprehended without considering the dynamic interaction of biological and cultural systems.

Interactive trade in prehistoric India: the development of a biocultural synthesis

The concept of an interdependent economic relationship between prehistoric hunter-gatherers and urban agriculturalists in Indian prehistory was initially developed by Gregory Possehl (1976) and is further elaborated by him in this volume. The idea of interactive trade is founded on three kinds of data: (1) archaeological evidence from the Harappan town of Lothal and from the microlithic campsite of Langhnaj (Figure 3.1); (2) the distribution of archaeological sites with evidence of agriculture *versus* distribution of nomadic campsites in Gujarat; and (3) ethnographic descriptions of contemporary interaction patterns between South Asian hunter-gatherers and their agricultural neighbors. The presence at Langhnaj of a 98 percent pure copper knife, Black and Red Ware typologically similar to sherds from Lothal, and Harappan disk beads strongly suggests interactive exchange between the occupants of these two sites. The absence of agricultural villages in the plain of northern Gujarat is due to the absence of moisture-retentive black cotton soil, but northern Gujarat is a suitable habitat for nomadic hunter-foragers whose campsites are quite common there. Cautiously and with qualification, Possehl (1976:126) adopts the "professional primitive" interpretation of Indian hunter-gatherers developed by R.G. Fox (1969) as an ethnographic parallel for understanding prehistoric exchange between Harappan urbanites and rural nomads. This is coupled with the idea of Lothal as a "gateway" settlement through which resources and raw materials obtained from exchange with hunter-gatherers were filtered from the "periphery" (Lothal) to "central" towns and cities of the Harappan Civilization in Sind and Punjab.

Subsequent distribution analysis of mature Harappan towns revealed distinctive variations interpreted to reveal the role of nomadic pastoralists as

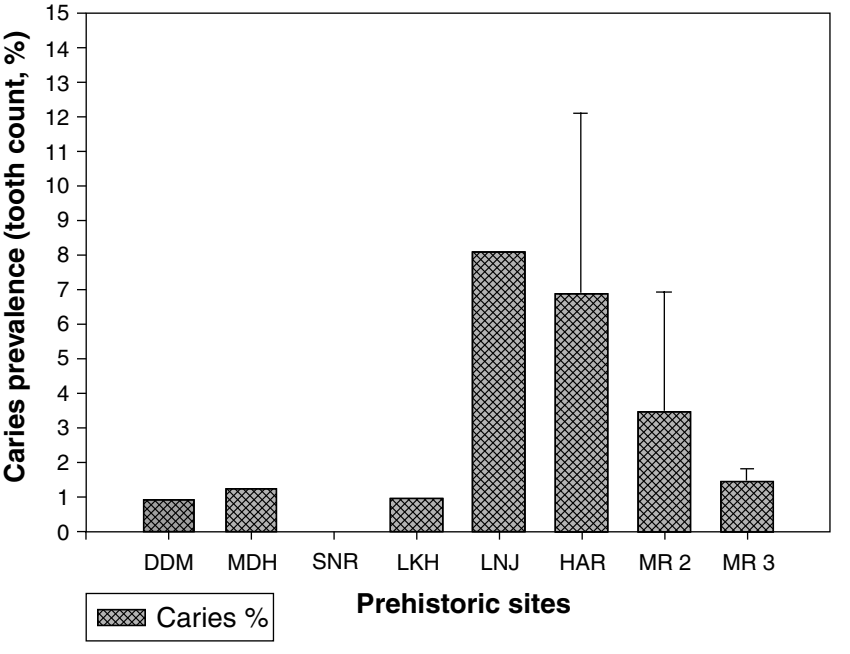


3.1 Location map showing relative geographic position of Langhnaj and Lothal

a key, yet overlooked factor of the mature Harappan culture. Possehl (1979) discerned an even distribution of sites in some southern regions (Sind and Kutch), but a discontinuous, clustered pattern of sites in Punjab and the Kacchi Plain. Isolated Harappan sites and settlement clusters separated from one another by relatively large distances can be explained by an undiscovered component of the Harappan subsistence spectrum: pastoral nomadism. Possehl contends that, "pastoral nomads, or other highly mobile (itinerant) occupational specialists filled the interstices in the Harappan settlement pattern" (Possehl 1979:547). The absence of numerous nomad campsites on the inventory of archaeological sites is explained by the "fragility" or impermanence of temporary campsites, the absence of an appropriate archaeological search image, and the lack of well-planned exploratory surveys to detect such sites. Possehl envisions these ephemeral, and for the moment largely undocumented, pastoral nomads as having an interdependent and symbiotic relationship with the settled Harappan towns folk: "The farmers and my hypothesized pastoralists should not be thought of as isolated from one another, but as complementary subsystems: two aspects of an integrated whole" (Possehl 1979:548). The role of nomadic peoples in the Harappan sphere of influence is judged to be significant in several respects.

> From this perspective the presence of the pastoral nomads makes very good sense if we see them as the mobile population which bridged the gap between settlements as the carriers of information, as the transporters of goods, as the population through which the Harappan Civilization achieved its remarkable degree of integration. (Possehl, 1979:548)

Insights from biological anthropology were first brought to bear on the question of contact and exchange between the people of Lothal and Langhnaj in 1979 (Possehl and Kennedy 1979). Human skeletal remains from both sites were studied by Kennedy, who concluded from a comparative statistical analysis that a number of physical traits present in the human skeletons from Lothal suggest that their closest biological affinities are with hunting-gathering communities whose descendants are found among the tribal enclaves in modern India. The idea of genetic exchange in conjunction with parallel economic transactions between the people of Lothal and Langhnaj suggests more than a casual relationship between them. More complex statistical analyses were subsequently conducted on skull measurements of the Lothal and Langhnaj specimens and the likelihood of gene flow between the two groups was further substantiated (Kennedy et al. 1984).



3.2 Dental caries prevalence in prehistoric India
(Key to abbreviations: DDM – Damdama, MDH – Mahadaha, SRN – Sarai Nahar Rai, LKH – Lekhahia, LNJ – Langhnaj, HAR – Harappa, MR 2 – Chalcolithic Mehrgarh, MR 3 – Neolithic Mehrgarh)

Supplemental evidence from palaeopathology indicated a new dimension to the genetic and economic links between urban agriculturalists of Lothal and the nomadic foragers of Langhnaj (Lukacs 1990). A comparative analysis of the prevalence of dental diseases among several "Mesolithic" hunting and foraging groups of the Indian subcontinent showed a generally consistent pattern: hunter-gatherers display low dental caries rates, often between zero and 1.5 percent. Prehistoric groups that are partially or completely reliant upon agriculture show substantially higher caries prevalences – between 4.4 percent and 12.1 percent. The caries rate for Langhnaj is 8.0 percent, a value significantly different from the "Mesolithic" range, but near the mid-point of the range of values typically associated with agricultural groups (Figure 3.2). This anomaly was interpreted to result from the consumption of refined agricultural food items that the people of Langhnaj may have obtained in trade from their contacts with the inhabitants of Lothal (Lukacs 1990). Ethnographic documentation for modern hunter-gatherers reveals that exchange of food items is a common and important aspect of trade between sedentary farmers and forest nomads (R.G. Fox 1969; Kelly 1995; Kent 1996; Spielmann and Eder 1994).

A review of the interactive trade interpretation of Lothal–Langhnaj interaction was presented by Possehl (1992) in his review of the Sorath and Sindhi Harappans of Gujarat. The archaeological evidence in support of interaction is briefly considered and the theoretical value of understanding Indian hunter-gatherers is emphasized. The idea of balanced reciprocity reaching a mutually advantageous level of accommodation is advanced to explain the Lothal–Langhnaj interaction. The longstanding temporal duration of such interaction (2500 BC to the present), still evident in some regions of South Asia today, points to the tough yet resilient and versatile nature of this mode of accommodation. While this summary account of Lothal–Langhnaj interaction and hunter-gatherer models is generally useful, there are several areas that require closer examination or elaboration. These include: (1) the multifactorial nature of the biological evidence; (2) new archaeological and textual support for interactive trade in prehistoric and early historic Gujarat; and (3) the availability of more appropriate, abundant, and diverse ethnographic descriptions and models.

The multifactorial nature of biological support for interactive trade is based upon the idea that biological variations derive from two primary sources: genetic and environmental. Traits whose variation is determined mainly by genetic factors (dental morphology and discrete skeletal attributes, for example) are most useful in assessing population relationships and the amount of genetic exchange between groups. In contrast, characteristics whose variation is determined directly or primarily by environmental influences (dental disease, accidental trauma, and degenerative conditions like arthritis) yield insights regarding diet, subsistence, and behavior. A fully biocultural approach to population interaction will employ both kinds of biological evidence, as recounted above in the Lothal–Langhnaj example. Kennedy recognized evidence of gene flow in the analysis of traits with high heritability, while I found evidence of dietary similarities from parallels in the prevalence of dental caries, a trait whose variability is mainly environmentally caused. These types of biological evidence are mutually independent and therefore each provides distinctive support for the idea of interactive trade.

New archaeological and early historical research results tend to generally confirm interactive trade in Gujarat, while survey work currently in progress will permit the model to be refined and revised. Archaeological evidence for mobile pastoralism in post-Harappan Gujarat is reviewed by Varma (1991) whose analysis considers settlement patterns and site types. Varma's attempt to classify archaeological sites in Gujarat, recognize pastoral campsites, and provide ethnographic examples of modern pastoral adaptations is clearly a valuable one that builds upon Possehl's earlier work

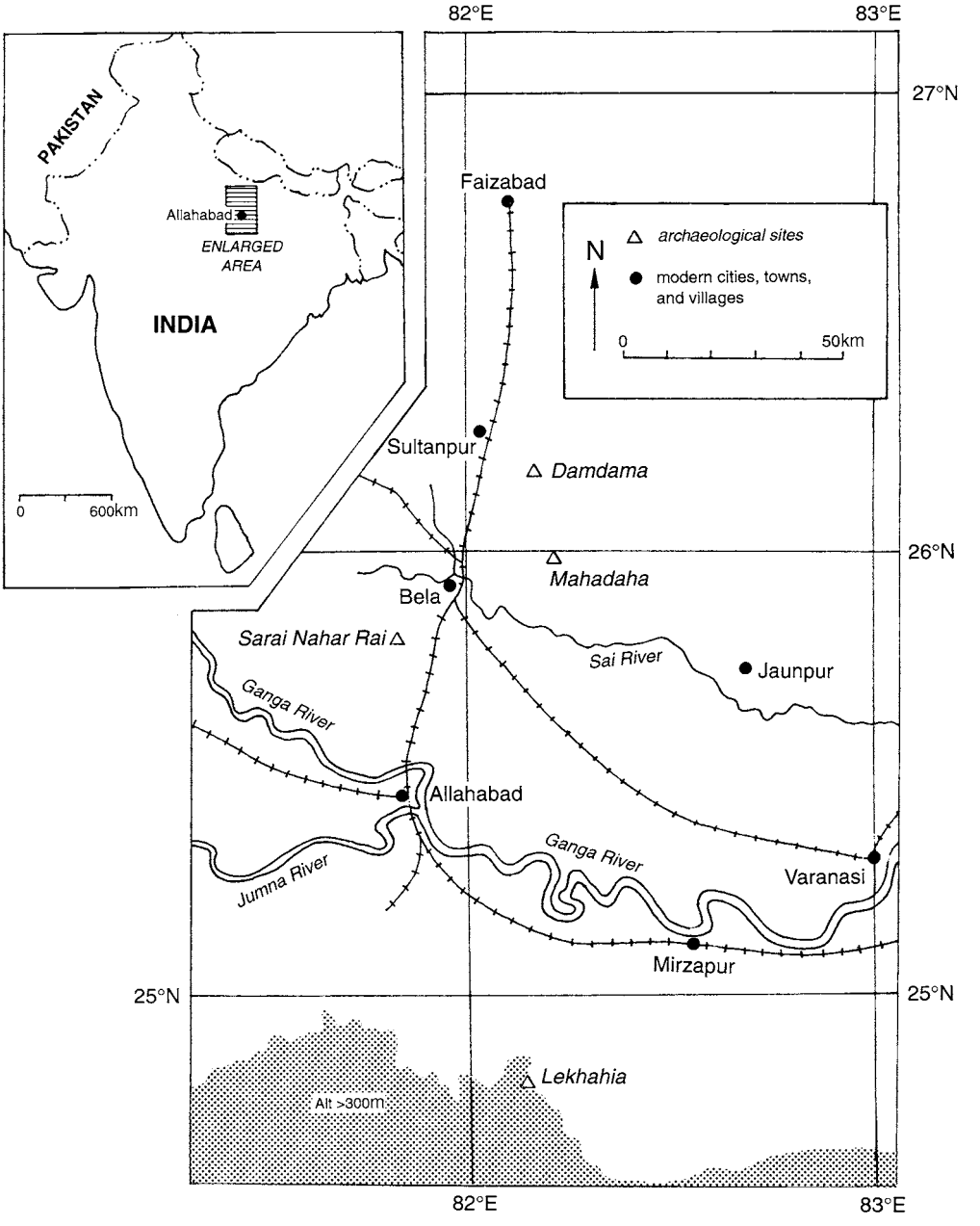
and complements similar reconnaissance surveys by Patel (1994). Archaeological evidence for Harappan nomads is detailed by Mughal (1994) for the Hakra depression of Cholistan. Mughal's extensive survey lends support to Possehl's thesis regarding the important functional role of nomadic pastoralists in Harappan society and similarly views this interaction as symbiotic on the basis of modern ethnographic evidence (Mughal 1994:60–1).

The role of the port of Broach in commercial trade under the Sakas and Guptas during the early centuries AD appears to have been functionally equivalent to the role Lothal played during Harappan times (Stiles 1993). Although during the early centuries AD some of the traded items may have differed, with an emphasis on natural plant and animal resources of religious value (incense, arts and crafts, medicinals), hunter-gatherers served as "a type of specialist primary producer of natural resource commodities" (Stiles 1993:161). This well-documented example of the functional links between hunter-gatherers and their neighbors from Early Historic Gujarat parallels Possehl's model for Lothal in adopting the "professional primitive" perspective on hunter-gatherers advocated by R.G. Fox (1969). Stiles' research provides valuable and detailed documentation of a more continuous record of interactive trade in northwest India.

To summarize, the growth and development of ideas on interaction between the people of Lothal and Langhnaj has matured and evolved over a period of twenty years. Its gradual formulation included the expansion of an exclusively archaeological perspective to one that includes valuable confirmatory evidence and collateral insights from special areas of inquiry within biological anthropology. The current interpretation of Lothal–Langhnaj interaction can therefore be considered an exemplary case of the utility of a biocultural or bioarchaeological approach to prehistory. Though the case for interactive exchange in Gujarat is now well documented, can this complex biocultural model be employed with confidence to understand population interaction in other temporal and cultural settings in the subcontinent?

Are recently proposed extensions of the interactive trade model valid?

In 1992 the interactive trade model developed for Lothal and Langhnaj was proposed as a possible interpretation for the "Mesolithic" inhabitants of Mahadaha, a site in Pratapgarh District, north of Allahabad, in Uttar Pradesh, India (Figure 3.3). In their review of the chronological framework for Indian prehistory, Possehl and Rissman (1992:473) state, "what we may have, for Mahadaha at least, are signs of the kind of accommodation between a hunting-gathering population and later food



3.3 Location map showing relative geographic position of "Mesolithic" sites of the mid-Ganga Plain and Vindhya Hills

producers that has been suggested for the interactive trade and barter aspect of the Indian microlithic tradition." In a subsequent discussion of the antiquity of Indian Mesolithic cultures, Kennedy et al. (1992:8) draws attention to a single late date for the nearby site of Sarai Nahar Rai (2,860 ± 120 BP,

TF-1356; Agrawal and Kusumgar 1975) and three late dates for Mahadaha (2,880 ± 250 BP, BS-137; 3,840 ± 130 BP, BS-138; 4,010 ± 120 BP, BS-136; Rajagopalan et al. 1982), reiterating the interpretation provided by Possehl and Rissman (above). The primary basis for this attribution of culture contact or "accommodation" between people practicing hunter-gatherer/agricultural subsistence in the mid-Ganga Plain is chronological. Problems arise at this point because the chronology of the Indian Mesolithic, especially in the Ganga Plain, has been inconsistent and controversial, and because no other biological or archaeological evidence has been offered in support of such contact or interaction.[3]

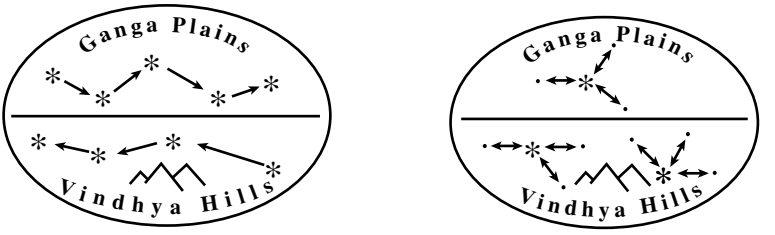
The contention advanced here is that a holistic biocultural perspective on trade and subsistence, in conjunction with new re-dating of key "Mesolithic" sites in the Ganga Plain, precludes interactive trade between hunter/foragers and agriculturalists in this region. The biological evidence reveals similar dental and skeletal pathology profiles for "Mesolithic" sites (Damdama, Lekhahia, Mahadaha, Sarai Nahar Rai) that are fully consistent with a diet that is coarse and unrefined in texture and diverse enough to adequately satisfy nutritional requirements (Lukacs and Misra 1997; Lukacs and Pal 1993). In short, the pattern of variability in pathological lesions for these four Mesolithic sites is typical of people who practice a hunting-gathering mode of subsistence. The skeletal and dental pathology profile of these people is inconsistent with consumption of refined or agriculturally produced foods and with a sedentary lifestyle. Furthermore, biological variations in dental and skeletal structure, such as tooth size (large) and craniofacial structure (robust), of these groups are similar and consistent with expectations for groups adapted to an eclectic diet obtained through hunting and foraging (Lukacs and Misra 2000; Lukacs and Pal 1993, 2002). From the archaeological record, no substantive evidence of trade goods derived from agricultural communities is presently available from these Mesolithic sites. A biocultural approach to the hypothesis of interactive trade between Mesolithic hunter-gatherers of the Ganga Plain and settled agriculturalists does not provide the evidence necessary to confirm or support the idea. The biological evidence reveals a homogeneous set of hunter-gatherer adaptations in morphology and pathology, while archaeological indications of trade are absent.

Revised dates for two "Mesolithic" sites of North India lend additional support to the biocultural conclusions, and raise further concerns about the unqualified application of the interactive trade model to the Ganga Plain Mesolithic. Four new AMS radiocarbon dates, two for Damdama and two for Lekhahia, are presented below. These dates are based on structural carbonate from the inorganic phase of human cortical bone (proximal femoral

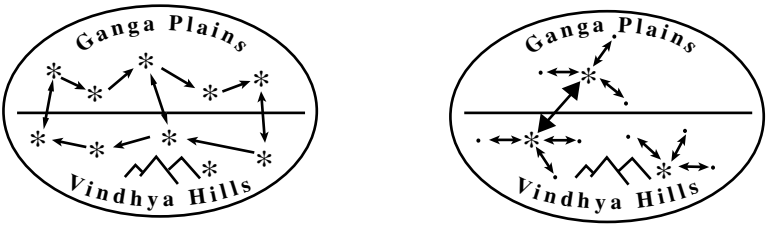
sections). Samples were analyzed by Krueger Enterprises/Geochron Laboratories Division. Preparation included multistage pretreatment with acetic acid washes to remove adsorbed, diagenetic carbonate. Natural and laboratory experiments have shown that accurate dates can be derived from structural carbonate in bio-apatite provided cleaning and pretreatment are thorough and the small carbon samples are measured by AMS (Krueger 1991). The results reported here constitute the first absolute dates for Damdama and suggest an Early Holocene antiquity for this site. The dates for Damdama are internally consistent: DDM-12, the earliest skeleton and the only specimen from Phase I, yielded a date of 8,865 ± 65 BP, while DDM-36a, from Phase VIII, is approximately two centuries younger (8,640 ± 65 BP). The dates from Lekhahia are exciting yet somewhat problematic: exciting because they suggest an antiquity for the site that is twice as old as previously thought, but problematic because there is some inconsistency in the results. The stratigraphically deeper skeleton (LKH-13; 8,000 ± 75 BP) has an antiquity that is more than three centuries younger than the skeleton (LKH-4; 8,370 ± 75 BP) stratigraphically above it. According to both Sharma (1965) and V.D. Misra (1977) the stratigraphic position of human skeletons at Lekhahia is difficult to ascertain due to disturbance, and some specimens could not be assigned to period. Furthermore field notes recorded during the excavation of human skeletons (Gupta n.d.) and laboratory observations of commingled skeletal elements (Lukacs 1994) further document the degree of disturbance at this site. These archaeological and skeletal observations may explain the "inconsistency" of the new radiocarbon dates for Lekhahia, which are precise and reliable absolute determinations that simply reflect the disturbed stratigraphy at this rockshelter site. These new radiometric ages tentatively place Damdama in the first half of the seventh millennium BC and place Lekhahia toward the end of the seventh millennium BC. The homogeneous pattern of artifact types, burial patterns, biological adaptations, and pathological lesions from Mahadaha, Damdama, Sarai Nahar Rai, and Lekhahia (Lukacs and Misra 1996a, 1996b) represents one broadly similar set of biocultural adaptations shared by Early Holocene hunters and foragers of this region. These multiple and independent categories of evidence do not provide convincing evidence for interactive trade with agriculturalists in north central India. The new dates reported here place Damdama and Lekhahia temporally prior to the local beginnings of agriculture, and biocultural evidence of interactive trade with settled agriculturalists is lacking (Sharma et al. 1980).

If the model of interactive trade between hunter-gatherers and agriculturalists in the mid-Ganga Plain during Early Holocene times is

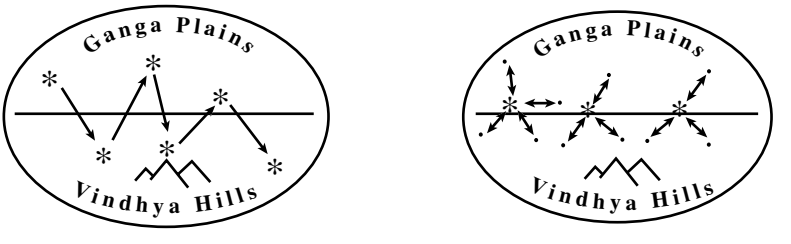
incompatible with the evidence, does this observation completely invalidate other forms of population interaction? Or, are alternative forms of population contact and exchange conceivable, and could they possibly form an essential component of a successful subsistence adaptation? The archaeological record of "Mesolithic" sites in the Ganga Plains and Kaimur Hills has been used as a basis for reconstructing different hypotheses about mobility patterns and resource procurement strategies in the region. The subsistence strategy of "Mesolithic" people of the Ganges Plain has not been clearly discernable from the archaeological record. Sharma et al. (1980) maintain that a seasonally transhumant pattern of migration existed. "Mesolithic" camps in the hills south of the Ganges were occupied during the monsoon, while in the dry season, the Gangetic Plains were inhabited. Each region, according to Sharma, provided valuable resources during different seasons of the year. Sharma's view is based upon three main arguments: (1) thin occupational deposits in hill and plains sites; (2) microliths in plains sites are derived from raw materials available only in the southern hills; and (3) the abundance of food and water in the plains during the time of summer drought in the hills. In contrast, Varma (1981–3) argues that the Gangetic Plains sites contain artifacts (querns and grinding stones, for example) that suggest longer-term, permanent occupations (e.g. incipient villages), on the threshold of agriculture. Sharma's view, which is based primarily on the site of Sarai Nahar Rai, contrasts with the analysis of lithic assemblages from Damdama by Pal (1985–6), who noted the very poor quality raw material from which tools were fabricated. This observation and the remarkably high quality of stone from the Kaimur Hills led Pal to hypothesize that the people of Damdama may have procured their lithic raw materials from local quarries of unknown location in the Ganga Plain. Using theoretical concepts of mobility and sedentism (Binford 1980; Kelly 1992, 1995), Sharma's perspective suggests a form of residential mobility, while Varma's alternative and Pal's lithic evidence suggest an emphasis on logistical mobility (see Figure 3.4). Interestingly, neither perspective admits that interactive trade between semi-sedentary people of hills and plains might constitute an important mechanism of resource distribution. Consequently, in the mid-Ganga Plain distinct patterns of resource acquisition can be envisioned which involve differences in mobility (residential vs. logistical mobility), ecozone exploited (Ganga Plains vs. Vindhya Hills), and interactive trade (present vs. absent). While some people of the plains (Mahadaha, Sarai Nahar Rai) may have obtained some or all of their lithic material from sources in the Kaimur Range of the Vindhya Hills, the method of procurement (residential or logistical mobility, or interactive trade) remains unclear and constitutes an important issue for future research.



Intra-zonal: Resource acquisition restricted to within Ganga Plains or within Vindhya Hills ecozones



Intra-zonal with trade: Most resources acquired within ecozone of residence; select resources obtained from non-resident ecozone indirectly through trade



Inter-zonal: Resources acquired directly from both Ganga Plains and Vindhya Hills ecozones

3.4 Theoretical mobility models for "Mesolithic" foragers of the mid-Ganga Plain

However, recent but preliminary analysis of stable carbon isotope variation in compact bone samples from Lekhahia (hills site) and Damdama (plains site) shows significant differences, implying distinctive diets derived from restricted sources in separate ecozones, supporting the intra-zonal model (Lukacs 1996). The exact nature of population interaction and the possibility of economic interaction between hunter-gatherer groups with control over valuable and essential localized raw materials must await more complete surveys, more precise sourcing of raw materials (mineralogy, elemental analysis), and improved chronological controls. The situation is

likely a complex one since different resources may be acquired using different methods, and the most successful adaptation may involve multiple methods, or a series of adaptive shifts through time involving mobility and sedentism as well as trade. Further analysis of archaeological and biological indicators of subsistence, diet, and ecology will be necessary to choose between the alternative theoretical models presented in Figure 3.4.

Cultural contact, trade, and subsistence: new literature and novel models

Previous discussions of exchange in Indian prehistory have either overlooked or neglected an extensive and valuable literature on South Asian hunter-gatherer trade and subsistence strategies. For example, Khanna (1992, 1993) focused on lithic assemblages as indicating the importance of nomadism in resource acquisition at the Mesolithic site of Bagor in northwestern India. While the acquisition and distribution of valuable raw materials for stone tool production is an important component of mobility (Khanna 1992, 1993), studies of modern nomads suggest that numerous and complex social, political, and economic factors are likely to have been involved in determining the timing and route of their migrations (see below). The purpose of this section is to call attention to the extremely diverse and valuable new corpus of ethnographic and ethnoarchaeological literature and to briefly review new perspectives on hunter-gatherer subsistence adaptation developed by Bird-David (1992b) and Gardner (1985) with particular relevance to understanding Indian prehistory.

Hunter-gatherers

Ethnographic observation and historical documentation have recently been employed by archaeologists to gain valuable insights regarding material culture, subsistence behavior, and settlement patterns of modern Indian peoples who rely on hunting and foraging as part of a multidimensional subsistence system. Much of the literature presented below originated when archaeologists became aware of continuities in material culture and behavior between prehistoric societies under excavation and living nomadic foragers that today inhabit the same geographic region. In northern India descriptive accounts are available for nineteenth-century hunter-gatherers in an agrarian setting (Nagar and Misra 1989), the Kanjars of the Ganga Plain (Nagar and Misra 1990), the Van Vagris of the Thar Desert (V.N. Misra 1990), and the Pardhis of central and western India (Nagar and Misra 1993). A more cross-cultural comparative approach is adopted in describing varied adaptations to the arid and semi-arid zone of Rajasthan

(V.N. Misra 1994), and documenting the survival of hunting-gathering traditions in central and north India (Nagar and Misra 1994). All these sources emphasize the "broad spectrum" nature of hunting-foraging adaptations, which include trade of "forest products" with settled agriculturalists, or sale of such items in village markets.

For South India, Murthy has analyzed ethnohistorical sources that document the evolving relationship between forest peoples of the Eastern Ghats and the state (Murthy 1978–9, 1981, 1992, 1994). From the fourth century AD through the medieval period, royal lineages of the state appropriated forested areas for the expansion of agriculture, establishment of new settlements, shrines, and temples, safeguarding the state's frontiers, obtaining valued forest resources, and for hunting as a royal sport. Symbiosis between hunters and pastoralists and the state is common, and "The syncretism of folk and Brahmanical religions was the most vital of the ritual processes that integrated the forest and forest peoples, and the state" (Murthy 1992:334). This represents a pattern of interaction between hunter-gatherers and the state parallel to that described above by Stiles (1993) for Gujarat. The work of V.N. Misra, Murthy, and Nagar documents the tremendous variability that interactive exchange or interdependence of hunter-gatherers and settled agriculturalists may assume, and therefore provides a vital ethnographic reference to assist in understanding the range of possible forms interaction may have assumed in prehistory.

Pastoralists

Recent ethnographic, ethnoarchaeological, and ethnohistorical accounts of nomadic pastoralists should provide numerous valuable insights for further understanding of population interaction in prehistory. The "historical particularist" paradigm is adopted in a series of articles on nomadic pastoralism in a special issue of *Studies in History*. The issue of pastoralism in historical research is introduced by Ratnagar (1991). A broad overview of the role of environmental change in the evolution of South Asian pastoralism is less useful to archaeologists than contributions on pastoralism in Baluchistan (Audouze and Jarrige 1991), western Rajasthan (Kavoori 1991), and post-Harappan Gujarat (Varma 1991; discussed above). Archaeological differentiation of sites occupied by sedentary agriculturalists from those inhabited by nomadic pastoralists is approached through careful analysis of modern nomad encampments and abandoned villages near the site of Mehrgarh, Baluchistan (Audouze and Jarrige 1991). In addition to cereal silos and "granaries," the complexity of settlement plan, abundance of ceramics, density of buildings, specialized craftsmanship, and a number of related variables are considered and are shown to display

a pattern of complexity linked to sedentism as opposed to simplicity in association with nomadism. Since ethnographic evidence came from the area immediately surrounding Mehrgarh village, further survey work is required to fully define the range of variation in these attributes among Baluchi nomads and agricultural villages.

Trends and changes in transhumance among modern pastoralists in Rajasthan are considered in some detail by Kavoori (1991). Understanding factors contributing to the emergence and persistence of pastoral migration for the western part of Rajasthan and the nature of change in the pattern, composition, and context of migration in recent times were the objectives of Kavoori's study. The pastoral Dhangars (Gavli and Hatkar groups) of western Maharashtra traditionally engaged in economic exchange with rural peasants, the Gavlis trading animal products (butter) for cereal, oil, and clothing (Malhotra and Gadgil 1984:445), and Hatkars wool, sheep manure, and hides for village products (Malhotra and Gadgil 1984:452). While the analysis of nomadic pastoral adaptations also provides an essential parallel to the hunter-gatherer literature reviewed above, significant theoretical developments in understanding cultural frontiers or contacts have not come from either ethnohistory or ethnoarchaeology. Recent work on Indian hunter-gatherers, including the Birhor (D.P. Sinha 1972; S. Sinha 1980), Malapandaram or Hill Pandaram (Morris 1977, 1982b), Naiken (Bird 1983), Nayaka (Bird-David 1988, 1990, 1992b), and especially Paliyan (Gardner 1972, 1985, 1993) has resulted in important theoretical contributions regarding subsistence trade and inter-cultural interaction that should be intensively studied by archaeologists and biological anthropologists.

Bird-David (1992b:40–1) advocates a prototypical model of modern hunter-gatherers, not a definitional one, based on studies of the Nayaka. The Bird-David model consists of four main components:

1 Autonomous pursuit of resource-getting activities. Individuals and families autonomously shift from one means of resource procurement to another in response to opportunities and circumstances.
2 Diachronic variation. Variety and flexibility in methods of resource acquisition are evident in any diachronic perspective (short or long term).
3 Synchronic diversity. Diverse means of resource procurement are simultaneously pursued within the social group; variety and flexibility are characteristic of any synchronic perspective.
4 Continuous presence of hunting and gathering. Hunting and gathering activities are practiced either intermittently by all adults or by relatives or friends when an adult is not hunting and gathering.

A significant consequence of Bird-David's hunter-gatherer model is that it can be elaborated as follows (Bird-David 1992b:41):

> Normally some members of the group pursue hunting and gathering. Their associates do not, but keep in close contact with the former. The experiences of the former reinforce the common trust in the viability of hunting and gathering for everybody in the group. While not currently involved in hunting and gathering, the latter do not fully commit themselves to their respective diverse activities. They shift between them on the basis of opportunities and eventually take up hunting and gathering.

Some of the diverse activities are direct interactions with settled agriculturalists, and include trade of forest resources for village products and wage labor for a variety of services.

Analysis of settlement and subsistence patterns among the Paliyan of Tamil Nadu by Gardner (1985, 1993) provides further support for the eclectic, opportunistic, and flexible adaptive pattern displayed by some modern Indian hunter-gatherers. In his work Gardner advances two ideas that are especially provocative and have significant relevance for a biocultural approach to trade and subsistence in prehistory. These concepts include: (1) a theory of cultural interaction called "oscillating biculturalism" (see above); and (2) the caution that "historical particularist," "professional primitive," and other theories of interdependence that have supplanted the isolationist, or evolutionary ecology, position are often equally oversimplistic (Gardner 1993:134). The paradigm shift from one model to another seems to perpetuate the idea that simplified models are appropriate for technologically simple societies. Gardner's cautionary note implies a concern for continued critical evaluation of past and current models of hunter-gatherer subsistence and interaction. This concern constitutes the primary lesson of this chapter. The interactive trade model for prehistoric hunter-gatherer/agriculturalist exchange in Gujarat is an exceptional example of the success of a biocultural or bioarchaeological approach to the past. Nevertheless, however appropriate this model may be for Gujarat, it cannot be transferred *en masse* to other regions and time frames without caution. Each area of suspected population interaction must be independently evaluated with adequate attention devoted to the archaeological evidence, the biological characteristics (genetic and environmental) of the people, and the temporal context of the site. Bird-David and Gardner provide valuable insights into contemporary and often unique adaptations of modern Indian hunter-gatherers and the diversity of their cultural manifestations. The models they generate are essential prerequisites to building a strong biocultural approach to the past.

Concluding remarks

This consideration of the role of trade and subsistence in the survival strategies of prehistoric hunter-gatherers in South Asia suggests that several factors are indispensable to gaining a complete picture of past population interactions.

First, while subsistence strategy models are important to the analysis of both living and prehistoric foraging societies, the tendency to force data to fit existing models is a practice that must be avoided. Evolutionary ecological, historical particularist, professional primitive, oscillating bicultural, and interactive trade models must be regarded as hypotheses against which local societies and prehistoric cultures are compared and evaluated. Models may require fine-tuning, major revision, or complete replacement as novel and unique situations are encountered.

Second, population interaction is multidimensional and has both cultural and biological components. The only mechanism permitting realistic assessment of the full impact of inter-cultural contact and exchange between living or prehistoric peoples is a biocultural approach. While such an approach is relatively new in South Asian prehistory, it has been proven to yield positive insights into hunter-gatherer/agriculturalist interaction in prehistoric Gujarat, and was subsequently proposed to explain adaptations of "Mesolithic" cultures in the mid-Ganga Valley.

Third, new results derived from biological anthropology and from the chronometric reassessment of Mesolithic sites in the mid-Ganga Plains reveal an Early Holocene hunting-gathering subsistence adaptation that lacks interactive association with agricultural societies. The idea that interactive exchange, of the kind documented for prehistoric Gujarat, played a role in the survival strategy of "Mesolithic" foragers of the Ganga Valley is contradicted by: (1) a consistent and shared pattern of hunter-gatherer biological attributes that include a robust skeletal structure and low prevalence of dental caries; (2) the absence of traded artifacts from archaeologically agricultural sites in "Mesolithic" contexts; and (3) new AMS radiocarbon dates that suggest these "Mesolithic" sites have an antiquity that precedes the local development of intensive agriculture.

Finally, anthropologists interested in using the biocultural approach to assist in solving problems of prehistoric population interaction, trade, and subsistence must be well informed of current developments in the ethnology and ethnohistory of modern populations. Descriptive inventories of the nature of trade interactions and the kinds of materials exchanged are important because they help to enlighten the past and simultaneously lead to the development of new and better models for understanding the

biocultural features of population interaction. South Asia is a fruitful area for further studies of such issues and the next decade should witness a higher-level cooperation between archaeologists, bioanthropologists, and ethnologists.

ACKNOWLEDGMENTS

Special thanks are extended to past directors of the Department of Ancient History, Culture and Archaeology, Allahabad University: Dr. V.D. Misra, Dr. S.C. Bhattacharya, and Dr. U.N. Roy, for providing access to the valuable skeletal collections under their care and for making research at Allahabad University both comfortable and productive. Financial support for this and related research on the Mesolithic skeletons at Allahabad University was provided by the American Institute of Indian Studies (1991–2), National Geographic Society (1988, 1993, 1996), and Wenner-Gren Foundation for Anthropological Research (1994–5, International Collaborative Research Award). Thanks are due Gordon Goles (Geological Sciences, University of Oregon), Kathleen Morrison (Anthropology, University of Chicago), and Dan Stiles (Nairobi, Kenya) for providing valuable critical comments on earlier drafts of the manuscript; I take responsibility for any errors that remain.

NOTES

1 The internal and external nature of Harappan trade is discussed by Allchin and Allchin (1982), Chakrabarti (1990), and Lahiri (1992). For more on the mechanisms and nature of exchange items in Harappan trade refer to Dales (1962), Lamberg-Karlovsky (1972), and Tosi (1993). On external Harappan trade with Arabian states refer to Cleuziou (1992), Edens (1993), and Potts (1993); for Central Asia see Asthana (1982) and Francfort (1992); and for Mesopotamia refer to Asthana (1979), Chakrabarti (1982), and Edens (1992).

2 For historical background on bioarchaeology see Buikstra (1991); for methodology consult Huss-Ashmore et al. (1982), Larsen (1987), and Powell et al. (1991); and for examples of successful bioarchaeology in the Americas see Powell (1988) and Storey (1992).

3 Claims of early rice domestication in the mid-Ganga Plains suffer from multiple problems, including: unsystematic sampling (no flotation), inadequate reporting of data, and an unclear temporal sequence (Fuller 2002). "Thus the evidence from impressions at Koldihwa and Mahagara would appear to indicate only that crop-processing waste from rice cultivation was used as tempering; it says nothing about the evolution of rice cultivation" (Fuller 2002:300).

4 Harappans and hunters: economic interaction and specialization in prehistoric India

GREGORY L. POSSEHL

Introduction

Interaction between settled village farming communities and hunter-gatherers is a well-established sociocultural dynamic in the ethnography of India. An attempt to establish the historical depth of this form of human organization was first made in G. Possehl (1974), later published in Possehl (1980), and expanded upon in Possehl and Kennedy (1979). Evidence was presented there that supports the thought that the settled peoples of the Indus Civilization, especially those at the Harappan town of Lothal (Rao 1979, 1985), were interacting with the hunter-gatherers on the North Gujarat Plain at places like Langhnaj (Sankalia 1965) and other sites in Gujarat and southern Rajasthan (and see Lukacs, this volume).

The Indus Civilization is the earliest phase of urbanization in India and Pakistan. The "Mature" or Urban Phase of the civilization dates to *c.* 2500–1900 BC (Figure 4.1). This civilization is probably best known from the excavations at Mohenjo-daro and Harappa, located in the riverine environments of the Indus and its Punjabi tributaries. The Harappan is the largest of the archaic urban systems, covering just over 1 million square kilometers. There are 1,056 Mature Harappan sites that have been reported, of which 96 have been excavated (Possehl 1999: Appendix A). Harappan sites stretch from Sutkagen-dor on the Iran-Pakistan border, to Manda in Jammu and Kashmir and all through the state of Gujarat.

The Urban Phase of the Harappan cultural tradition came to an end at about 1900 BC, with the abandonment of Mohenjo-daro and many other sites in Sindh. Harappa was much reduced in size as well. The art of writing came to an end, but was preserved as individual graffiti inscribed on pots. The well-known inscribed square Indus stamp seal was no longer made, nor were the rather precisely crafted Indus weights. No one knows why these changes took place, but it is reasonably clear that they were most forcefully seen within the urban environment, and that life in outlying, rural areas, especially outside of Sindh, was little affected (Possehl 1997a). The peoples of the Indus Civilization were farmers and herders, with a diverse subsistence regime. Wheat and barley cultivation seems to have been

4.1 Principal sites of the Indus Civilization

the norm in Baluchistan, Sindh, and the Punjab, where winter rains fall with reasonable regularity. In Gujarat, where there is little if any winter rain, a more diverse suite of crops were used, all of them being hearty and drought resistant. Cattle were the mainstay of the pastoral economy, complemented by goats and sheep, with some pigs. The domesticated chicken is an accomplishment of the Mature Harappan peoples.

They built a baked brick city, Mohenjo-daro, with brick-lined wells and an elaborate drainage system integrated into a grid town plan. While much baked brick was also used at Harappa, the other excavated city, we do not yet know whether the grid town plan was used there, as it also was at smaller regional centers like Kalibangan and Dholavira.

Table 4.1 Sources for Harappan raw materials

Copper	Baluchistan and Rajasthan, as well as other smaller sources; Oman copper may also have been used
Tin	Afghanistan and Gujarat
Gold	Indus River and Kashmir
Silver	Rajasthan
Carnelian	Gujarat
Lapis lazuli	Afghanistan and Baluchistan
Steatite	Many sources within the Indus domains
Turquoise	Iran and Central Asia
Shells	Arabian Sea coast
Timber	Himalayan mountains

Source: Possehl (1999: Appendix B)

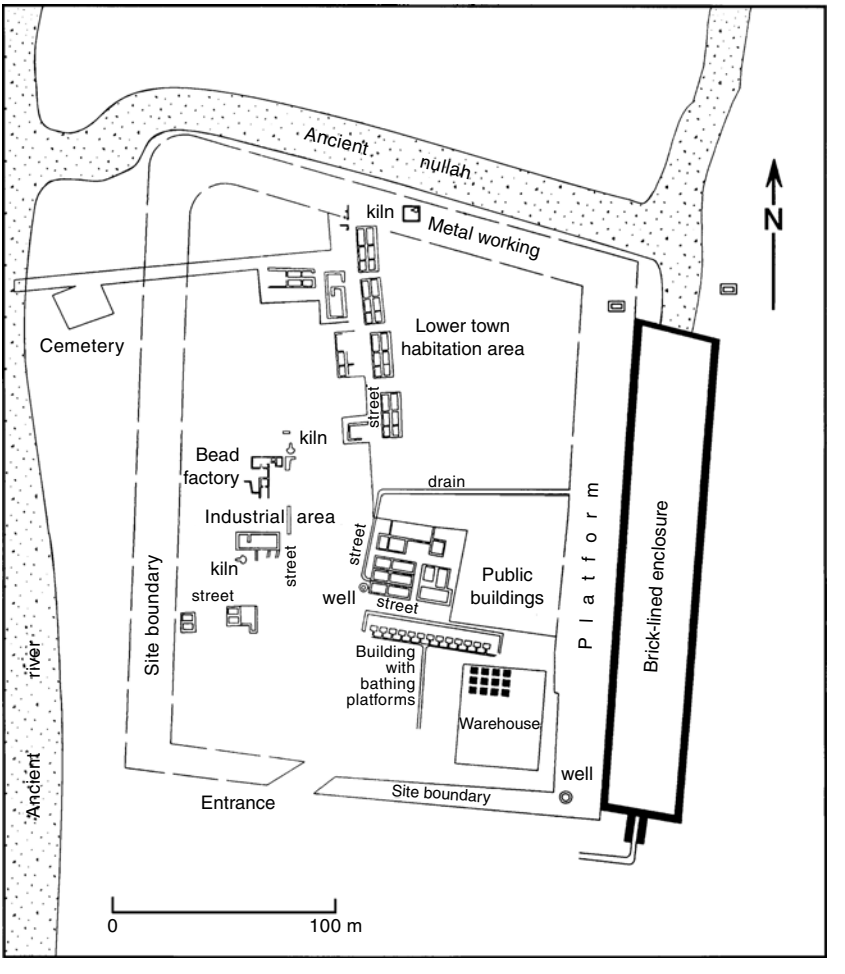
The Mature Harappans were accomplished artisans who controlled a vast array of technologies. Copper/bronze metallurgy, along with gold, silver, antimony, and lead, were known and widely practiced. They also controlled the manufacture of faience and stoneware. These ancient peoples may be best known for their bead manufacturing, especially the long-barrel carnelian variety.

These craft activities fueled a rich trade in raw materials. Table 4.1 is a brief synopsis of the principal materials that were used, and the sources from which they came.

Mature Harappan trade and maritime activities in the Arabian Gulf, as well as maritime contact with Mesopotamia, are well documented (Oppenheim 1954; Possehl 1996, 1997b; Ratnagar 1981). These regions were the marketplace for some Mature Harappan products, and may have supplied Mature Harappan craftsmen with materials such as shell, turquoise, and possibly copper. Many of the materials that the Indus craftsmen used were found in the borderlands of the civilization. This promoted contact between the Harappan peoples and those who surrounded them, which is the central theme of this chapter.

Lothal

Lothal (Figure 4.2) is a small, but internally differentiated settlement on the southeastern frontier of the Indus Civilization as a whole (Figure 4.1). Measured from plan, the size of Lothal comes to something like 4.7 hectares, but this includes a thick feature surrounding the settlement that



4.2 Plan of Lothal: Sindhi Harappan phase (after Rao 1979)

is said to represent a circumvallation. This feature is nowhere apparent at the site today, and the settled area could not have been much larger than 3 hectares, more than 2 hectares smaller than Rojdi (below). Lothal has been included as a Sindhi Harappan site of the Harappan Civilization. This is based on an assessment of the material remains and architecture. The most abundant materials are the ceramics and Lothal has the major vessel forms and motifs that are found in Sindh, especially the Indus goblet, beaker, "S"-shaped jar with a flange rim, feeding cups, dishes-on-stand, and the like. The excavations at Lothal also produced 220 seals and sealings (Joshi and Parpola 1987:238–90). These were designed and carved along the classic

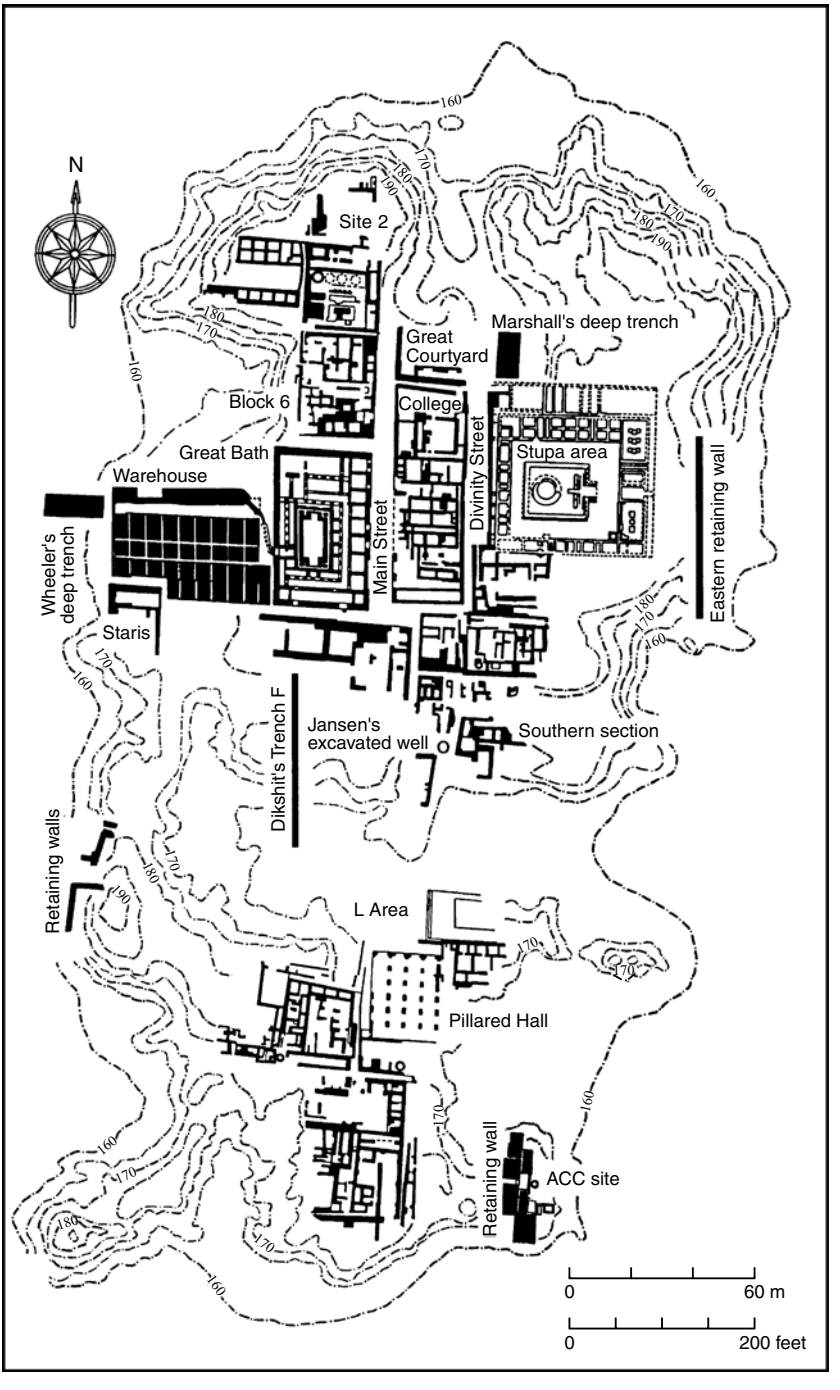
Harappan norm. Lothal participated in the Harappan system of weights and measures, and the architectural layout of the site, with baked brick drains and buildings oriented to the cardinal directions, was all done according to Harappan rules as we see them at Mohenjo-daro, Chanhu-daro and other Sindhi sites. There is a provincial quality to some of this, to be sure, but Lothal is still best seen as a part of the Harappans' operations emanating from Sindh. It is certainly not one of the Sorath Harappan sites, as exemplified at such places as Rojdi, Kuntasi or Padri (Figure 4.1).

In spite of its small size, Lothal was a carefully conceived settlement, with an area devoted to the crafts, another that was residential, and a third intra-mural district with two large buildings and a warehouse. The most controversial feature at the site is a large, brick-lined enclosure that has been called a dockyard by the excavator of the site, S.R. Rao.

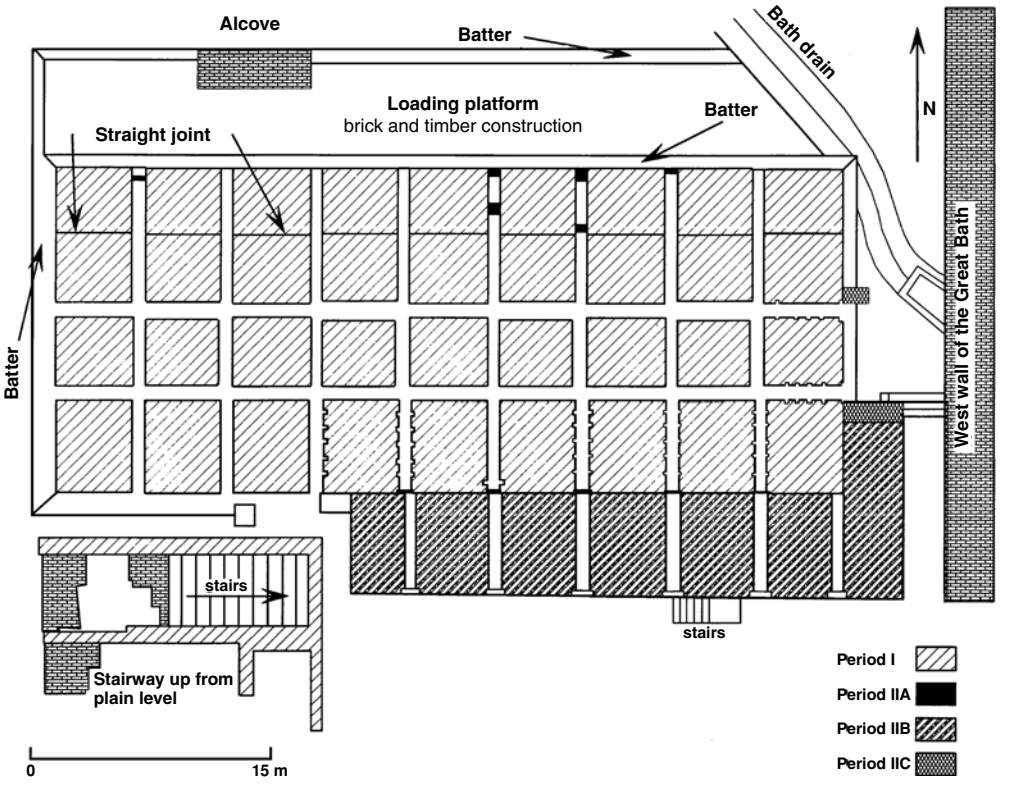
The so-called "dockyard" at Lothal is *c.* 215 meters long and 35 meters wide. It was fully lined with baked bricks and the southern end has a sluice gate, with provision for a wooden gate, apparently for filling and emptying the facility, although today the level of the local ground water determines the height of the water inside. S.R. Rao has claimed that it was used as a harbor for ships engaged in maritime trade, especially with the Gulf and with Mesopotamia (1979:123–35). The details of construction and the arguments for and against this position are worth reiterating here.

K.T.M. Hedge has pointed out (1991, personal communication) that this facility resulted from the removal of earth that was used to create the elevated portion of Lothal, on which the warehouse and other large structures of this district were built. Walling in this open hole, the water level fluctuating in depth depending on the season, was simply a way to make a sloppy eye-sore a more palatable part of the Lothal civic environment. The walls would also have kept out animals, protecting the purity of the water. Thus, the facility can be seen as an example of a South Asian tank, something proposed by L. Leshnik and something with which I am in general agreement (Leshnik 1968; Possehl 1980:1971–2). There is another possibility as well.

The Lothal tank and the Great Bath at Mohenjo-daro (Figure 4.3) share some similarities, although size is not one of them. Both facilities are associated with the high mound of their settlement and are near a building with massive brick foundations. This is the so-called "granary" at Mohenjo-daro and the "warehouse" at Lothal (compare Figures 4.4 and 4.5). Lothal also has a series of bathing platforms just west of the "warehouse" not far away from the "tank." This led me to wonder whether the Lothal tank may



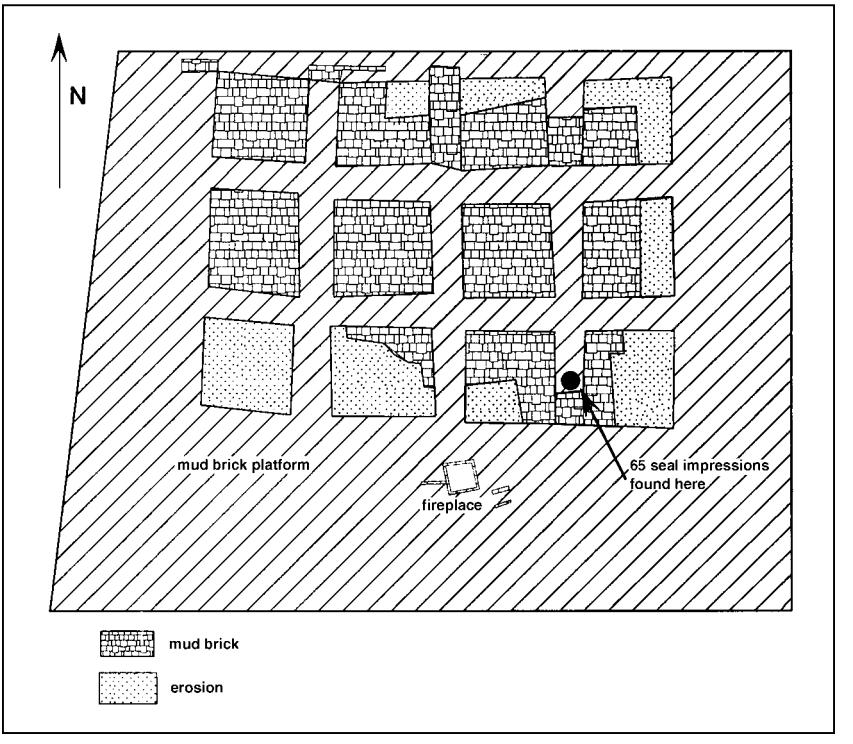
4.3 Plan of the mound of the Great Bath at Mohenjo-daro



4.4 Plan of the granary at Mohenjo-daro (after Wheeler 1966: Fig. 9)

have had some of the characteristics of the Great Bath at Mohenjo-daro, as a place for ritual ablutions. The facility may have had other uses as well, so this is not to propose that the Lothal tank was a replica of the Great Bath. On the other hand, there are some interesting comparisons, the details of divergence explained by the fact that Lothal was a long way from Mohenjo-daro, a kind of "country" (*deshi*) Harappan town, that may have sought to emulate the great city of ancient Sindh, but had neither the resources nor the will to invest in its own Great Bath. As "country folk" do around the world, its inhabitants let something else, in this case the civic tank, approximate that purpose.

In the end we do not really know how this bath or tank functioned in the third millennium, but one thing is certain: it does not make much sense to call it a dockyard. Whatever the use of this facility, it is clear that Lothal was an important "frontier" settlement during Mature Harappan times. It was in use from early in the Mature Harappan to the end of this



4.5 Plan of the warehouse at Lothal (after Rao 1979)

period, falling into disrepair during Lothal B times, the Post-urban Phase at the site. Lothal was a trading and manufacturing emporium and a wide range of activities took place within its bounds. There was a very fine bead-making facility, with a kiln for turning chalcedony into carnelian, making faience, glazing "steatite," and other operations. The excavation produced masses of waste products and beads broken in the process of manufacture. These were being made from a wide range of agate stones, as well as rock crystal, jasper, steatite, shell, ivory, and the like. There was a facility for smelting or general metallurgy at the settlement and others for working shell and steatite as well as dyeing cloth (S.R. Rao 1979:81). There is much more capacity here than could possibly have been consumed by the population of Lothal itself. Lothal is also located on the deep alluvium at the head of the Gulf of Cambay. None of these raw materials are found in its vicinity and we must imagine that they came there through trade or foraging parties who went out to fetch them.

A short description of the essentials of Lothal reads something like this: a small, well-organized trading and manufacturing Sindhi Harappan settlement on the southeastern frontier of the Indus Civilization. I have come to think of it as being in many ways a precursor to the Hudson's Bay trading posts of much later North America.

Lothal and the symbiosis with hunter-gatherers

We know that there was a population with a hunting and gathering subsistence system in Gujarat during the third millennium BC. These peoples are not as well known as they should be, but there are many sites with their microlithic tools. These are rich in tool types such as crescents, lunates, triangles, trapezoids, and the like, these names all taken from their shapes. These tools are generally very small, the largest dimension being less than a centimeter. The collections of microliths from Gujarat and Rajasthan have tools that were very finely crafted and have been made on a wide range of agate stones found in the region. They have a gem-like, multicolored, translucent quality to them that can have great beauty as well as being quite functional. Being so small, these tools were not used alone, or even held in the hand as an implement. Instead, they were mounted in various ways in hafts and shafts of wood, bone antler, and other materials and archaeologists think of them as elements in compound tools.

An interdigitation of habitation of hunter-gatherers and Harappans at a single site is known from the dune site of Kanewal located in Kheda District, at the head of the Gulf of Cambay (Mehta et al. 1980). Kanewal has an occupation level with a transitory settlement of hunting-gathering people, following one of the phases of the Gujarati Post-urban Harappan within which Lustrous Red Ware ceramics were used. The transitory settlement has a proper microlithic tool kit and no architecture. This is important, relative stratigraphic evidence placing hunting and gathering peoples in Gujarat within the same general time period.

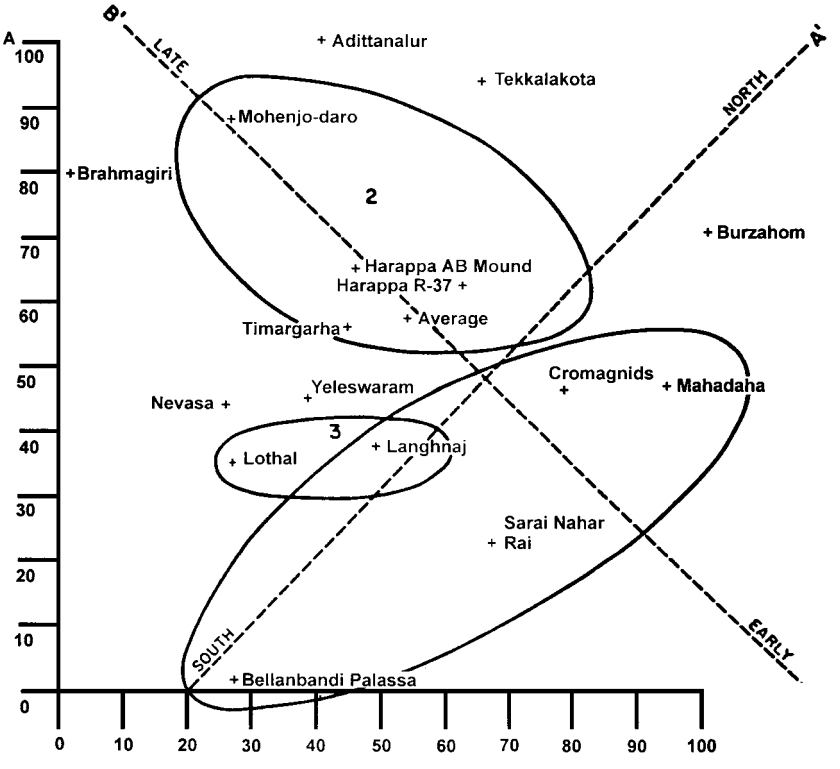
An occupational stratum with microlithic tools and very few ceramics was also found below the Lustrous Red Ware occupation at Oriyo Timbo in northern Bhavnagar District of Saurashtra. Lustrous Red Ware is an important ceramic of the Gujarati Post-urban Phase. Suffice it to say here that we have evidence for the use of the same settlement site by two peoples with a very different type of subsistence regime. Oriyo Timbo also produced some radiocarbon dates for the microlithic occupation (Rissman and Chitalwala 1990) which indicate that this can be dated to the entire

third millennium, possibly extending as far back in time as *c.* 3700 BC. This would have placed these hunting and gathering peoples in the region at the same time that Lothal was occupied.

The most important microlithic site to have been excavated in Gujarat is Langhnaj, situated in dunes and alluvial hillocks about 160 kilometers north of Lothal (Clutton-Brock 1965; Ehrhardt and Kennedy 1965; Sankalia 1965). Langhnaj is a site with an abundant microlithic industry found in three phases (Sankalia 1965). Pieces of pottery came from all three levels of the site, along with stone tools. The ceramics were so poorly fired that they come in very small sherds, shapes being apparent only in the latest Phase III. However, those of Phase II are definitely a coarse Black and Red Ware, with some typological similarity to the Black and Red Wares of Lothal, and it is perfectly possible that the inhabitants of Langhnaj learned the potter's art from the Harappans, most likely the Early Harappan pioneers who preceded the people of Lothal. Pottery and stone tools continue throughout Phase II. In addition, two groundstone artifacts were discovered: a point butt axe and one of the enigmatic ringstones or mace heads. A copper knife, 98.12 percent pure, and steatite disk beads were found in Phase II as well. These are all pieces of "advanced technology" in so far as the hunter-gatherers were concerned, somewhat out of place at Langhnaj, especially the copper knife. Period III produced a very fine iron arrowhead, with good Early Historic (*c.* 300 AD) typological parallels. There is one radiocarbon determination for Phase II at Langhnaj (TF-744) which calibrates to 2440–2160 BC, demonstrating that Langhnaj was probably contemporary with the Mature Harappan occupation of Lothal. This date, along with the other radiocarbon dates and the stratigraphic evidence from Kanewal, pretty much clinches the case that there were hunters and gatherers in Gujarat at the time of the Sindhi Harappan occupation of Lothal and the other sites in Kutch.

These chronological considerations are important because they at least admit the possibility that the copper knife, steatite disk beads, groundstone tool making technology, possibly even the Black and Red Ware pottery, came to Langhnaj, and doubtless other sites in north Gujarat as well, as items of barter with the Mature Harappans. Lothal emerges as a particularly important place because of its trading post character. It should also be reiterated for emphasis that Lothal was not a fortified site and this can be taken as a good indication that it enjoyed peaceful relations with its neighbors.

There are two more pieces of evidence for interaction between the Harappans of Gujarat and the hunting and gathering population of the



4.6 Biological characteristics of some South Asian skeletal populations (after Kennedy et al. 1984)

region. They come from physical anthropology and the analysis of the burials from Lothal and Langhnaj. Kenneth A.R. Kennedy and John Lukacs have examined these remains, as well as those from other sites in this region (see Lukacs, this volume). In fact, Kennedy has the best overview of any physical anthropologist on the Harappan people and their neighbors. He and his colleagues (Kennedy et al. 1984) have noted that the individuals interred in the cemetery at Lothal fall within the range of variability for the Mature Harappan population as a whole, but are statistically somewhat to one side of the norm. Some of the metrical variables that seem to be "pushing" these individuals off the Harappan norm are features of facial robusticity (prognathasism, tooth size, skull thickness, and the like) that are physical characteristics of the hunter-gatherers at Langhnaj and other sites of this type in the region. The metrical relationship between the Lothal and Langhnaj populations, as well as others in northwestern South Asia, is shown in Figure 4.6. Kennedy et al. propose, therefore, that we therefore have good reason to believe that more than economic intercourse

took place between the Harappans in Gujarat and their hunter-gatherer neighbors (Kennedy et al. 1984:116).

Lukacs and his colleague J.N. Pal (1993) have noted that the human specimens from Langhnaj have a very high rate of dental caries. Other hunter-gatherer groups from the subcontinent, and other parts of the world as well, are characterized by low incidence of this malaffliction, but it is generally high among food-producing peoples, especially those who consume large amounts of processed carbohydrates. The residue from these foods tends to stick on the teeth where the enzyme that causes tooth decay can do its work. The people of Langhnaj were not food producers. There were no domesticated animals found there, nor were there harvesting tools or groundstone food-processing tools. Thus, Lukacs and Pal believe that they may have been getting a significant portion of their food from farmers in their region, through exchange (and see Lukacs, this volume). Lothal would be one of the prime candidates for participation in such an arrangement.

This evidence for trade and/or exchange and gene flow between the Harappans and hunter-gatherers in Gujarat supports the notion that the hunter-gatherers were people who procured raw materials for the factories and traders who lived at Lothal, and possibly other Sindhi Harappa sites in the region. This was probably only one way that the Harappans obtained such materials, but it would have been important for them since the hunter-gatherers would have been intimately acquainted with their own terrain and therefore could find the products in which the Harappans had shown an interest. These would have been materials like those found at Lothal: agate, carnelian, rock crystal, steatite, shell, ivory, as well as wood, such as teak from the Western Ghats. Tin should also be mentioned because alluvial tin has been reported from north Gujarat, and this would have come as black specks or lumps from the seasonal riverbeds there (Sharma and Ram 1964:215). It does not seem likely that the hunter-gatherers of Gujarat played a role in the acquisition of copper, unless the Harappan smiths trained them to find the ores, mine, and concentrate them. We do not know the answer to this question, but we should not rule out the possibility of quasi-formal training being needed in order for the Harappans to get what they wanted.

This symbiosis between hunter-gatherers and settled folk in the subcontinent is a characteristic of life there that persists today. Since this lifeway has disappeared in Pakistan, we can focus on India, where a few hunting and gathering groups do survive today, but were much more numerous in the nineteenth century. We learn from studies of these people that they

were hunters and gatherers in the sense that they did not keep domesticated animals or engage in agriculture and earned their livelihood from the extraction of forest products. However, the key to their survival lies not in isolated self-reliance, but in a complex, symbiotic relationship with the cultivator peasantry around them. The forest people hunted wild animals and gathered forest products that were traded to their neighbors for agricultural products, metal implements, cloth, and the like. Richard Fox (1969:141–2) has expressed this relationship in the following way:

> Rather than being independent, primitive fossils, Indian hunter-and-gatherers represent occupationally specialized productive units similar to caste groups such as carpenters, shepherds or leather-workers. Their economic regimen is geared to trade and exchange with the more complex agricultural and caste communities within whose orbit they live. Hunting and gathering in the Indian context is not an economic response to a total undifferentiated environment. Rather it is a highly specialized and selective orientation to the natural situation: where forest goods are collected and valued primarily for external barter or trade, and where necessary subsistence or ceremonial items – such as iron tools, rice, arrow heads, etc. – are only obtainable this way. Far from depending wholly on the forest for their own direct subsistence, the Indian hunters-and-gatherers are highly specialized exploiters of a marginal terrain from which they supply the larger society with desirable, but otherwise unobtainable forest items such as honey, wax, rope and twine, baskets, and monkey and deer meat. Unlike the Australian aborigines or the Paiutes, their economic processes and well-being are dependent on the barter of these items for the crops and crafts of their more complexly organized plainsmen neighbors. The economic activity of Indian hunting-and-gathering groups is more akin to the specialization of caste hereditary occupation, than it is to the generalized environmental response of the Australians or Paiute.

This knitting together of the economies of these two kinds of people seems to be well documented during Mature Harappan times in Gujarat. It may have begun earlier, when we have evidence for the integration of sheep and goats into the hunting-gathering economy at the settlement of Bagor (and see Morrison, chapter 2 this volume). This site is stratified within a fossilized sand dune called the Mahasati Mound, above the Kothari River, tributary to the Banas. The Bagor sequence contains three phases (V.N. Misra 1973). Lowest Phase I is a purely microlithic settlement. In Phase II the microlithic technology continues and is complemented by the introduction of copper (bronze?) tools and pottery. The copper artifacts include three arrowheads, with a similarity to some Mature Harappan types,

along with a pin or awl and knife or spearhead. The latter has a midrib, not a feature characteristic of Harappan metallurgy at any stage. In Phase III the microlithic technology is accompanied by iron and glass artifacts. Faunal remains from Phase I include a predominance of sheep/goat bones (65 percent) as well as those from the zebu, buffalo, pig, antelope/gazelle, deer, hare, fox, and mongoose (Thomas 1975). This assemblage did not change through the three phases, although the absolute number of bones declines in Phase II.

Calibrated radiocarbon dates indicate that Period I can be dated to *c.* 5000–2800 BC and Period II to about 2800–600 BC (the Early Harappan). Period III is Iron Age and dates to 600 BC–AD 200 (V.N. Misra 1973:95). The fundamentals of a nomadic lifeway do not change at Bagor, but the presence of domesticated animals and metal tools suggests contact with technologically advanced peoples in a compelling way. Thus, Bagor also plays a role in understanding the symbiosis between ancient Indian hunter-gatherers and Harappan villagers and pastoral nomads.

This theme of interdependence in ancient India has also been discussed by G. Khanna (1988:172–83) and investigated by Rima Hooja in a book-length treatment (1988). Khanna's thoughts follow on his examination of the Bagor microlithic tool industry and a consideration of the pastoral nomadic nature of the economy we see at this site. This draws on an article attributed to the present author (Possehl and Kennedy 1979), where the relationship between Lothal and Langhnaj is discussed. While Khanna recognizes the fact that Bagor was in contact with many different sites, his perspective seems to focus on the local pattern of pastoral nomadism evidenced at Bagor, its "annual territorial range" (Khanna 1988:178). He turns to Ahar and the Banas River Chalcolithic sites for signs of interaction rather than the larger geographical dimensions of the problem as suggested by the arrowheads with Mature Harappan typological affinities. Rima Hooja's study also draws on the importance of Ahar and the Banas Chalcolithic, at least as a starting point for her study.

Summary

Lothal emerges as an important frontier settlement of the Sindhi Harappan. This was one of the Mature Harappan windows into peninsular India as well as the natural resources of Gujarat. I have referred to it as a "gateway settlement" in the past (Possehl 1980:76) and this is as appropriate today as it was then. The well-organized, compact size of Lothal suggests that it was completely planned prior to its construction and this, in its turn, leads to the

notion that the decision to establish Lothal was a self-conscious one on the part of someone or some group of Mature Harappans in the Indus Valley. They wanted to improve their ability to procure the products that could come from this region, and the areas on its eastern and northern edges. They recruited a few adventurous citizens with the requisite skills and sent them off to the southeastern part of their domain to establish a small town and enter into an economic deal with the native population there to bring them products. These were exchanged for items of Harappan commerce, like beads and metal implements. We should also recall that cloth has been one of the most important trade goods in all of human history and this may well have been an important commodity in this time as well.

Since we have evidence for manufacturing at Lothal we can suggest with good reason that some of the raw materials that were brought to the site were immediately turned into finished products, some traded back to the procurers of raw materials, the balance being sent back to the "bosses" in Sindh and paid to the workers at the site. The other balance, that in raw materials, would have been sent back "home" as well, and this should have been the predominant part of the commerce.

The route home seems to have been through Kutch, and I would see places like Surkotada and Dholavira as way stations, or ancient caravansary, along this route. Some people in Kutch seem to have been somewhat hostile to this inroad by the Mature Harappans and travelers there, moving between Sindh and the Nal Depression, would have needed a safe haven, especially if they were accompanied by valuable raw materials and finished products. An examination of these sites and, doubtless, many more will demonstrate that the symbiosis between hunting and gathering peoples and their settled neighbors has a very long history in the Indian subcontinent. It is also a topic where there is much scope for a sharing of intellectual interests between physical anthropology and archaeology.

5 Gender and social organization in the reliefs of the Nilgiri Hills

ALLEN ZAGARELL

Udhagmandalam (Ooty), nestled in the high reaches of the South Indian Nilgiri Mountains, is an exotic resort town for lowland Indians, as it was for the British colonists. The thick Nilgiri forests, unusually cold weather, and occasional frost-covered grasslands all speak of the unique environment of the region. This western mountain region, the meeting point of the Western and Eastern Ghats, rises 2,636 meters above the surrounding plain. It sits astride some of the major routes connecting the west and east coasts. To the west are the hills leading down to Kerala, while to the south and east are foothills and the great plain of Tamil Nadu. To the north is the deep Moyar River Ditch, surrounded by the Nilgiri Mountains to the south and the Karnataka Plateau on the north, providing a throughway into the open plain to the east. The Nilgiris consist of rugged cliffs alternating with more gently rolling hills surrounding fertile valleys. The valleys are shaped by streams emanating from the mountains, with these river courses carrying large volumes of water from ample rainfall (up to 5,000 mm per annum). These high mountains, despite their natural beauty and productive potential, were believed to have been so difficult of egress, with their mighty cliffs, thick forests, malarial infestation, and wild animals, that they were only amenable to the native "tribal" peoples who traditionally inhabited them.

The native peoples of this mountainous region were also viewed as exotic, supposedly isolated, living on the margins of a civilized world. These communities had developed a system of interlocking, interdependent, specialized economic activities. The Todas were largely pastoralists in the more open grassland areas near the valley floors, specializing in buffalo herding. In the same area, the Badagas were agriculturalists in the fertile river valleys, while the Kotas largely specialized in craft activities. The steeper and heavily forested slopes of the Upper Nilgiri were occupied by the Irula and Kurumbas, who had a mixed economy which included hunting and collecting, along with some shifting cultivation. These groups developed various levels of economic interaction, which evolved into a

jajmani-like symbiotic economic system weaving these supposedly isolated native communities together (Fox 1962, among others).

Scholars have exhaustively described this system and the complex system of beliefs and rituals which characterized the various hill groups in the recent past (see Hockings 1997). These practices, combined with the largely decentralized character of authority in the hills, and the presumed isolation of these communities, led many to believe that recent practices were similar to the still-earlier aboriginal lifestyles. However, with some exceptions, relatively little concrete work has been done which specifically examines the evidence for social and economic relationships prior to the ethnographic and historical accounts of these hill peoples. Little has been done to elucidate gender, status, power, and ethnic hierarchies in the periods preceding the classic ethnographic descriptions of the Nilgiri Hill inhabitants. The picture that emerged from the ethnographic reports, many written during the nineteenth century, was largely that of a decentralized system of "ethnic" communities, with caste-like status rankings regulating economic and social interaction.

How applicable are these recent ethnographic and late historic descriptions for an understanding of earlier highland social interaction? While there may indeed be similarities and historical continuities, I am suggesting that continuities cannot be presumed, but must instead be demonstrated. The assumption has been that the world of the Nilgiris was largely isolated from surrounding lowland communities and therefore its "tribal" structure, its world of interacting communities, largely reflects and continues earlier aboriginal behaviors. Toda pastoralism, for example, has been seen as a holdover of earlier South Indian Neolithic pastoralism (Allchin 1963). Indeed, recent Nilgiri social patterns of behavior have sometimes been viewed as providing broad insights into all pre-state social formations (Walker 1997).

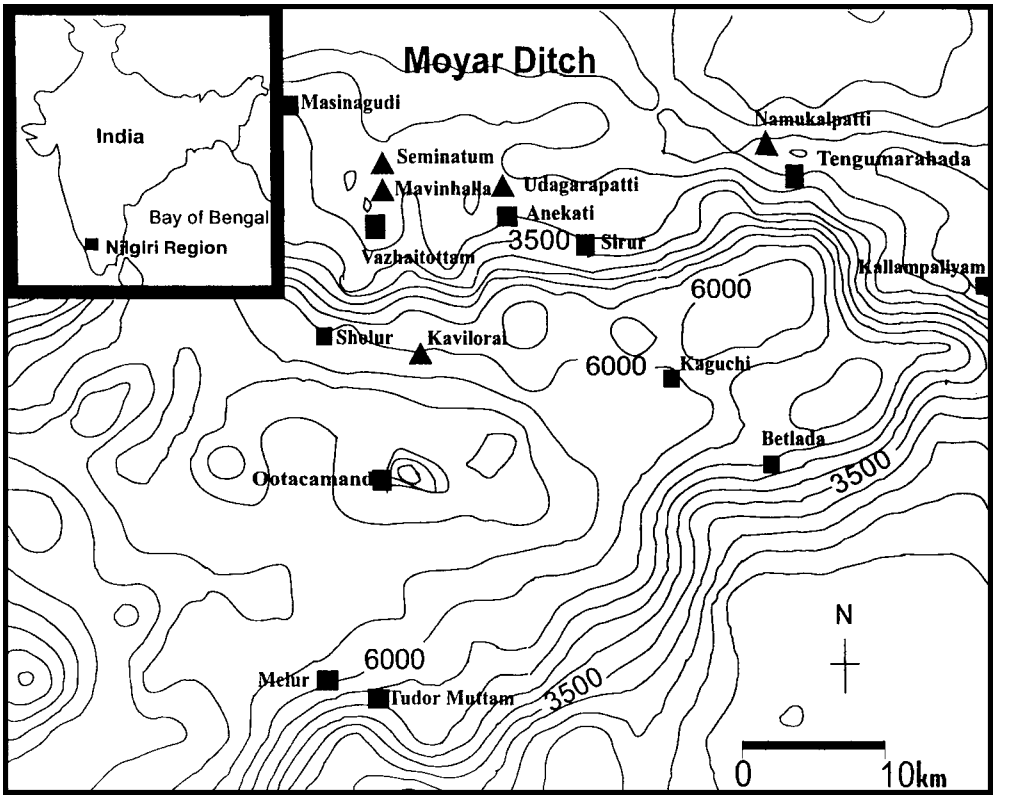
While connections between the past and present traditions certainly exist (e.g. Hockings 1980; Zagarell 1999), the world of the Nilgiris from the late first millennium through the seventeenth century was clearly different from the picture known ethnographically (see Zagarell 1994 on textual evidence for significant changes in the Nilgiris). As opposed to the acephalous, more decentralized community structures reported in ethnographic studies, I have suggested that these earlier communities, at least since the eighth or ninth centuries, and through the seventeenth to eighteenth centuries, operated in a world of episodic state authority, stratification, taxation, and organized military activities. I have argued that these periods of state control, direct and indirect, created the conditions

for classical Nilgiri social relations (Zagarell 1995). The differing contexts in which various periods of state control arose may have produced quite different social interactions among these hill communities and particularly may have had an effect on local relations of authority and gender.

For a definitive picture of the social history of the pre-eighteenth century Nilgiri highlands, a multitude of sources must be used. The actual social history of the region stands opposed to an improbable, imagined evolutionary scheme, in which the past is viewed as just a less complex form of the present. I want to contribute to the study of this social history by adding some of the pieces to that puzzle. I focus here on a series of stones carved in low relief that suggest some insights into past Nilgiri social relations. These reliefs belong to an artifact group known as hero-stones. Such stone reliefs are found throughout South Asia, but each area has its own regional styles and peculiarities (e.g. Kasinathan 1978; Nagaswamy 1974; Noble 1976; Sontheimer 1982). The Nilgiri reliefs are broadly similar to those from other areas of India in that they are dedicated to those who died heroic and honorable deaths. The specific details of these deaths vary, but all those distinguished in this way are thought worthy of long-term respect and veneration. These stones continue to be worshiped, or at least ritually respected, today.

Although hero-stones and the stories they tell appear to originate as a form of "state art" associated with various agricultural societies controlling the lower elevations of the Nilgiri Region (Zagarell 1994), at least some of the reliefs found at higher elevations appear to have been manufactured by artisans associated with either upland agriculturalists, foragers, or both. I suggest here that the hero-stones of the Upper Nilgiris not only emulated the art styles of Lower Nilgiri elites, but also expropriated and, importantly, *transformed* ideologies of power, social hierarchies, and gender from the latter. Detailed analysis of male and female depictions on the reliefs, and consequent inferences about gendered activities, reveal some important aspects of this cultural transmission: (1) that there is a subtle, but perceptible disjunction between ideal gender-based behaviors and what actually occurred in these societies on a day-to-day basis; and (2) that the Upper Nilgiri groups interjected their own ambiguities about gender and power relations into their translation of the highly structured "hero" stories.

For example, I will suggest that Upper Nilgiri groups idealized women represented not solely as protectors of family solidarity and virtue, but also as active protectors of the communities, in some cases as actual armed warriors. This kind of depiction of feminine power is missing in the



5.1 Map of the Nilgiri Region

elite-associated hero-stone tradition of the Lower Nilgiris. I suggest that this potential female-as-warrior image had salience in these small-scale communities that were in danger of periodic invasion by more powerful states of the lower hills. While I focus here specifically on the translation of themes related to power, social hierarchies, and gender relations through a single medium, hero-stones, this analysis points to the complexities of actual social histories involving multiple, differently organized groups. In addition, this study emphasizes that the patterns and consequences of cultural interaction change over time and that present-day cultural configurations and behaviors cannot be simply presumed to model the past.

Discovering aspects of gender, power, and community in the past

The reliefs found in the greater Nilgiri region, which includes the highlands and the Moyar Ditch areas (Figure 5.1), reach back to the eighth–ninth

centuries AD. However, the vast majority of reliefs are much more recent and refer to the period of the twelfth through seventeenth centuries. In the Moyar Ditch, these reliefs are certainly connected with periods of settlement, state domination, and administrative control. Toward the end of this period, if not earlier, the Moyar Ditch region was an area of irrigation cultivation under the control of the Lingayat priestly caste. During these periods, and even more during the very end of this period (during the Vijayanagara period and immediately after the fall of Vijayanagar), the state was actively intervening, administering, raiding, and collecting taxes from various communities within the highlands (Morrison, chapter 6 this volume). Certainly, from the twelfth century, if not earlier, peoples from Karnataka to the north were settling in the Nilgiri highlands, and by the sixteenth century many of these came to make up the so-called Badaga community within the highland Nilgiri area. The reliefs must be viewed in this historical context and cultural milieu.

The Nilgiri hero-stones are found both in the upper reaches of the Upper Plateau and in the Lower Moyar Basin north of the mountains. Indeed, the reliefs from these two closely connected regions share a considerable number of traits. Many of the reliefs of the Upper and Lower Nilgiris appear similar in theme and structure. However, the two regions also display types of reliefs and themes that are at home in one or the other of these two regions, but not both. Similarities certainly suggest contact and, perhaps, correspondence of culture and social structure. On the other hand, certain differences between the two regions suggest differences in tradition and social reality, and perhaps, as I suggest below, reflect variations in social conditions and practice between the Lower and Upper Nilgiri regions.

Gender and the politics of art

It is important to note that hero-stone reliefs are not merely objects of art or display, but are foremost functional objects. They are social and political documents, displaying and encoding statements about morality, status, power, community (ethnicity), and gender. They certainly display scenes of death and heroism, but these scenes are more than depictions. They represent a social ideal, a genre of praiseworthy and meaningful death. They present deaths that are worthy of veneration and emulation. These heroic figures were worshiped in the past as they are frequently still worshiped today. Indeed, hero-stones were often, apparently, the centerpieces of a broader set of rituals, only hints of which can be presently discerned. At several sites, hero-stones, in association with other structures, are part of a complex of features including dolmens, rectangular earthen structures

(probably the remains of huts), other reliefs, statues, and occasionally menhirs (standing, upright stones). The display, spacing, and production of the objects connected with such sites clearly represent a high level of labor time and effort invested. Several of the sites are littered with pottery sherds, further suggesting long-term ritual activity in connection with them. Some of the more elaborate sites must have been memorials for particularly elite individuals. In this regard, I note the layout of several large and complex hero-stone sites. The sites of Namukalpatti, Vazhaitottam, and Kamaraya Kotai (Kotamalam) are notable examples of such elaborate displays.

Although individual hero-stones are widely distributed in the Nilgiris, it is questionable whether the present distribution reflects their original disposition. Noble's (1976) groundbreaking study of these reliefs, which, in the Nilgiris, are often found in association with dolmens, suggested that later communities carved reliefs into already-existing dolmen sites. He suggested that the dolmen creators were the Kurumba population and the relief-makers the Badagas. I have some difficulties with this conclusion. Dolmens are associated with hero-stones in the Moyar Ditch as well as in the highlands. Certainly, many of the reliefs are not *in situ*. Nevertheless, I believe they were often part of larger complexes. Many of the hero-stones are found in groups, or in connection with other features. Moreover, many of the multi-relief sites contain carvings that are largely unitary in theme. That is, the carvings at any particular site often (although not always) revolve around a common theme, suggesting either that the reliefs are contemporary or that scenes are added over time in a thematic and systematic manner. All this suggests that such hero-stones were part of the original assemblage at many of these sites and thus need not have been created by the more recently arrived Badagas.

Moreover, worship of the fallen, self-sacrificing hero has a long history in the Nilgiris. I have previously argued there are earlier hints of a cult of hero worship, in the regional rock art of the Mesolithic, Chalcolithic, and Early Historic periods (Zagarell 1999). Equally telling are several ritual sites, which may reach back to late megalithic traditions (Thatakurlipatti, for example; Zagarell 1997: Figure 3.8). At the complex memorial sites of Namukalpatti (Zagarell 1995: Figures 8-6), Vazhaitottam, and Kamaraya Kotai, there is a high probability that rituals were carried out in association with the carved stones. Similarly, a notch hole for the placement of a lamp in a standing stone found at the Masinagudi relief burial complex certainly implies ongoing ritual activities in connection with the site. Even today, hero-stone reliefs are frequently anointed with fat and coloring as acts of

ritual devotion. Thus, the reliefs are certainly not simply art objects, objects of individual whim, nor are they the headstones of graves. Functionally, they are places for devotion and meaningful ritual.

These reliefs demonstrate what once constituted appropriate, ideal behavior, in a world where such behavior was exceptional and valued. However, these reliefs need not primarily depict *actual past behaviors*, although the individuals pictured may have been involved in real heroic, life-threatening deeds. Rather, reliefs reflect what constituted socially valued, praiseworthy behavior. These depictions include representations of male and female in set context, acting out behaviors socially approved for their genders. They provide us with one window into contemporary understanding of what were widely held to be ideal behaviors and relationships between male and female. However, as I will show below, these depictions do not represent ideal behaviors for all males and females, but rather for males and females of elite classes and castes. They represent ideal behaviors in a stratified world, by those who are worth depicting. Thus, the reliefs cannot be expected to give us an overall vision of real gender and social behaviors within an entire community, but can offer us insights into ideal prescribed behaviors.

Hero-stones are particularly useful because they give us a vision of gender and status relations, not as daily practice, not as a reality applicable to all, but rather as an ideal. The reliefs can be understood as something akin to the so-called aggregated Palaeolithic cave sites analyzed by Conkey (1991). In discussing Upper Palaeolithic life, Conkey suggests that different behaviors are represented at different types of cave sites. She differentiates the smaller cave sites from the larger, more elaborate ones where more extended social groups gathered. She argues that, at these sites where relatively large numbers of people periodically came together, more rigid forms of task division likely characterized behavior, and gender must have been an important basis for such divisions. Indeed, she suggests, formalized gender roles would more fully emerge in such a context. Whereas in smaller, less rigid circumstances, gender rules might be more regularly disregarded in daily practice, in the more formal large-group gatherings, the rules would be expected to be clearly drawn and more frequently followed. Similarly, I am suggesting that the Nilgiri reliefs can be understood to function in the context of formal occasions rather than actual daily routines. They generally picture people dutifully fulfilling their gender and status roles, with little hint of deviation. They are visual expressions of approved and socially acceptable behavior. They represent the rules in static form, potentially disregarding daily behaviors that may have deviated from these norms.

The question that arises, then, is where within the archaeological record of a society is one most likely to discover evidence of social, and particularly gender, relations? Archaeologists have disagreed on what levels of society one should investigate most intensively to elucidate the forces directing behaviors, such as relations of gender. Processual archaeologists have suggested that research should concentrate on the larger, systemic level of analysis to understand forces that drive society (e.g. Hayden 1992). On the other hand, many feminist scholars have argued that analysis should focus on the household level where interpersonal behaviors, and particularly gender relations, are more likely to be visible (e.g. Conkey and Gero 1991). In this chapter, I hope to make clear that an understanding of gender, class, and ethnic behaviors necessitates multilevel analysis of a society (see, for example, Costin 1996; Wright 1996; Zagarell 1986). Different levels of social structure function according to very different dynamics and they are codified by different "rules" (Crumley 1987). On the other hand, these levels are interconnected, and can have dramatic effects on one another (e.g. Marquardt 1992). With this in mind, it is the goal of this chapter to suggest some aspects of Nilgiri social and gender relations for which we may have no clear literary evidence, but which may nevertheless be evoked by these reliefs.

The Nilgiri context

Despite the recent "tribal" structure characteristic of the Nilgiri mountain peoples (Bird-David 1997), it is clear that state-organized polities once dominated the Ditch area, as I have previously argued (Zagarell 1994). State influences certainly penetrated into the Upper Nilgiris. Inscriptions from the Moyar Ditch make it plain that taxes were collected from various Nilgiri districts, including the Toda Nadu district, and that regional administrators were in place. Moreover, documentary evidence indicates that punitive operations were periodically mounted in the hills, probably designed to collect taxes. Nevertheless, I am also suggesting the Upper Nilgiri area was more rural and more intermittently and indirectly interfered with by state authorities than the lower area. Powerful state elites were more likely to be found in the Moyar Ditch area, while more rural local Upper Nilgiri kin-based elite may have attempted to mimic the behaviors of their lowland cousins, producing poorer, distorted versions of lowland symbols. Indeed, there are local traditions among the various highland ethnic communities concerning individuals who attempted to gain wealth and status. These attempts are particularly likely to occur in the context of the largely

decentralized segmentary state structures characteristic of South India (Fox 1977; Southall 1988; Stein 1977). This implies there may have been differences in behavior and the display of behaviors between the Upper and Lower Nilgiri regions. Indeed, it suggests the possibility that there may be subtle, but meaningful differences in the messages conveyed in the reliefs found in the Upper and Lower regions of the Nilgiri Hills, as there may also have been in megalithic structures (Zagarell 1997).

The heroic ideal as depicted in reliefs

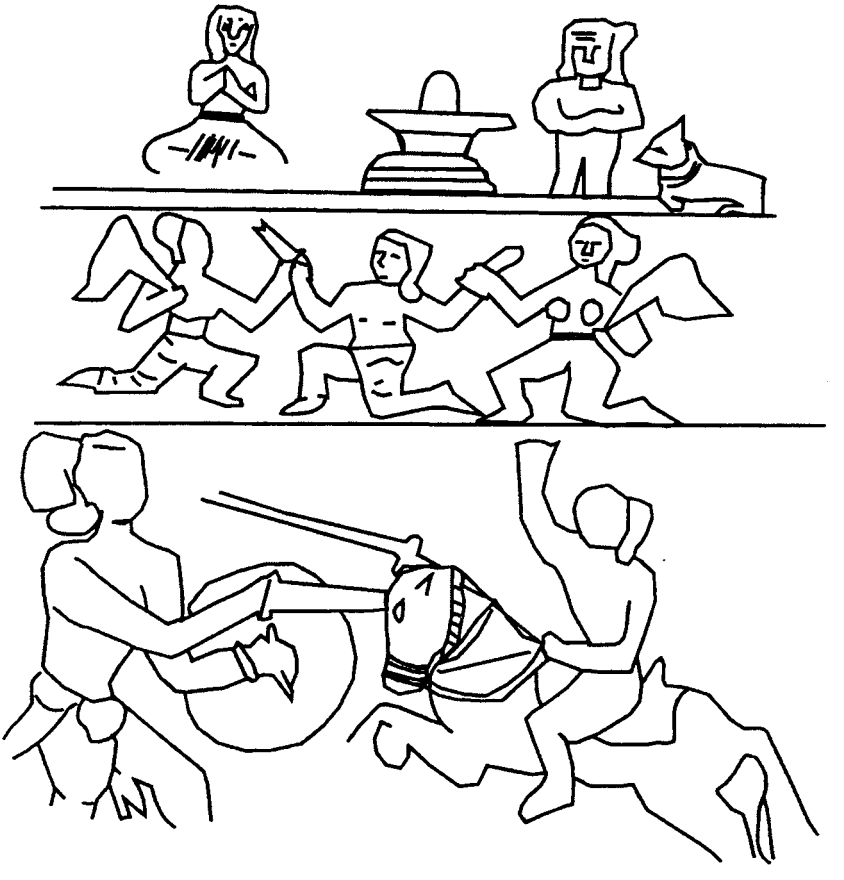
Although all hero-stones focus on the death of the heroic figure, formal aspects of the reliefs and the scenes they depict differ considerably. There are, for example, several hero-stones in the Moyar Ditch where only the death scene or the praiseworthy heroic act is displayed. A relief in the village community of Sirur, protected by an ancient dolmen, pictures a longhaired male pierced by arrows and spears dying bravely, sword in hand. Indeed, the present Irula members of the village of Sirur suggest that this relief represents a former community leader who died trying to save his village from Badaga attack. Similarly, a large plaque-like stone, at the site of Masinagudi, though badly eroded, depicts a single bowman ready to shoot an arrow. This almost certainly was to represent the brave military death of the hero-warrior.

The single figure representation is relatively rare locally. More typically, reliefs contain a series of registers (e.g. Figure 5.2 from Namukalpatti). In the lower Moyar Ditch region, there are generally three tiers on which varied but connected scenes are carved. They tell the story of a hero or (less often) heroine's death and his or her ascendance to heaven. The upper register frequently depicts a Shaivite scene containing an altar with a Lingam atop it. The upper scene includes Nandi, the sacred bull of Shiva, the dead hero, the Lingam (the sacred phallic symbol connected with Shiva), and often a priest. The lowest register frequently portrays the valiant, praiseworthy act undertaken by the individual when that person died. The middle register generally shows the hero/heroine being led from this world, often accompanied by angel-like female figures. Particular details vary, but the structure of presentation is generally similar. Although three- or four-register hero-stones are also found in the Upper Hills region, many Upper Nilgiri reliefs contain considerably more tiers than lowland hero-stones. Moreover, the Shaivite scene, containing the Lingam, priest, and Nandi, is rarely found in the higher elevations (although carved Shaivite symbols do frequently appear on these reliefs). Certainly, some reliefs in the lower area lack Nandi, Lingam, priest, and honored victim on the top tier, but

5.2 Details of sculpture from Namukalpatti

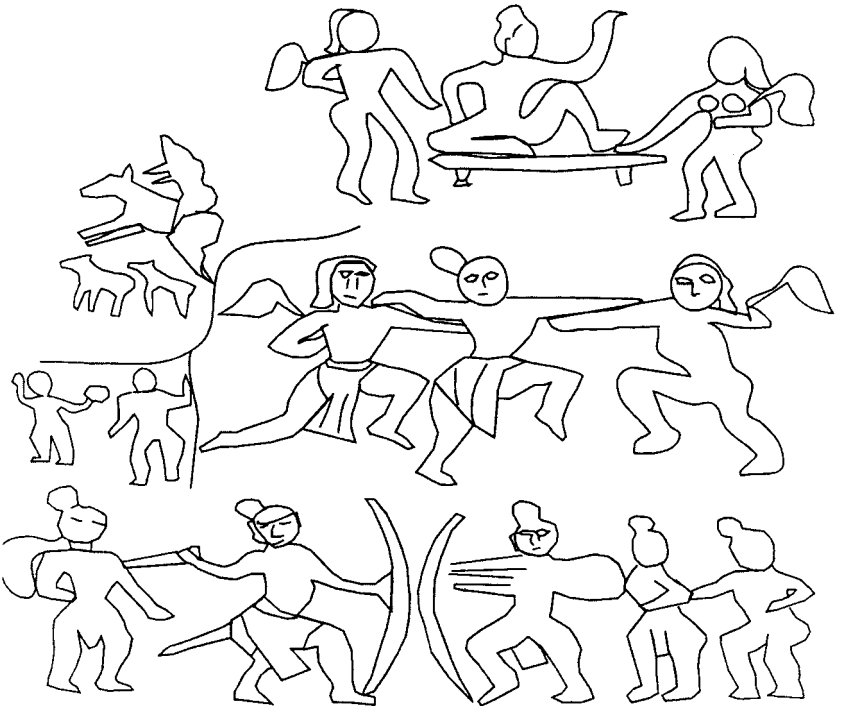
reliefs without those elements are very rare. The rarer inclusion of priests in the Upper Nilgiri reliefs calls for explanation. I suspect that it reflects the less centralized, more limited state hierarchy within the upper reaches of the hills.

The carvings in the lower region are overwhelmingly of very high quality, although workmanship varies. In contrast, the Upper Plateau, although containing several reliefs of very high quality, includes many of extremely poor workmanship. These poorer examples either have very low relief or are simply incised into the stone; these pieces also tend to be poorly modeled. While cruder pieces can be found in the lower region as well, nothing in the lower elevation zone can compare to the low level of craftsmanship at higher elevations. This again suggests potentially significant social and organizational differences between the Upper Plateau and the Moyar Ditch areas.



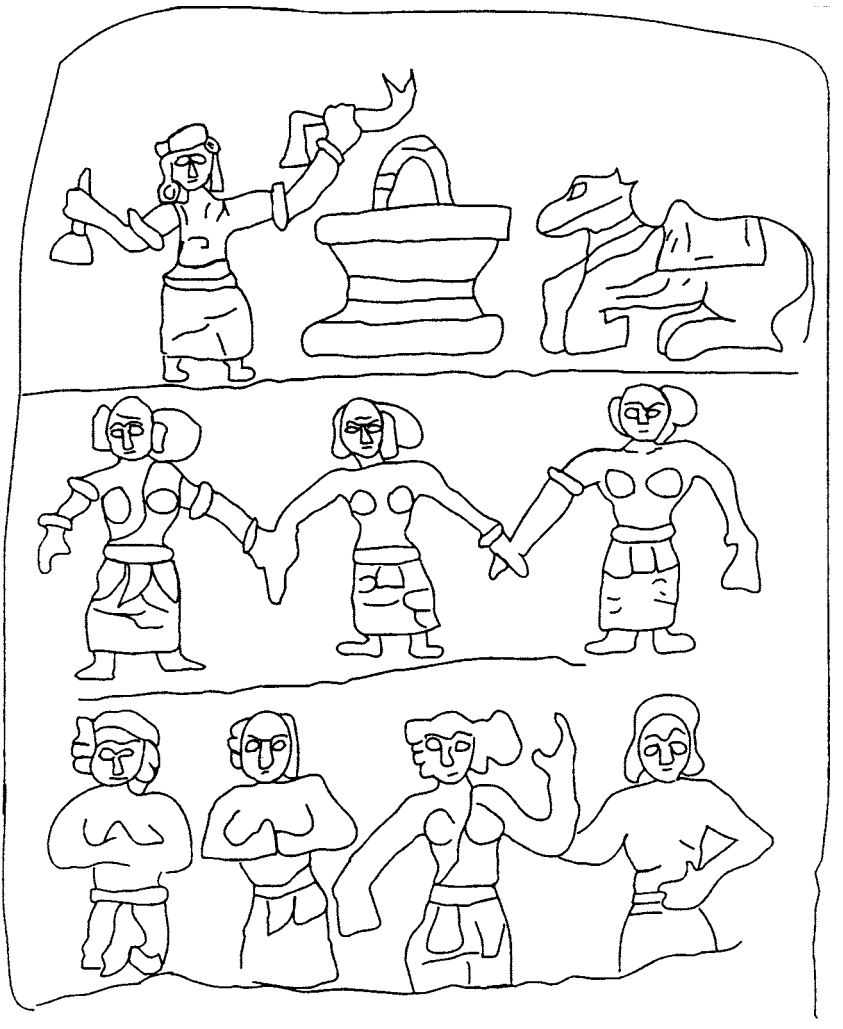
5.3 Details of sculpture from Vazhaitottam

Typical of the lower region is a series of reliefs from the Vazhaitottam section of the Moyar Ditch (Figure 5.3). This particular relief is divided into three registers. The upper level contains the seated hero to the left, with an altar nearby. To the right of the altar is another individual, whom I believe is a priest, given similarities with other depictions, but who is not easily identifiable by internal traits alone. To his right is the kneeling Nandi bull, the mount of the god Shiva, representing the ritual grace of the fallen hero. The next level is constructed with the victim surrounded by two females, *apsaras*, or angel-like figures. They are holding fly switches, and are honoring and accompanying the fallen hero. The lower register displays the hero in battle, holding a sword and a shield in hand, and facing a mounted attacking soldier. The central hero in this relief is represented as having died bravely in battle. In a similar vein, another Nilgiri relief describes not merely the details of the hero's death but the circumstances



5.4 Details of sculpture from Anekati I

that instigated it. In the village of Anekati, once an important military center controlling access through the Moyar Ditch, is another three-registered relief (Figure 5.4). The relief itself stands in an open area east of the village, facing an undecorated dolmen to its west. It varies somewhat from the Vazhaitottam example. Its upper level includes the accompanying *apsaras*, surrounding the slain hero sitting comfortably on some sort of bench. The middle level holds the standard *apsaras* accompanying the heroic victim. The lowest level again repeats the battle theme, but this time multiple figures are depicted. However, the left corner of the first and second registers contains additional scenes. The upper secondary scene denotes cattle, suggesting cattle raiding had something to do with this heroic death, although it also includes a rider and a horse. The second scene contains two figures, one apparently a woman holding an object in her hand that may indicate that she has committed ritual suicide (*sati*), heroically accompanying her husband in death. The message in this relief is that the heroic male sacrificed himself for the family and community either by participating in, or trying to stave off, a cattle raid. His heroic wife has also sacrificed herself in honor of her husband. The broader community thus honors both for their sacrifices. In all of these reliefs,

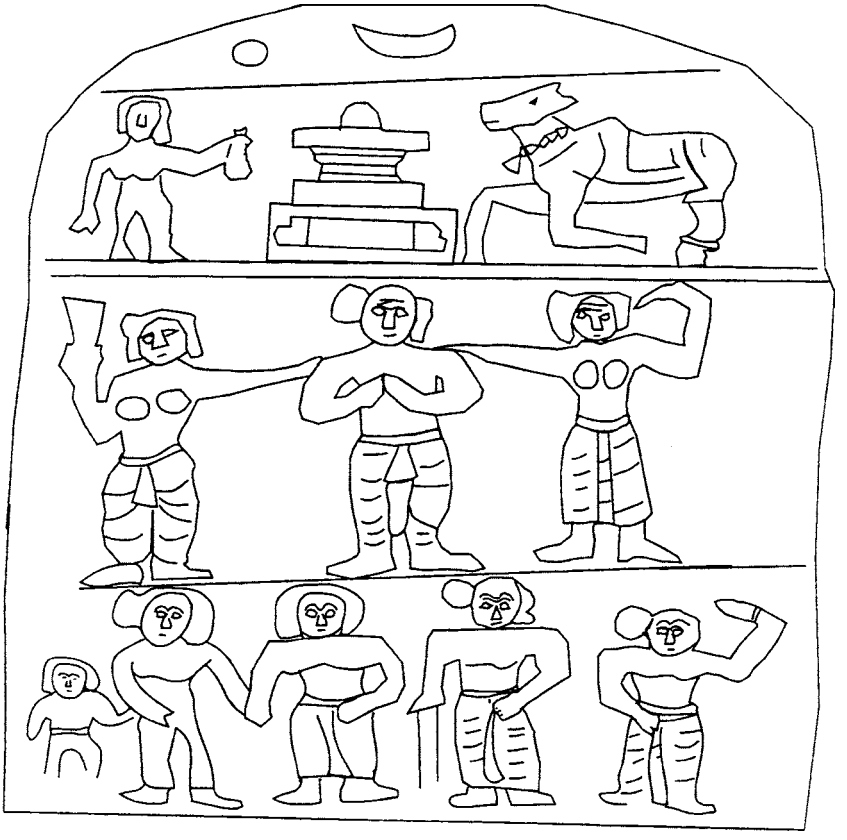


5.5a Details of sculpture from Udagarapatti 1 and 2

the basic message presented to the viewer appears to be the theme of sacrifice. However, deeper analysis shows a series of more indirect messages conveyed to those viewing the reliefs.

The family and death

Two neighboring reliefs from the site of Udagarapatti give us a more detailed view of the individual lives of those honored in death and elucidate some of these subtler themes. The central figure in one of these reliefs is a woman (Figure 5.5a), celebrated by a priest, Lingam, and the kneeling Nandi bull in the upper register and by *apsaras* in the middle level, similar



5.5b. (*cont.*)

to the treatment accorded to male heroes. However, in this case the lowest level, normally the level that displays the manner of death, portrays the heroine not in battle, but in the context of family. The circumstances of her death are, therefore, unclear. One might be tempted to draw the conclusion that the depiction of family here suggests that family is the special sphere of women. However, the neighboring relief (Figure 5.5b) contains a similar set of themes in connection with a male, also showing the male accompanied by family, made particularly clear by a child on the left side of the illustration. It is difficult to ascertain the relationship between these two reliefs. Although they are located directly next to one another, they do not seem to have been created by the same hand. On the other hand, it may be significant that there are five figures on the male death relief, while on the female relief there are four figures. One possible interpretation is that the same family is pictured in the lower tier of both reliefs, in this case with the female not accompanied by the husband

who died. Whatever the interpretation, the broad theme of family and an individual's heroic death does appear on several reliefs. Comparable examples include a relief from Tudor Muttam in the northeast plateau (not illustrated) and the very high quality relief from Melur on the Nilgiri slopes (Noble 1976: Fig. 5.5). These examples have figures, especially those on the lower left of the Melur piece, which are likely to represent children accompanying a male who is fighting a large cat of some sort. Noble suggests that one of the adult women in the picture carries a lime in her right hand, symbolizing ritual suicide (*sati*) alongside her husband (Noble 1976:105). Thus, family represents a powerful conceptual force in Nilgiri ideology. The close-knit family and the close-knit community are portrayed as worthy of dying for. The centrality of family suggests the recognition of high levels of interdependence, but not necessarily equality, between male and female.

The theme of ritual suicide is a very powerful one in Nilgiri reliefs. Many of the female figures (although, significantly, not all) are represented as committing ritual suicide. Many of the adult females are pictured with pomegranates in their hands, symbolizing their supposed desire to die alongside their beloved husbands and to protect the honor of the families involved. There is a form of equality in the reliefs in the sense that both males and females show a readiness to sacrifice themselves. The actions of these women are considered worthy of great respect and worship, as are the sacrifices of heroic men. Indeed, many stones focus on women's sacrifice. Others focus on joint male–female death and joint honoring (for example, a male and female are carted off in their palanquin by the *apsaras* on a relief from Kotamalam; Figure 5.6). However, the representations of men and women and the actions they are commended for differ considerably. Praiseworthy males are overwhelmingly depicted as sacrificing for the family or community against an external threat. Praiseworthy females are pictured as sacrificing themselves in honor of their husbands, to uphold the honor of their marriage relation and only in that sense furthering the interests of the community.

Multiple experiences/multiple expressions of male and female

As noted, both males and females celebrated for their sacrifice are unlikely to be from poorer caste groups. Hero-stones are frequently found in the vicinity of larger house complexes, suggesting that those connected with elite residence centers are more likely to be pictured. Moreover, in historical

5.6 Details of sculpture from Kotamalam

India, ritual suicide is not an activity generally carried out by all women. Women of lower caste communities are generally free to remarry (Kolenda 1985), while women of higher caste are put under greater pressure to protect the honor of the elite families they represent. Therefore, the very concentration on ritual suicide in these reliefs intimates that we are being given a picture of an idealized elite world rather than a cross-section of the regional community. The reliefs are, thus, claims to elite status. One's inclusion in the reliefs is as much an expression of one's social position as of one's bravery or sacrifice. Moreover, the suggestion that higher caste men and women are more likely to have their images carved onto hero-stones is supported by the fact that some figures are undoubtedly displayed as wealthy and influential based on the internal characteristics of the reliefs themselves.

Although those represented in the reliefs are a privileged subset of the entire regional population, they also suggest levels of internal stratification experienced by males and females as well as hinting about the ethnicities

5.7 Details of sculpture from Tudor Muttam

represented. Males are pictured in different ways, reflecting the fact that they occupied various status positions within the society. In some of the reliefs, the hero is pictured much larger than others are, wearing special clothing and headdress. At the site of Tudor Muttam (Figure 5.7), the deceased is shown riding a horse, in itself a sign of special status, while a second individual holds an umbrella above the hero's head, a clear sign of the latter's authority in South Indian lowland society.

Representations of women also vary. While it is unlikely that any but elite families would be pictured at all, it is clear that women living under quite different circumstances are depicted. Some women seem to represent very considerable power and influence (see below), while others may be members of more peripheral families striving to be recognized as having an elite caste status, copying the behaviors of higher-status individuals. I am suggesting that, even among the limited selection pictured, there was no unitary concept of women, any more than of men. An indication of the differential statuses and potential differences in power available to women is reflected in some of the artwork. The reliefs from Betlada, in particular, exemplify the inequalities of status among women and among men. At this site, on the eastern slopes of the Nilgiri Hills, four reliefs have been recorded. The Betlada regional community was of some historical import, Betlada supposedly representing an important parent community for Badaga populations moving into the Nilgiri Hills (Hockings 1980). The reliefs are no longer *in situ*; they have been moved and are presently sitting behind the community school, where they continue to be shown considerable local respect.

5.8 Details of sculpture from Betlada

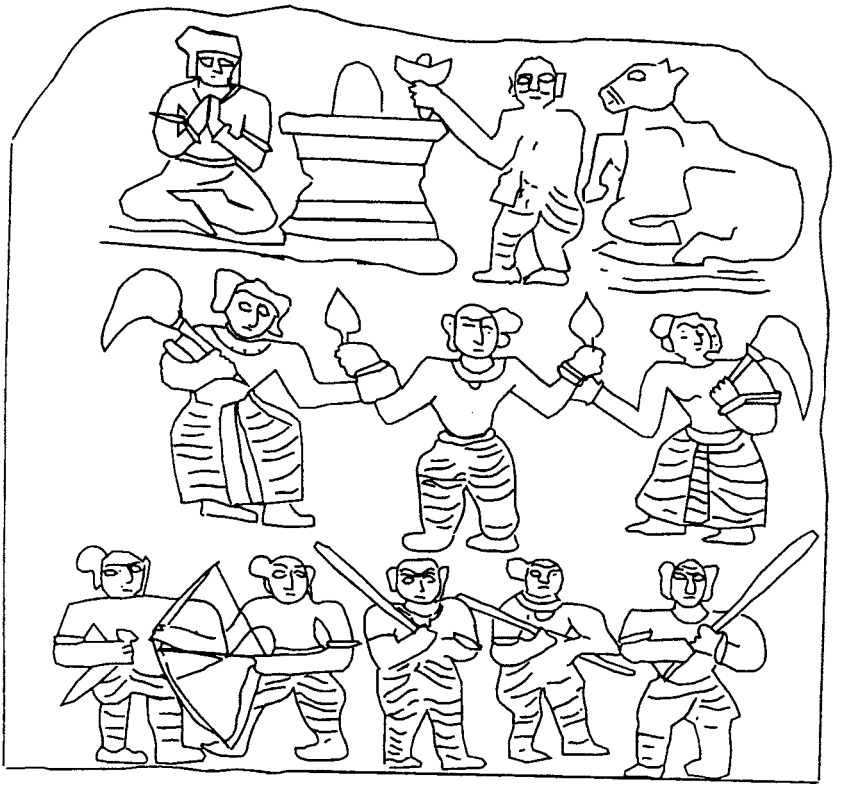
The Betlada reliefs are literally saturated with figures and artistically are of very high quality. Although they are not of the same craftsmanship characteristic of the Moyar Ditch reliefs, nor of the Melur example noted above, their quality exceeds all others from the Upper Plateau, many of which are thinly incised into the rock surface, or are of very low relief and very crudely wrought. I suspect that the workmanship of the Moyar Ditch reliefs reflects the fact that the centers of state rule were to be found there, and in the vicinity of these stones relatively large numbers of skilled crafts workers could be found. This was probably not the case in the upper reaches of the hills. Therefore, the high quality of the Upper Nilgiri Betlada reliefs most likely denotes the considerable importance of the region and those being depicted. Indeed, the style of depiction strongly supports the idea that some of the figures on the reliefs are important, politically significant, high-status individuals (Figure 5.8). The central male figure, evidently a person of power and prestige, is larger than all of the other figures. His likeness is repeated on both sides of a central platform upon which stand two women. He sits astride an armored mount, sword drawn. Behind him stands a more modest-sized armed guard. The women are engaged in some sort of ritual, probably connected to his death. In the remainder of this relief, numerous women are pictured, presumably widows, holding pomegranates signifying their self-sacrifice. All of these female figures wear quite prominent headdresses, probably denoting their high status. This is particularly apparent in one of the smaller reliefs, which depicts very large figures, both male and female, all wearing prominent headdresses.

Although this relief also shows a woman engaged in sacrificing herself for her prominent husband, the relief emphasizes her own high status, clearly differentiating her from other women. This female character is also portrayed quite differently from most females depicted in the Nilgiri region reliefs. This suggests that women's experiences in the region were far from unitary, and hints at the possible range of those experiences.

These varied experiences and expectations are also intimated in the range of representations of male and female. Gender distinctions seem to be very important, and males and females are often very clearly differentiated on the reliefs. Besides the representation of prominent breasts on many of the females or the occasional display of genitalia to identify men, females and males are identifiable by distinct hairstyles. Even when the hairstyles of men and women are quite similar, on any particular register, generally the direction or tilt of the hair bun differs by gender. The specific direction is not uniform over all of the reliefs, and in fact may change from register to register. What is notable here is the differentiation itself.

Significantly, however, there is a range of relationships depicted between men and women. In several reliefs, male heroes are shown considerably larger than the females accompanying them. The size of the figure, in these cases, undoubtedly represents prominence and position, a clear statement about the inequality of status. Somewhat more ambiguous are the females crudely incised into what must have been already completed reliefs. On the other hand, on some other reliefs male and female figures are shown side by side, equal in size, and apparently equally celebrated. Particularly poignant in this regard are the figures from Kotamalam who are in the process of being jointly carried away in a palanquin (see Figure 5.6), stressing the relative equality of experience. Similarly, some of the family depictions seem to stress the equality of male and female relationships within the family unit.

It is less obvious to what degree ethnic (or community) affiliation influenced gendered experiences in the past. There are critical differences among the more recent native communities with regard to ethnographically reported gender relations; therefore, one might guess that ethnic identity might influence gendered experience. Ethnicity is also a critical factor because in the Indian experience it is connected with community, caste, and therefore power and prestige. Part of the difficulty here is that ethnic affiliations are difficult to ascribe. Nevertheless, there are clear indications that messages of ethnicity are consciously conveyed in these reliefs, even if it is difficult for us to recognize the specific content of the message. Of course, ethnicity is partly reflected in the language used on those reliefs



5.9 Details of sculpture from Seminatum

with attached inscriptions, with the South Indian languages of Tamil and Kannada the two most often associated with the reliefs. However, more significant are potential lower-level community indicators. These messages are often difficult for the modern viewer to discern since some of the ethnic markers are no longer recognized. Ethnicity may be discerned in the details; a different sort of knot in a dress, a slightly different hairstyle or headdress, and variants of earrings may all be ethnic indicators for the initiated. For the archaeologist determining all these variants is made more difficult by the fact that many of these reliefs are covered in butterfat, often obscuring the very details we would like to observe. Nevertheless, on several reliefs there are elements potentially representative of ethnicity that can be recognized.

On a relief from the Moyar Ditch site of Seminatum (Figure 5.9), located in the immediate vicinity of a Lingayat temple and a fort, males wear necklaces, as they do on all other reliefs, but here with an attached element at the bottom (note a similar attachment in Figure 5.2). Similar necklaces are

worn by holy figures sculpted in relief on the temple itself. This attachment is likely the Lingam worn by Lingayats, a priestly ethnic community, who are described in the inscriptions as important administrators in the Moyar area. The matted hair of the figure from Sirur similarly identifies him as Jyedalinga, a holy man of the Lingayat community. Indeed, the Sirur depiction is identified by the Irula inhabitants of the village as Jyedalinga, a member of a community that once dominated the Moyar Ditch and who at one point in time supposedly administered the village of Sirur. There are other symbols which may have either ethnic or prestige significance. The figure from Sirur wears what may be a belt shaped like a snake around his waist, similar to that found on a male figure from Tudor Muttam (see Figure 5.7). Similarly, several male figures wear feathers in their hair or a cap, which may also have community significance. I suspect that with further work clearer ethnic markers will emerge.

The reliefs give us a picture of a socially stratified society in which prescribed behaviors are noted and celebrated. The concentration of more crudely wrought reliefs in the Upper Hills argues for the concentration of power, and therefore the concentration of skilled craftspeople, in the lowlands. However, it also indicates highland rural elite attempting to portray themselves in a manner reminiscent of the Ditch region. I assume these are claims of status by particular families and communities. Nevertheless, the crude renderings also suggest local production by less skilled, perhaps part-time practitioners. The reliefs in both regions indicate that male and female expectations varied considerably. However, they also suggest that male and female experiences were varied, potentially by class and ethnic background, as well as by individual relationships. Nevertheless, I believe that these reliefs may hide other forms of real life experiences. It is likely that the vast majority of real life experiences associated with lower-status families were excluded from depiction on the reliefs. What were some of those experiences hidden behind this ideological façade?

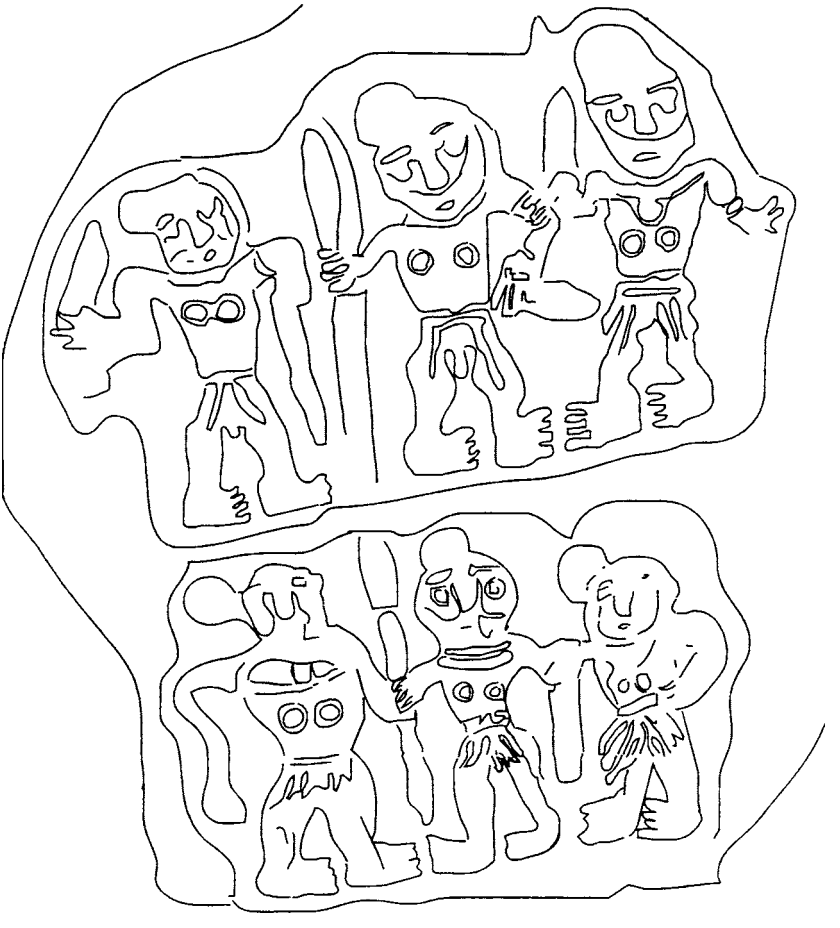
A broader range of behaviors: women's roles in warfare and violence

The reliefs of the Upper Nilgiris depict some unexpected themes not noted in reliefs of the lower region. While both the figures and their behavioral interpretations are not clear-cut, even this ambiguity hints at some of the disjunction between cultural ideals and behaviors in these societies which are not likely to be directly presented in this type of elite-focused medium. Although most representations of women on reliefs picture them as *satis*, committing ritual suicide, several depictions hint at other roles for women hidden in the shadows of this mountainous region. Whereas generally only

males are shown participating in heroic acts of violence, on several reliefs there are armed figures that *may be women*. Such women, if our interpretation of them as women is correct, are certainly a rarity. Significantly, these armed individuals are not generally the central concern of these reliefs, which tell the normative story of fallen male hero and female suicide. Several Upper Nilgiri reliefs depict these "women" carrying spears and, in one case, perhaps a sword. Again, this practice of depicting what may be armed females is exclusive to the Upper Nilgiri reliefs.

The potential depictions of armed females suggest several possible interpretations. One is that the identifications are simply wrong and these "female" figures are actually males. This possibility cannot be excluded, as discussed further below. However, since community traditions contain stories of women who had regional authority and were engaged in military activities, it is very possible that women were intermittently engaged in some forms of violence. A second interpretation is that social roles varied between the Upper and Lower regions, with women more likely to periodically engage in community defense in the less hierarchical, more rough-and-ready environment of the Upper Nilgiris. A third possibility is that women's participation in defense was more likely to be submerged in the ideal representations of life in the state-controlled sections of the Moyar Ditch.

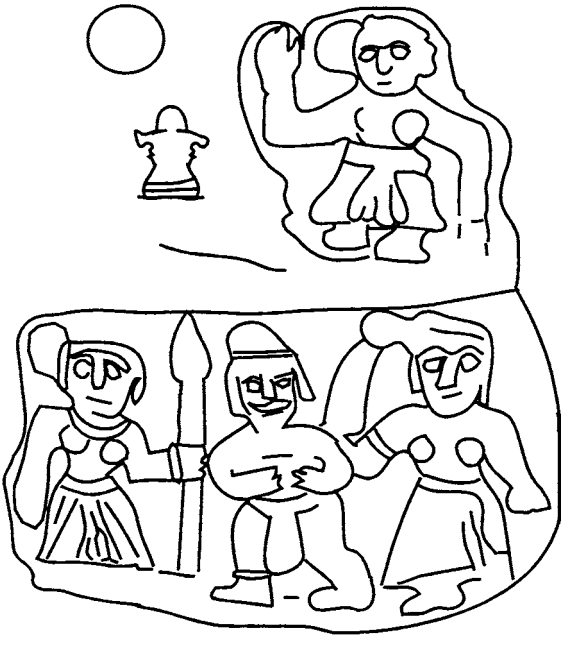
It may be significant that two of the potential female representations are relatively crude depictions. Not only does the crudity of execution make interpretation more difficult, it also indicates that regularly employed, highly skilled artisans did not create these reliefs. For example, several poorly executed reliefs have been found among the many at Melur. The reliefs at this site are multiple and were certainly produced at different times and by different craftspeople. One particular relief (Figure 5.10) differs dramatically from the high craftsmanship of the central piece at this site, carrying a very crudely wrought scene. This is certainly not state art. This relief and other similar poor-quality ones at the site all show circular breasts drawn on the figures. Although my first assumption was that this indicated that the figures were women, the hairstyles and poses contradict that notion. In general, males have top-knotted hairstyles and females side-buns. If hairstyles are the best identifier of gender, then the figure in the upper left seems to be a female holding a sword, although this is far from certain. On another crude Melur relief, one "woman," a figure with a side-bun, may be holding a spear. Another very crudely constructed hero-stone (Figure 5.11) from the site of Kaguchi, cut in very low relief, depicts two women surrounding the fallen hero on the second tier. One



5.10 Details of sculpture from Melur

woman carries a spear, the other a sword. Thus, the story being conveyed in this multi-dolmen, multi-hero-stone site is the typical tale of the fallen hero and devoted wife, but it includes what may be armed women in its secondary depictions.

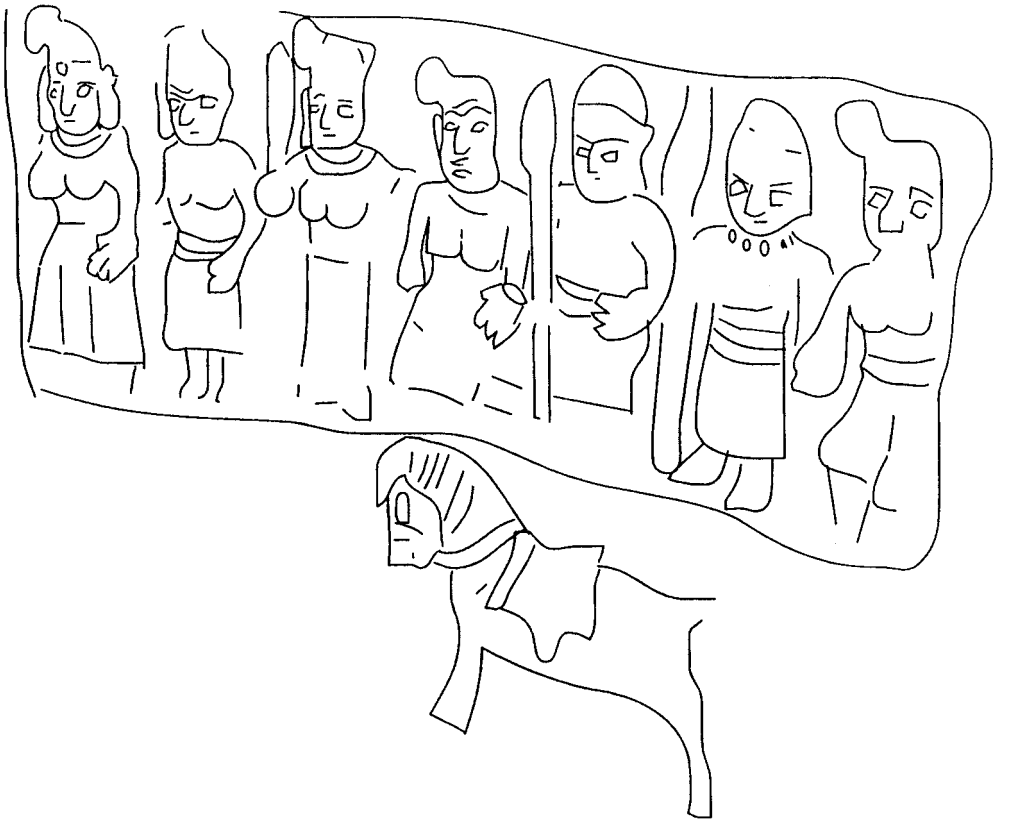
The somewhat different representations of women from the site of Tudor Muttam may be meaningful in this regard. Although the reliefs are likely to have been moved, the complex consists of a concentration of related reliefs, a raised mound nearby, and an additional relief at the nearby temple, suggesting the site was once the scene of ritual activities and perhaps a burial. Once again, the major theme is the dead hero and his self-sacrificing wife. A riderless horse is pictured on one of the reliefs, while on another, the fallen hero is pictured as mounted, sword drawn, and charging forward, probably to his death (see Figure 5.7). Held over



5.11 Details of sculpture from Kaguchi

his head is an umbrella, a symbol of status, power, and authority, indeed often a sign of rule. This suggests the death of a powerful and prestigious figure, worthy of commendation. The husband and, presumably, his wife appear together on a separate relief, with the female holding up a pomegranate, suggesting a commendable suicide. While these themes coincide with themes common to many reliefs in the region, in this case many of the reliefs are decorated with rows of figures, many armed with spears (e.g. Figure 5.12). At least one of the figures so armed may be a woman.

Certainly, the identification of all of these figures as possibly female could be contested. However, if these are indeed armed females, how are we to interpret their inclusion in these reliefs, seemingly contradicting the idealization of gender roles generally displayed on the reliefs of the lower elevation, state-controlled areas? One element of explanation involves the peripheral position of the highland foraging and horticultural groups. While populations in this area were certainly in regular contact with the centers of state rule in the Moyar Ditch zone, the uplands show many signs of marginality. The poor workmanship connected with many, but not all, of the reliefs in the upland zone may reflect the fact that skilled sculptors were not abundant in higher elevations where local elites were



5.12 Details of sculpture from Tudor Muttam (2)

attempting to make claims of prestige similar to those of the Moyar Ditch area. The fine workmanship on some highland reliefs may reflect contact with skilled artisans in the Ditch area; however, if semiskilled stonecutters were sculpting most highland markers, it suggests they would be less aware of lowland conventions and would be more prone to mistakes of execution and meaning in copying lowland styles. This may be the cause of the ambiguity regardless whether the figures are actually male or female.

A second element of explanation is related to the difficult physical conditions and external threats faced by those of the Upper Hills. Certainly social interactions in the hills were occasionally violent, with raiders from the Ditch area periodically plundering the Upper Plateau (Emeneau 1984). Given the fact that the communities of the Upper Hills were small in scale, it is possible, and perhaps indeed expected, that women sometimes came to the defense of their communities when under attack. Under "normal conditions," such events might go unreported, since they do not correspond

with the conventional praiseworthy behaviors pictured on the reliefs. One possible explanation for their inclusion on reliefs executed by more peripheral upland peoples is that such behaviors were more common in this area and therefore were not immediately excluded from portrayal. Indeed, there are several local traditions, encoded in regional lore, which refer to women involved in administrative leadership and regional warfare (but not necessarily direct fighting). An example is the well-known story of Ali Rani, the queen who reportedly dominated a huge stretch of the Nilgiri foothills; a second story tells of a consort who also engaged in military confrontations.

Therefore, the possibility that women intermittently took part in heroic military actions, particularly the defense of communities under attack, cannot be rejected. Let me emphasize that the possibility should not be rejected *even if the figures depicted are not female.* If we take this stance, it allows us to draw several conclusions about the interplay of gender expectations and the realities of daily life. I am arguing that gender expectations may influence actual behaviors, but even more so they will influence what is reported or materially encoded about behaviors. Behaviors that do not correspond to expectations are likely to go unreported, or undepicted. Reports of behavior counter to expectations are likely to be muted (cf. Kehoe 1992), no matter how common those behaviors actually are in daily life. It should be noted this must also occur with regard to class and ethnic expectations. The behaviors of elites are much more likely to be designated as "heroic," and high caste groupings or dominant ethnic groups are much more likely to be displayed as representing commendable behaviors. Archaeology must not simply report what is found, or what is likely to be underrepresented because of natural conditions of destruction of the archaeological record, but instead should attempt to deduce in each case behaviors or facets of life which are likely to be excluded from representation because of cultural choices and perceptions of ideal behaviors.

Conclusion

Contrary to the assumption that upland groups in the Nilgiri Hills were isolated "tribals," unconnected with lowland polities and societies, I have demonstrated considerable interaction between the lower, Moyar Ditch region and the Upper Plateau region. This interaction certainly involved both political and economic interaction (Zagarell 1994; Morrison, chapter 6 this volume), including armed conflict between and among Nilgiri groups. Here, however, I emphasize the partially shared sets of values about status,

gender, and hierarchy that are evident from an analysis of hero-stones. Hero-stone reliefs point to the importance of gender distinctions in both lowland and upland contexts as well as the existence of status and ethnic distinctions among men and women. However, there are important differences between the reliefs of the Upper Plateau and the Moyar Ditch area. The latter tend to be better executed, reflecting their association with elites of relatively large polities having access to skilled craftspeople. The hero-stones of the lower elevation Moyar Ditch area reflect the close connections of that area with larger South Indian states and cultural traditions, more often depicting "orthodox" Shaivite themes, including priests, than do the reliefs of the Upper Plateau area. Importantly, hero-stone reliefs in the Moyar Ditch area seem to represent rigid ideals about gendered behavior with males depicted primarily as active protectors against exterior threats and females as self-sacrificing *satis*.

In the higher elevation areas, hero-stone reliefs are often poorly executed, suggesting differential access to skilled carvers. More telling, however, are the ways in which upland peoples both emulated and transformed lowland themes and styles. Upland reliefs sometimes differ from the common three-panel form of the lowlands. Like lowland hero-stones, both males and females are valorized, but unlike lowland reliefs, upland panels sometimes seem to depict women as armed defenders of their communities, perhaps reflecting political realities in these beleaguered regions. Alternatively, possible depictions of armed women in the uplands may indicate less slippage between idealized gendered behavior (as represented on hero-stones) and actual gendered behavior than in the lower elevations.

This chapter suggests that there are pitfalls in looking at social relations on a single level of analysis. Processual approaches, with their emphasis on the "big picture" and their assumptions about the driving forces behind social change, are likely to miss many facets of behavior in social groups, particularly if those behaviors contradict their assumptions about evolutionary pathways. On the other hand, many feminist archaeologists have argued that a concentration of analysis on the household level is likely to reveal gender ideals and gendered activities (e.g. Conkey and Gero 1991). Indeed, they seem to argue that feminist archaeology is the involvement with the personal. Instead, I suggest here that multiple levels of analysis are necessary for an understanding of behaviors. Prescribed, expected behaviors may emerge on one level, while daily behaviors, which may contradict those prescribed behaviors, may occur at the household level. These two levels are likely to influence one another. Analysis of different levels of social structure reveals different strands of a complete picture, even

when dealing with such interpersonal issues as gender, class, or ethnicity (see Marquardt 1992 for example). It is the interplay of levels that will eventually reveal how particular gender, class, and ethnic behaviors and expectations are created, historically reproduced, and eventually negated.

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6 Pepper in the hills: upland–lowland exchange and the intensification of the spice trade

KATHLEEN D. MORRISON

There is a longstanding history in South Asia of relations of exchange and interdependence between agriculturalists and peoples involved in the hunting of wild animals and the gathering of wild plants. These relationships, far from being historically fixed and immutable, were instead marked by a high degree of variability and flexibility with specific groups of people altering their strategies in relation to ecological, demographic, and political imperatives. These points are not controversial – many scholars have described such relationships and have contributed significantly to our understanding of the tremendous diversity of South Asian prehistoric and historic subsistence strategies.

I would like to build from this literature in two ways. First of all, I would suggest that the strategies of contemporary forager-trader groups in South Asia are best viewed as the outcome of historically contingent processes, not merely as cultural-evolutionary throwbacks. Second, and more specifically, I will be concerned here to trace some of the changes and possible changes in the organization of foraging/trading groups in southwestern India coincident with the expansion[1] of the coastal spice trade and the increasing integration of this region into a world economy in the immediate precolonial and early colonial periods, that is, between about AD 1400 and 1700. Although the participation of South Indian "hill tribes" in regional and even international economies began much earlier than this (see chapter 1), I focus here on the early colonial and precolonial organization of foraging and trading and some of the relationships of foragers with larger-scale political entities. In so doing, I hope to illustrate the dynamic nature of these marginalized groups and the long-term evidence for economic integration and interdependence between foragers, peasant agriculturalists, states, and empires, in this part of the world.

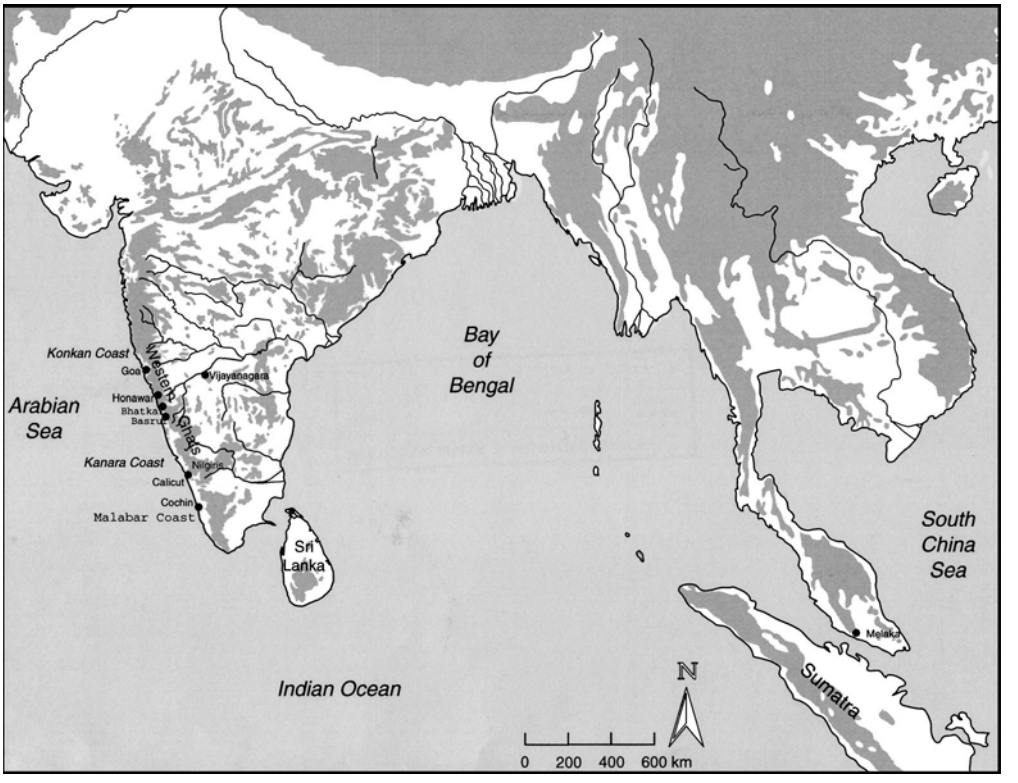
Beyond the intrinsic historic interest of this long-term history, however, I highlight this evidence for the larger points it may illustrate about the operation of political and social power and the consequent creation of social and economic specialization. Inasmuch as such specialization may be a

widespread outcome of both political and economic expansion and intensification, the creation of specialist economic and cultural forms concerns all social scientists and not solely specialists in the study of hunter-gatherers (Morrison 2001). Certainly the forager-traders discussed here developed their complex and changing life strategies under particular, contingent historical and environmental conditions, conditions which were in some sense unique but which were also sufficiently responsive to similar political and economic processes that we can draw some strong parallels between both process and outcome in southwest India and the Malay Peninsula. If gathering and hunting, and the people who practice these strategies, are not "out of" either history or cultural process, then anthropologists and others who study humans and their history will have to begin to integrate understandings of these strategies with more "mainstream" interests in political economy, agricultural ecology, exchange, and other approaches not usually associated with the study of foragers.

Finally, I briefly introduce the comparative case of fifteenth- and sixteenth-century Melaka, on the Malay Peninsula, a situation that shows certain structural parallels with that of western coastal India. Not only were both areas directly linked through networks of exchange and later through a common experience of Portuguese colonialism, but they also both developed relationships of interdependence and inequality between upland collectors of forest produce, lowland agriculturalists, and coastal trade entrepôts. My description of Melaka is necessarily less well developed than my discussion of southwest India, given limits of both space and my own expertise. Nevertheless, this comparison is meant to point to similarities both in organization and in historical experience that may be of some value in integrating the diverse case studies in this volume.

Southwest coastal India

The southwest coast of India is set apart from much of the rest of the peninsula by both physiography and climate (Figure 6.1). Bounded by the Indian Ocean on one side and the Sahaydris or Western Ghat mountains on the other, this region consists of montane evergreen and semi-evergreen tropical forests dissected by well-watered alluvial valleys edged by coastal swamps and occasional mangrove forests. The Ghats not only act as a rain shadow during the summer monsoon, ensuring a fairly high rainfall along their western slopes, but they also send down numerous small but navigable rivers to the coast. The Malabar coast, the primary (but not sole,



6.1 Melaka and the southwest coast of India, showing locations mentioned in the text

cf. Subrahmanyam 1990) locus of spice production in India, is largely contained within the modern state of Kerala, where "backwater" transport by boat is still very important for integrating the relatively dispersed population. Of the spices involved in expanding trade networks, the most important was pepper (*Piper nigrum*), indigenous to the region.

Further north, the Kanara and Konkan coasts boast a somewhat broader expanse of flat land between the coast and the mountains; this region is among the most productive rice-growing regions in India (Subrahmanyam 1984:437). These coasts are now divided between the modern states of Karnataka, Goa, and Kerala. Natural harbors are relatively rare all along the western coast, and most port cities were actually located slightly inland, along rivers. The Ghats, relatively steep on the western approach but more gently sloping on the east, are traversed by a number of natural passes, themselves called ghats, which rather strictly circumscribe routes of movement from the coast across to the drier South Indian plateaux.

Forest dwellers and exchange: the Western Ghats

In India today, a number of "hill peoples" or "tribes"[2] subsist in the Malabar Ghats and the associated Nilgiri Hills (Hockings 1989, 1997) by hunting and collecting forest products for external markets, by trading those products, and sometimes also by wage labor. These groups include the Kadar, Paliyan, Karumba, and the Hill Pandaram (spellings and even names vary; these are from Morris [1982b]; see papers in Lee and Daly [1999] for more ethnographic detail). Groups practicing swidden agriculture, forest collecting, trading, and even some wet rice agriculture include the Nayadi, Kannikar, Muthuvan, and Urali Ulladan (Morris 1982b:16–17), among others. In Sri Lanka, the well-known Veddas (Brow 1978; Seligman and Seligman 1911) also consist of a number of different groups more or less integrated into the dominant Sinhalese and Tamil agricultural economy. Anthropologists and archaeologists in South Asia have had to contend with a tradition of research in which "tribals" have been viewed as either cultural-evolutionary "fossils" or, similarly, as ideal types in the construction of hunter-gatherer models (cf. R.G. Fox 1969:139–40). More recently, anthropologists (e.g. Bird 1983; Bird-David 1992a; Hockings 1985; Stiles 1993; Zagarell 1997; Morrison, chapter 2 this volume) have begun to stress the lack of physical isolation of "tribal" groups from caste society and the time depth of their integration with lowland agriculturalists. Many forest groups depend on lowland products, notably food grains, textiles, and iron, for their basic subsistence. Thus, exchange relations are not simply incidental, providing staple food items as well as technology.

It is probably fruitless to speculate on the precise origins of specific named ethnic groups of forager-traders known historically and ethnographically. Although the orthodox perception seems to be that contemporary foragers are descendants of an unbroken tradition dating back as far as the Mesolithic, some scholars have suggested alternative routes by which groups could have moved into specialized collecting and trading. Hockings, for example, considers the case of refugees from caste society – marginalized groups who move into the forests to take up new opportunities and/or to escape intolerable situations in their homeland (1980, 1985). Such movements are not unknown, and Hockings (1985) suggests more specifically that the Roman[3] market for pepper and cardamom may have opened up opportunities for marginal lowland groups. If this is correct, however, such groups may have also come into contact and perhaps competition with existing upland peoples.

Even if some upland groups represent refugees from the intensively cultivated lowlands, it is likely that other specialized forager-traders reliant

on imported foodstuffs began as more generalized foragers and/or as swidden agriculturalists. I suggest here that several key periods can be identified in the move toward specialized foraging. The first of these is the Early Historic, when as-yet rather sketchy evidence points to significant changes in the occupation history of the uplands including the beginnings of large-scale modification of the vegetation, changes associated with good evidence for active networks of long-distance exchange. The second period, and the one on which I focus here, is the sixteenth and early seventeenth century, a period in which the options open to hill peoples became greatly reduced. In this latter period, the transition toward specialized foraging may have been responsive to two factors. The first relates to the demands of the spice trade and other, politically based demands for forest produce. The second factor is more indirect but no less important, and this relates to the pressure on the forests from below created by expanding agriculture. Both the land use "push" and the political "pull" or demand for produce from below forced foragers and forager/agriculturalists into an increasingly specialized and increasingly marginalized position as participants in a world market.

Long-term occupational history of the Western Ghats

From very early on, certainly by the last few centuries BC, an extensive network of exchange stretched across the Indian Ocean, connecting, albeit indirectly, the Mediterranean with East Asia (Morrison 1997). In the corpus of Tamil Sangam poetry, dating to the first three or four centuries AD, there is mention of a coastal intra-Indian trade in pepper and honey, both forest products (Sastri 1975:110; Morris 1982b:15). Indo-Roman trade also included such forest products as sandalwood, ivory, pepper, ginger, cardamom, and myrobalan (*Terminalia chebula* and *T. bellirica*) (Morris 1982b:15), as well as other woods, aromatics, and dyes (Ray 1986:114). Finds of Roman coins are reported from both coastal and inland sites in southwest India (Sastri 1975:135; and see Begley and DePuma 1991; Cimino 1994; Morrison 1997). Thus, there is no doubt that pepper and other forest products had long been items of trade. While some of these forest products may have been collected by lowland traders or agriculturalists, the degree of specialized knowledge involved and the dispersion and seasonal availability of such products suggest instead that they were collected by upland groups at least partially specialized toward gathering and trading of forest produce.

Survey of the longer-term occupational history of the Ghats suggests that intensive human use of these mountains may have begun quite late. In

a review of archaeological data from the Nilgiris, Noble (1989) concludes that these hills were not occupied prior to the first century AD. The earliest identifiable archaeological remains consist of megaliths of various sorts, most containing iron. Zagarell (1997) describes these megaliths in some detail, concluding that their forms and distributions show evidence of extensive, long-term relationships with surrounding polities and societies (and see Zagarell 1994). Although dating of these features is uncertain, he generally accepts Leshnik's (1974) dates of the fourth through sixth century AD (Zagarell 1997:29) for the majority of these burial/memorial features.

Another form of information on human use of the Ghat forests is provided by palaeoenvironmental analyses that track, among other things, human impact on vegetation, soils, and landforms. Among the most important of these for the purposes of this chapter are analyses of pollen data conducted by Caratini et al. (1991). These data derive from a pollen core taken from a buried sediment profile near Vazhavatta, in the Wayanad District of northern Kerala, at about 760 meters (2,493 feet) elevation. This profile contains information on forest composition between about AD 200 and 700 (Caratini et al. 1991:126). Although the climax vegetation of this area is wet evergreen forest, the landscape surrounding Caratini et al.'s Wayanad site is now under permanent cultivation of wet rice along with plantations of coffee and *Hevea*. Pollen data indicate that between the third and eighth centuries AD there was no significant overall compositional change in the forest, nor was there any indication of a regime of intensive agriculture. However, some pressure on the forest was noted in that pteridophyte diversity declined steadily, a pattern the authors attribute to "a reduction in the forest on which the majority of ferns are dependent" (Caratini et al. 1991:137). Further, taxa specific to forest openings or margins were common in the core, suggesting that clearing of the forest for cultivation had already been established.

A second palaeoenvironmental study from the Ghat forests (540–600 m) near Bhatkal (Mariotti and Peterschmitt 1994), although limited in spatial scale, also provides powerful evidence for anthropogenic vegetation change by the first century AD. In this study, stable carbon isotope ratios on soil organic matter indicate destruction of the evergreen forest margins and creation of an anthropic savanna around the first few centuries BC/AD. While this finding is in broad agreement with other studies reporting a near-universal pattern of savanna formation following earlier forest communities (see, especially, Archer 1990), unfortunately the limited spatial

scope of this study (only a 350 m long transect across the ecotone was analyzed; Mariotti and Peterschmitt 1994:475) makes it difficult to draw broad conclusions about the overall history of the Ghat forests.

Thus, there is good evidence to suggest at least small-scale occupation of the Ghat forests of a nature sufficient to induce modest vegetation change by the first few centuries AD, and limited though striking evidence for total destruction of the forest margins and the creation of an upland savanna, a more open vegetation form that may have been entirely artifactual. This limited evidence does not, of course, mean that the Ghats were not used prior to the first century nor does it necessarily indicate that these hills did not support small groups of mobile foragers prior to this time. Much more archaeological research, in particular, needs to be carried out in this area before we can say that the lack of earlier archaeological remains in the uplands represents definitive evidence for late colonization of the Ghats.

Thus, while it is not possible at present to precisely describe the mix of subsistence strategies employed by Ghat peoples before about AD 1800, there is sufficient evidence to indicate that swidden agriculture was practiced by many groups from about the first few centuries AD. At about that same time, textual sources indicate that Ghat forest products were involved in long-distance trade networks. I suggest here that relations of interdependence that were probably in place by the first half of the first millennium AD formed the basis for the increased pressures on forest dwellers in the later precolonial and early colonial periods. Understanding this later period requires consideration of political, ecological, and economic conditions in southern India; these are very briefly sketched below.

Coastal entrepôts and Indian Ocean trade: Malabar and Kanara

When the Portuguese first arrived on the southwest coast of India in AD 1498, the Malabar port city of Calicut was one of the most important trade centers in the region, largely as the result of its (not uncontested) political predominance over neighboring coastal polities. As the "first among equals," however, the ruler of Calicut, the Zamorin, was neither the ruler of an extensive territory nor able to control his coastal neighbors, which included the independent states of Cochin to the south and Cannanore to the north (Bouchon 1988). Indeed, the extent of Calicut's direct political control did not include much of its forested, mountainous hinterland (Dale 1980:15). Permanent settlement in the interior was sparse, and restricted largely to riverine areas. Building on a long tradition of local self-government in South India (Frykenberg 1979; Stein 1982), "chiefs"

or other local leaders were often held accountable to larger-scale political entities for tribute, taxes, and control within their area of influence.

With the arrival of the Portuguese and the establishment of their trading empire along the coast (Bouchon 1988; Pearson 1981; Subrahmanyam 1993, 2001), Calicut's importance as a node in the regional exchange system was eclipsed by that of Goa (the seat of Portuguese power and one of their few territorial possessions) and, to a lesser extent, of Cochin. The position of Goa *vis-à-vis* the export and food producing hinterlands of the west coast was, if anything, even more precarious than that of Calicut, underlining the importance of cheap coastal transportation in maintaining this network of interdependence in foodstuffs and export items. As noted, the Malabar coast was the primary locus of pepper gathering and production, as well as of many other forest products including ginger, cardamom, honey and wax, various gums and resins, dyes and scented woods, and medicinal and poisonous plants (Morris 1982b).

Further north, the wider Kanara coast provided a large portion of the rice consumed further south in the Malabar region; much of the Kanara coast was under the control of the territorially extensive inland Vijayanagara empire. Goa lies even further north, on the Konkan coast, and not only imported Kanara rice (Mathew 1983; Subrahmanyam 1990) but also had to bring in pepper and other Malabar products up the coast for exchange. Thus, Goa can be seen as a classical port of trade (cf. Polanyi et al. 1957), albeit one controlled by a colonial power. Similarly, other coastal cities such as Cannanore, Calicut, and Cochin, also prospered commercially by the bulk storage and marketing of products neither manufactured on site nor procured in the immediate locality. Even discounting the important role such ports played in the redistribution of goods from further east and west, the local products they helped distribute, such as pepper, came not from urban hinterlands by and large, but from the Ghat uplands.

Understanding the role of the coastal entrepôt cities both as centers of consumption and as pivots in the larger sphere of exchange is important, inasmuch as increased demand for forest products in the late precolonial and early colonial periods cannot be dissociated from economic reorganization in the coastal lowlands. Lowland politics and economics had ramifications in the uplands, as discussed in more detail below. Most directly, the demand for pepper and other forest products and upland crops was accelerated by direct Portuguese purchases and forcible extractions as well as by ongoing extra-Portuguese trade. However, the pressure on the forests also had ramifications for lowland agriculturalists, ramifications involving

changes in the organization of production and distribution of food grains in the lowlands, most notably of rice. Combined with increased exports of rice to coastal cities, changes in the organization of production must have been widespread in both uplands and lowlands.

Portuguese involvement in the movement of rice took three forms. The first was the demand for tribute, in order to supply Portuguese forts and settlements. These demands fell almost exclusively on the kingdoms of the Kanara coast,[4] particularly Honawar, Bhatkal, and Basrur (Desai, et al. 1981; Subrahmanyam 1984:445). The amount of rice involved was considerable; convoys of several hundred small ships, often under Portuguese guard (Pearson 1981:77), sailed up the coast to Goa. In the 1570s and 1580s three to four convoys per year to Goa alone are reported (Pearson 1981:77). The second form of Portuguese involvement stemmed from the *cartaz*, or pass system, for local as well as long-distance trade, so that no ocean transport whatsoever could officially take place without Portuguese approval and taxation. The third form of involvement in the rice trade may be seen as something of an unintended consequence of other forms of exchange and extraction, this being the escalation in demand for rice and other staples created by Portuguese extractions of pepper and similar products from the foothills and mountains of the Ghats. As discussed below, the shipment of staples to the forested interior was ultimately necessary to support the foragers and cultivators of spices, among others.

One striking effect of Portuguese involvement in southern India was the shift in the area around Goa from a grain surplus to a grain deficit. Before the arrival of the Portuguese and their efforts to shift the focus of trade from Calicut to Goa, rice was imported from the Goan hinterland and from "Vijayanagara" (Mathew 1983:20; presumably this refers to the Konkan coast regions under Vijayanagara suzerainty) to Malabar cities. After the establishment of Portuguese Goa, the city became almost entirely dependent upon imported foodstuffs. The difference may not relate entirely to increased population in the cities, but rather to the severance in the Portuguese period of relations with its rural hinterland (Pearson 1981:76–8).[5] Numerous references to Goa's inability to feed itself exist in the literature (Pearson 1981:77; Subrahmanyam 1984:434), as indeed to the similar import of rice by precolonial Calicut (Danvers [1894] 1966:85; Digby 1982:147). Not all of Goa and the Malabar coast's foodstuffs came from the Kanara coast; a large portion also arrived from Bengal (Pearson 1981) and Orissa (Foster 1968:26, 44) on the east coast of India. As I discuss below, the expansion and intensification of lowland agriculture had

a significant contributing effect on changes in the opportunities of upland peoples.

Expansion and intensification: upland–lowland links

While it appears, then, that frameworks for exchange and economic interdependence were in place long before European involvement in South (and Southeast) Asia, it is certainly the case that the scale of exchange underwent a rapid expansion in the early colonial period. Historians of both Europe and South Asia are in broad agreement that the volume of pepper, as well as of other products[6] such as ginger and cardamom, increased significantly in the sixteenth century. European pepper consumption doubled during the 1500s (Boxer 1969:59; Diffie and Winius 1977:318); Braudel (1972:550) estimates that between 1554 and 1564 the flow of spices into the Mediterranean through the Red Sea route alone was of the order of 100,000 to 200,000 kilograms per year, most of it pepper. This quantity approximates that of the pre-Portuguese period, but does not include any of the spices brought around the Cape by the Portuguese at the height of their control. From the Indian perspective, Mathew (1983:212–13) estimates that pepper production jumped 200–275 percent between 1515 and 1607. Wallerstein's contention (1974), then, that the impact of the increased pepper demand on Asia was "minimal" seems unrealistic at best, based perhaps on a notion of the importance of pepper to the average European rather than to foragers or to swidden cultivators (and see Chaudhuri 1985; A. Reid 1993a).

Luxury goods – items of relatively small size and high value, including most spices – moved from one end of the network to the other, while the movement of bulkier and more perishable goods formed smaller but sometimes still impressively large circuits within the larger system (Mathew 1983:19). Although historical attention has traditionally been focused on the "small but trifling" (Wallerstein 1974) trade in high-value items, there has been an increasing awareness of the important role of more "utilitarian" trade goods such as rice (Subrahmanyam 1984, 1990) and coarse cotton textiles (Digby 1982; Ramaswamy 1985). On the one hand, these two categories of trade good create distinct organizational problems and prospects for political control. European colonial powers such as the Portuguese in India adopted a program of regulation and taxation of the existing "country trade" (cf. J.H. Parry 1963), or local trade in utilitarian goods, in order to finance their costly involvement in the long-distance exchange of spices and other "luxury" goods. The colonial administration of the latter was organized quite differently – in the case of the Portuguese,

the spice trade was considered to be the exclusive right of a centralized crown monopoly (Boxer 1969; Danvers 1966; Subrahmanyam 1993) – although certainly this represented more an ideal than a reality.

From the perspective of indigenous producers, however, distinctions between "luxuries" and "utilitarian" commodities and between the structure of international and interregional trade in each were largely academic. The productive demands placed on peasant agriculturalists, gatherers of forest products, and export-oriented swidden cultivators were all structured through networks of local power and authority. The expansion and restructuring of such demands promoted changes in the opportunities and strategies of different collectors and producers and fostered relationships of economic interdependence that survive, in altered form, into the present. The structure of intensive wet rice agriculture was predicated on the existence of markets for surplus; the basic subsistence needs of specialized foragers and possibly swidden spice cultivators were met through the mobilization of this surplus. The implications of this accelerated demand for spices in India and beyond probably also meant an accelerated demand for rice and other subsistence goods that would have been felt by intensive agriculturalists as far afield as Java and Bengal.

If demands for forest products were on the rise in the sixteenth century, it is also the case that areas under forests were declining. Throughout the south, both inscriptional and archaeological evidence from at least the tenth century AD has as a constant theme the expansion of agriculture at the expense of forests (e.g. Stein 1980, 1982). What limited palaeoenvironmental data exist (Morrison 1994a) tend to confirm this pattern. In the Nilgiris, pressure on land was not simply the result of lowland agriculturalists clearing forests in the foothills. There, Hockings has documented the expansion of the Badagas (or "northerners"; Hockings 1980; see Zagarell, this volume), a refugee group supposedly fleeing the destruction of the Vijayanagara empire in the late sixteenth century. The Badagas were accommodated by various hill groups and, according to the soil evidence (Lengerke and Blasco 1989:44), established permanent fields about three or four hundred years ago. Thus, forest dwellers have historically come under increasing pressure as the result of local agricultural land use practices as well as from demands for forest produce.

Pressure on forests was not entirely a byproduct of expanding agriculture, however. Vijayanagara kings as well as other rulers sometimes adopted specific policies of forest clearance for the express purpose of diminishing the potential threat forest dwellers posed to agriculture. In the *Amuktamalyada*, a sixteenth-century compilation of political maxims

attributed to the expansionist Vijayanagara king Krishna Deva Raya, the clearance of forests is presented as the only way to control the activities of robbers (S. Guha 1999:49). The text advises kings (Saraswati 1926:65), "Increase the forests that are near your frontier fortresses (*Gadi desa*) and destroy all those which are in the middle of your territory. Then alone you will not have trouble from robbers!" Deliberate forest removal, also advocated by later rulers including the British (S. Guha 1999), probably rarely involved state-sponsored deforestation, which would have been extremely expensive and time-consuming, even if aided by fire. Instead, forests could be cleared and land claimed for agriculture through the labor of agriculturalists; from at least the tenth century inscriptions note the existence of tax incentives for the clearance of forests and the establishment of new fields and new irrigation facilities such as reservoirs (e.g. Heitzman 1997). Land-clearance incentives are extremely common in the Vijayanagara period, accelerating in the sixteenth century (Morrison 1995).

The trade in forest products: structures of political authority beyond the coast

Throughout the massive expansion of the spice trade, connections between primary producers and collectors and colonial or indigenous governments benefiting from forest produce were generally indirect. Intermediate brokers or "secondary traders" (cf. Dunn 1975:99) forged relations of dominance and indebtedness with forest peoples; these brokers then dealt with more proximate political authorities. The contractual system depended on keeping foragers constantly in debt and personally dependent on the broker, who also acted as the supplier of subsistence goods. Brokers were either independent entrepreneurs, or more often, it seems, agents or contractors of governments. Many precolonial South Indian polities used tax "farmers" as collectors rather than directly employing government functionaries (Sinopoli and Morrison 1996). These tax farmers bid for the privilege of collecting revenue and then had to recoup the cost of the bid through direct collections. Middleman broker positions may have been similarly contracted.

Describing the system somewhat later was Francis Buchanan, who in 1800 set out on a trip throughout southern India for the express purpose of describing the agriculture of the country, including the cultivation and preparation of the "valuable commodities" pepper, sandalwood, cardamom, and cotton. Buchanan ([1806] 1988:ix–x) described a contractual system in place between the Kadar and local authorities in the Anamalai Hills (southern Nilgiris). Buchanan explains ([1806] 1988:334, italics in the original):

> Here is a person called the *Malaya-pudy*, or *hill-village man*. He rents the exclusive privilege of collecting drugs in the hills south from *Ani-malaya*. These are collected for him by a hill people named *Cadar*, of who, among the hills two day's journey hence, there is a village of 13 houses. The renter has there a small house, to which he occasionally goes to receive the drugs the Cadar have collected and he brings them home on oxen. The men only work for him, and each daily receives in advance four *Puddies* of rice . . .

These "Cadar," Buchanan continued ([1806] 1988:338), "are a rude tribe inhabiting the hills in this neighborhood, and speaking dialect that differs only in accent from the *Tamul* . . . They rear no domestic animals, nor cultivate anything whatever; but their clothing is as good as that of the neighboring peasantry." The renter obtained his concession from Tipu Sultan's government. Among the products collected were wild ginger and turmeric, honey and wax, several dyes and resins, and ivory. The wild pepper was said to be bad quality. The renter was also noted to trade with several other groups, who provided cardamom, which is not cultivated. These other groups were said to practice (swidden) agriculture ([1806] 1988:336–7).

The Portuguese, too, used this system of intermediaries for obtaining forest products. Pepper, ginger, cardamom, and cinnamon (in Sri Lanka) were all procured via "native intermediaries of the *Sudra* caste" (Diffie and Winius 1977:319). This label does not clearly identify the intermediaries, except to suggest that they were probably not "tribal" peoples, often considered outcastes. Goods were purchased by the Portuguese on fixed-price contracts with a go-between, much as they are today. The Portuguese did prefer, however, to induce local rulers to supply them with spices at an agreed-upon price (Bouchon 1988; Danvers 1966: Mathew 1983). Presumably, then, these rulers employed intermediaries. Pearson (1981:28) notes that the Portuguese had no direct control over pepper-producing areas and thus were dependent upon coastal rajas and local merchants for their supplies. As an empirical pattern, then, we see with increasing scope of political authority an increasing physical distance from the source of the product, an increased concentration in stored goods, an increase in settlement nucleation, and an increase in the status of landholding groups. Along parts of the Kanara coastal strip, for example, Brahmins were the major landowners in the sixteenth and seventeenth centuries. Further inland, landholding was largely in the hands of the *Bant*, a "clean" *Sudra* caste (Subrahmanyam 1984:439). Still further inland were the tribal swidden farmers and hunter-gatherers. This social ordering corresponded well with the pyramidal structure of power relations

stretching from the forests to the inland riverine towns and to the coastal cities.

If this picture seems to be one of the exploitation of timid forest dwellers by outsiders – a picture not altogether inaccurate for some contemporary contexts – a closer historical look at political relations shows a more complex situation. As far back as we can trace, forest peoples have always been integrated in some way into larger political structures. Kings of the South Indian Chola empire, between the ninth and thirteenth centuries AD, demanded tribute in forest products from *nadus*, or territorial units located in the Ghats (Hockings 1985:115; see also Stein 1982). R.G. Fox (1969:144) cites early reports that the Kadar of Kerala made periodic visits to Tripura to carry tribute and to exchange "gathered" items such as tame elephants, wild honey, cardamom, and other forest products for rice, iron, chilies, and opium.

Tribute could also be exacted through local leaders, rather than directly from producers or collectors, a method also used to collect taxes from agriculturalists. Morris (1982b:23) describes a copper plate inscription describing a contract between the local king of Attingal and the Hill Pandaram, appointing the latter as "tenants" of the forest, in return for which the *muppan*, or chief, should bring certain forest products to the capital every year. At these visits, cloth and other "gifts" would be given. In this case the local king was subject in turn to the Raja of Travancore, to whom he had to pay tribute. As noted in chapter 2 above, both Murthy's (1994) historical work on the Chenchus and S. Guha's (1999) study of the Kolis and Bhils of western India reveal not only potential independent bases of power of these groups, but also the intermittent establishment of independent polities, and the ongoing engagement of "tribal" leaders and warriors with lowland polities.

Although I outline here an account of the oppression and immiseration of some Ghat residents, and their creation as specialized forager-traders, it is also the case that other upland peoples referred to as tribes were able to create for themselves positions of power and domination, especially as bandits preying on settled agriculturalists, the *dacoits* and "criminal tribes" of the British documents. Tribal kingdoms, if that is not a contradiction in terms, flourished in the interstices of Vijayanagara and, later, British, Mysore, and Maratha rule.

What, then, were the effects of the expansion of the spice trade in and after the sixteenth century on "hill peoples" of the Ghats? Clearly, the effects were variable, but while it is clear that some "tribals" were able to restyle themselves as "Rajputs" and establish kingdoms or at least

elicit fear from lowlanders, many others became, in Sumit Guha's (1999) characterization, a landless proletariat. In trying to outline the processes by which this took place, it may be helpful to contextualize political and economic dynamics with some ecological consideration of Ghat forest products.

Ecological contexts: pepper and cardamom

Although the existence of a pepper trade is well established by at least the first century AD, pepper cultivation seems to have been rare until about the sixteenth century.[7] Here I briefly discuss the growing conditions of pepper and cardamom, two of the most important of the Ghat forest products. Black pepper (*Piper nigrum*) is a perennial climbing plant cultivated in India today in monocrop plantations and in mixed areca nut palm/pepper associations. Pepper also still grows wild in the Ghat forests. It has a very limited natural distribution, being confined to the Malabar region (Aiyer 1980:269). It prospers in partly shaded locations from sea level to 1,200 meters (4,000 feet), and in areas with 152 cm (60 inches) or more of rain a year. Pepper does not do well in sandy or alluvial soils of the sort favored by coconut palms (Aiyer 1980:270). Because pepper is a climbing vine, it requires standards to climb on; thus it is often intercropped with trees or trained on to poles. It begins to bear four years after planting (Aiyer 1980:275).

Cultivation of pepper in mid-elevation, mixed-crop swidden fields seems to be most appropriate for the requirements of the plant. Its drainage needs often result in its growth on hill slopes (Aiyer 1980:269). In modern varieties, the harvest time falls between February and March (Aiyer 1980:276), January to March in Sumatra (Hill 1969:37), but wild strains usually have fruit at all stages of maturity on the vine at any given time. Thus, harvesting (or collecting) is an ongoing process. Harvesting involves cutting off branches of the plant bearing ripe fruit, threshing the fruit from the vine, and about six days of sun-drying (Aiyer 1980:277). Today pepper harvesting is done with the aid of ladders (as Buchanan also notes for the early seventeenth century; [1806] 1988). The dangers of collecting are thus evocative of the dangers involved in honey collection among contemporary foraging groups such as the Hill Pandaram (Morris 1982b; see also Demmer 1997).

The scheduling demands of pepper cultivation and, particularly, of pepper collection are of particular interest. According to Buchanan ([1806] 1988:334), dry rice in the Anamalai region would have been harvested at about the same time as cultivated pepper. Thus there would have been

conflict in scheduling and labor demands involved in these different activities. Subrahmanyam (1990:66) notes that in later sixteenth-century Portuguese Cochin, "an important point on the annual calendar was the arrival in March of the first pepper-laden boats from the 'Serra,'" or mountains. Thus, demands of labor and demands of scheduling for grain production and pepper production (and even more for pepper collection) had to be balanced.

Cardamom (*Elettaria cardomom*) has a more limited range than pepper, occurring between 760 and 1,525 meters (2,500–5,000 feet) in elevation (J.W. Parry 1962). Cardamom does not produce well in the lower, more deciduous Ghat forests, where leaf-fall has the effect of shortening the flowering season (Sahadevan 1965:9). Cardamom prefers a slightly higher rainfall and cooler temperature range than pepper, as reflected in its occurrence at higher elevations. In addition, cardamom prefers a relatively deep shade (Aiyer 1980:296), and while the depth of the soil is apparently not very important, the plants require "a well-developed vegetable mulch" (Sahadevan 1965:10) like that found in the forest floor. Cardamom is today grown as a plantation crop, in mixed associations with areca and coffee, although Sahadevan (1965:21) asserts that the actual cultivation of cardamom is not more than two hundred years old. Swidden plots containing cardamom are not unknown (Sahadevan 1965:21); these may be placed along watercourses and in other damp situations. Wild stands are subject to varying degrees of management, as described by Aiyer (1980:297):

> in this the natural growth of cardamoms as an undergrowth in the favorable forest zones is aided in varying degrees by actual cultivation; the latter ranges from conditions where cardamom is wholly a forest product and practically grows under wild conditions, up to conditions where it approximates closely to systematic cultivation, except for the fact that it is a temporary and shifting one. Areas are abandoned and then allowed to revert to jungle after a few years of bearing and then a new area is taken up for similar cultivation.

Cardamom bears four to five years after sowing, and its harvest characteristics are similar to those of pepper. The picking of cardamom is, however, an even more skilled task, since the joint must stay attached to the pod and the latter must be a precise stage of maturity (Aiyer 1980:302). If the pods are picked too green, they will shrivel upon drying; if too ripe, they will shatter. Aiyer notes that the clumps of plants need to be visited every week to ten days in order to gather the ripe pods (1980:302). Because the harvest season is more or less continuous, specialized indoor drying facilities are often necessary in order to properly dry the material

during the rainy season (Aiyer 1980:303; Sahadevan 1965:18). Competition from elephants, birds, squirrels, and rats is also a problem (Aiyer 1980:308).

Changing patterns: economic strategies and relations of power

While reconstruction of subsistence is still far from clear, it seems that by the beginning of the sixteenth century there existed in upland southwest India a complex mosaic of practices which included swidden agriculture, gathering of forest products for trade with lowland groups, and no doubt gathering and hunting for subsistence as well. There are hints of the presence of specialized foragers in inscriptions predating European documents, but certainly by the time documentary sources become abundant from the sixteenth century onwards, there are clear indications of the presence of named groups engaged in specialized collection of forest products for exchange, as well as subsistence activities that included agriculture, gathering, and hunting.

Both the expansion of the spice trade and increasing pressure on forests from the sixteenth century on (accelerating thereafter) led to transformations in upland economies and political ecologies. Several different options may have been available to upland groups faced with pressures on land and demands for produce. One such option was, evidently, to begin producing rather than simply collecting pepper. Pepper growers, then, concentrated on their agricultural plots and the scheduling demands of those plots almost certainly limited the spatial scale of their gathering and hunting. Morris (1982b:63) notes in this regard that the more sedentary Hill Pandaram who have made a commitment to their swidden fields can make only daily rather than overnight foraging trips. It would be helpful to know how much of the pepper that made its way to the coast was cultivated and how much was simply collected; it seems reasonable to assume that both wild and cultivated pepper were in circulation, implying a variety of strategies for its procurement.

An alternative strategy available to groups with knowledge of forest resources would be to abandon cultivation as a major subsistence component and become specialized forager-traders, collecting forest products of the higher elevations, such as cardamom with its rather stringent scheduling demands for harvesting.[8] These groups would have had to abandon cultivation as a primary subsistence activity, becoming highly specialized forager-traders, collecting ginger, cardamom, and other forest products. Although this chapter has concentrated on political and economic contexts and I have not been able here to consider larger questions of the

cultural integration of forager-traders with others (e.g. Bird 1983; Bird-David 1992a, 1992b; Gardner 1985, 1991, 1993; papers in Hockings 1989, 1997 and Lee and Daly 1999), ethnographic descriptions of some South Indian foragers emphasize other kinds of specialist roles taken by upland hunter-gatherers, including sorcery and wage labor. It is difficult to say to what extent competition for land at lower elevations (where swidden plots of pepper were presumably appearing) would provide the "push" for the adoption of this strategy, and to what extent scheduling consideration would have come into play.

The Malay Peninsula: Melaka and its hinterland

It is possible to isolate some geographic similarities between southwest India and parts of Southeast Asia, including the Malay Peninsula. Not only are broad ecological parameters (rainfall, vegetation) similar,[9] being subject in both cases to the same monsoonal circulation system, but patterns of transportation via coastal water routes and inland rivers can also be compared, constrained as they are by a broadly similar topography. Distributions of human settlement along these water routes also show some parallels (Bronson 1977; Ooi 1963). Like the Malabar coast, the west coast of the Malay Peninsula is fringed with mangrove forests and swamps; coastal fishing settlements have been located in both places for a long time, although they are not archaeologically well studied. Further inland are extensive tropical forests of limited suitability for intensive wet rice agriculture (Glover 1979:172; Peacock 1979:200), but possessing a number of valued forest products. Large settlements, as a rule, are restricted to coastal and near-coastal situations.

The Malay Peninsula hangs down from the Southeast Asian mainland, roughly paralleling the long, northwest–southwest oriented island of Sumatra. This alignment creates the narrow strait of Melaka, a marine passage providing one route of access to the South China Sea (see Figure 6.1). The city of Melaka, discussed below, was established along these straits; its position in the Indian Ocean trade of the fifteenth to seventeenth centuries as well as its relation to its hinterland, including upland forager-traders, can be broadly compared to that of coastal southwest India at about the same time.

Coastal entrepôts and Indian Ocean trade: Melaka

The position of the coastal city of Melaka is in many ways similar to that of Goa or Calicut, even as far as its conquest by the Portuguese in

the early sixteenth century. Originally a small fishing village on the west coast of the Malay Peninsula, by the fifteenth century Melaka had grown to become an important trade emporium and the capital of a principality controlling both sides of the straits of Melaka (Ryan 1976). While the Portuguese conquest of Melaka in 1511 did provide the impetus for the dissolution of the Sultanate of Melaka into smaller successor states (Ryan 1976: Subrahmanyam 1993), as in India it is not clear that this political conquest significantly altered power relations in the interior.

The importance of Melaka in Asian long-distance trade networks may be related as much to its strategic location on the narrow straits as to its political strivings. Well known as the "place where the monsoons meet," Melaka was in an excellent position to serve as a port of transshipment and a center of warehousing (Ryan 1976:2):

> Ships sailing from China would travel southward on the northeast monsoon while from India ships would come east with the southwest winds. When the monsoon changed, the ship would then be able to make the southern journey. Thus the Malay peninsula and the northwest coast of Borneo were in advantageous positions to provide landing places for those who were either making the complete journey from India to China and who were waiting for the monsoon to change, or those who were . . . meeting fellow traders at this "half-way house."

Besides the seasonal constraints on travel, many of the products traded in South and Southeast Asia were only available at certain times of year, these not necessarily congruent with shipping schedules. In addition, different routes favored different types of ships, particularly in the Red Sea and Persian Gulf, creating a pattern of large-scale storage and of transshipment around certain ports. Thus, the bulking of trade goods was one of the chief functions of these coastal entrepôts (Boxer 1969:40–3).

Like Goa, Melaka was reliant upon imported foodstuffs, chiefly from Java (Anderson and Vorster 1983:439–40; Reid 1993a; Schrieke 1955; Subrahmanyam 1993), but also from Siam (Anderson and Vorster 1983: 440), Sumatra (Ryan 1976:17), Pegu (Wheatley 1961:316), and elsewhere. Unlike Goa, however, the agricultural possibilities of the Melakan hinterland appear to have been quite limited. Wheatley (1961:311–12) suggests that the alluvial soil near the city was too saline for rice paddies, noting that sago was the staple food. The infertility of the soil near Melaka was noted by the Chinese traveler Ma-Huan in 1451 (cited in Wheatley 1961:321). Anderson and Vorster (1983:442, 454) make a convincing case for the re-export of much of the imported food to the hinterland of Melaka in

order to support groups carrying out specialized extractive activities there. A similar impression arises from comparison of the volume of rice that was flowing into Goa and Portuguese-controlled Cochin with the population sizes of those cities (Pearson 1981).

The Malay Peninsula is not, however, without marketable resources. The suite of tropical products often termed "minor forest products" (that is, excluding most bulk woods; Morris 1982b; Dunn 1975) represented valuable commodities in the world market. These collected products include rattans and canes, bamboo, palms for food and thatch, incense woods, ebony, tanning and dyeing plants and woods, various gums, oils, and resins, medicinal and poisonous plants, spices, animal products, and such minerals as tin and gold (Dunn 1975:87–90; and see Junker, chapter 7 this volume). Unlike the pepper of Malabar, it is difficult to point to a single product as being of overwhelming importance, but the specialized knowledge of particular sets of resources and possession of strategies and skills for their effective exploitation certainly are common to both South and Southeast Asian foragers.

In a more structural sense, the conflicts between gathering for export and the collection and/or production of food, as well as the specific structures of political power, seem to have encouraged a situation of dependence for traded staples, at least among some upland groups, in both instances, as discussed below. Just as some of the diverse ethnic and linguistic groups classed under the collective label of "hill tribes" (Fürer-Haimendorf 1985) filled the role of specialized forager-traders in the Malabar hinterland, so too did various groups known as *Orang Asli* in the forests of the Malay Peninsula (Anderson and Vorster 1983:447–9; Dunn 1975; Schebesta 1973; Junker, chapter 7 and Fix, chapter 9 this volume). This collective term refers to a variety of upland peoples who appear to have had quite flexible subsistence economies that included swidden cultivation, gathering, hunting, and trade. The term *Orang Laut* was used to refer to coastal collectors, who also served as "cultural-ecological specialists" (Anderson and Vorster 1983) in this complex political economy.

Land behind Melaka

While the specific demand for pepper was not a major factor on the Malay Peninsula (pepper production was adopted in Sumatra and several other places by the end of the sixteenth century), other forest products may have played similar roles. It has been suggested in the literature (Ooi 1963:103) that some contemporary Malay foragers were "pushed" into the forest by advancing agriculture, although Fix (this volume) outlines the compelling

argument against this view. In general, Orang Asli groups evince the same broad and diverse range of economic strategies and variations in the degree of integration into the dominant economy that South Asian foragers do. These strategies include gathering for subsistence and export, fishing, hunting, farming, and wage labor (Dunn 1975:42, 80; Fix, this volume). Like South Asian "hill tribes," specialized forager-traders of the Malay Peninsula are largely dependent upon external exchange and the demands of foreign markets (Schebesta 1973). Many Orang Asli groups now cultivate upland rice, and there is every reason to believe that economic strategies in the past were equally flexible. However, periods of high demand for forest products may have necessitated the reorganization of subsistence; as Anderson and Vorster (1983:448) point out, "when demand was high for forest products, collection activities must have reduced the attention given to subsistence activities." Spatial separation between swidden plots and gathering locales would have created scheduling conflicts, as in southern India. Again, some of the specific resources of the Malay Peninsula, such as tin, would have been of value to their collectors only as objects for exchange. Dunn (1975:101; and see Junker, chapter 7 this volume) also notes that the extraordinary degree of species diversity and the patchy species distribution in the tropical forest and thus the specificity of local environmental knowledge required, lock a group into a particular area, greatly reducing their mobility and thus their subsistence options. One could just as easily conceive of such specialized knowledge as locking others out of an easy transition to specialized gathering.

The apparent inability of current South Asian foragers to exist as "pure" hunter-gatherers (R.G. Fox 1969:142) may be echoed in the wartime experiences of the Orang Asli (but see Junker, chapter 7 this volume). During the Japanese occupation, some of these groups dispersed into the forest. Dunn (1975:85) writes, "Subsistence in the forests without the benefit of extensive *ladang* [swidden] cultivation (and without access to barterable or purchasable foodstuffs) was tenuous for the Temuan of that period." This situation was certainly not due to lack of information about the resources of the forest, but was more likely due to the presence of larger populations than could be comfortably accommodated by forest subsistence, and perhaps also to the unsettled political conditions.

Without reviewing the historical background of Orang Asli exchange relationships (see Fix, this volume), it seems that, like the hill peoples of India, their role (among others) as specialized foragers and traders of forest products seems to have been well established by the sixteenth century (Dunn 1975). Anderson and Vorster (1983) describe the pyramidal

structure of political authority linking the port city of Melaka with its hinterland, and suggest that a particular group of west Sumatran immigrants, the Minangkabau, acted as intermediaries, or brokers, in the movement of forest products to the capital (and see Bronson 1977; Kahn 1993; Whitmore 1977:149). Interestingly, the site of Jambi in Sumatra, which was of importance as a collection center for Sumatran pepper, also seems to be associated with the Minangkabau. An early nineteenth-century observer noted: "The pepper grows on the mountain lying in the middle of the land of Sumatra where a certain people lives called the Minangkabauers, the which bring their products down various rivers and trade them to the foreigners for cloth, salt, and all necessities" (cited in Schrieke 1955:55). Whether this citation implies that the Minangkabau were primary collectors or intermediaries is of course unclear; no doubt there existed a variety of arrangements.[10]

Finally, the contemporary contractual system described by Dunn (1975:99) retains exactly the three-tier structure of exchange, authority, and transport (coastal overlords, intermediate agents, inland gatherers) suggested to obtain during the colonial period in southwest India, and perhaps also parts of the Malay Peninsula. Of these levels of organization and authority, it is, in fact, the topmost level that appears to be the most ephemeral of all. The Portuguese, then the Dutch, the English, and finally the government of Malaysia replaced the Sultan of Melaka, but the Orang Asli have remained.

Discussion

Despite the limited information now available on late precolonial and early colonial period transformations of upland economic and social practices in southern India and on the Malay Peninsula, it is possible to make some suggestions about the parameters of change. The picture that emerges seems to be one of increasing subsistence specialization and decreasing diversity of options available to particular people, although the overall level of both economic and social/political diversity certainly increased. Levels of interdependence between groups were high and power relations markedly unequal. It would be useful to be able to discuss patterns of ethnic, linguistic, and cultural differentiation or amalgamation, but I have not been able to marshal much convincing information on these important topics.

Perhaps the most important conclusion to be drawn from the empirical evidence presented here has to do with the historically constructed nature of forager-trader lifestyles. Far from being simple, timeless denizens of

the forest, forager-traders of South India and the Malay Peninsula emerge as active, strategic agents working in the context of complex political worlds. The economic and political roles of South and Southeast Asian foragers are, and have been, both variable and flexible. Within this range of strategies, specialized foraging for exchange, what Woodburn (1980) calls commercial foraging and R.G. Fox (1969) the role of "professional primitives," is, however, a precarious one, ultimately dependent on long-distance rather than local exchange links, and on volatile world markets. In South India, the relations of domination and the precarious nature of forager-trader economies point to the marginality of their position, a problem that continues into the present (e.g. Baviskar 1995). This marginality is not, however, eternal. It has been created by a complex set of historical and ecological circumstances, only a few of which I have been able to sketch here. The marginality of southwestern Indian forager-traders is historically constructed, not given, and a great deal more research – particularly archaeological research – remains to be carried out that will more fully and accurately explicate the nature of that construction.

NOTES

1 Throughout this chapter I use the terms "expansion" (in demand for pepper, for example) and "intensification" (in rice and pepper production, for example) rather loosely. It is worth noting, however, that this discussion is meant to help lay an empirical groundwork for a more explicitly theoretical consideration of the process of intensification that includes foraging and trading as strategies of intensification and that takes into account power dynamics, including possible implications of the loss of diversity in subsistence options (cf. Morrison 1994b, 1995, 1996).

2 The difficulties with such classifications as "tribe," "caste," and alternatives such as *adivasi* (a Hindi term for original dweller or indigenous person, cf. Baviskar 1995) are well discussed by Béteille (1998); see also Hardiman (1987b:11–16).

3 Recent research on the Early Historic period in southern India, while continuing to emphasize the importance of regional and interregional exchange, would tend to de-emphasize the primary role of the Roman empire, stressing instead the great variety of trade connections at this time (e.g. Ray 1994).

4 With the fall of the capital city of the Vijayanagara empire in AD 1565, the empire was reorganized and reduced in size; these coastal areas seem to have shrugged off the sometimes nominal control they had formerly experienced (Sastri 1975; Sewell [1900] 1982).

5 José Nicolau da Fonseca, writing in 1878 about Portuguese Goa, observed ([1878] 1986:26):

> For upwards of two centuries and a half since the conquest of Goa by the Portuguese, agriculture met with little or no encouragement from government . . . As the lands subjected to culture were . . . limited in number, the production of rice was always found to be insufficient for the maintenance of the entire population of the country which was, besides, now and then visited by a famine. To supply this deficiency . . . the government, though remiss in matters relating to agriculture, evinced its concern for the comfort of the people by importing large quantities of grain from the neighboring places.

6 These products would include cinnamon from Sri Lanka, cloves and other spices from the Moluccas, and many more. A more thoroughgoing analysis of the larger system of exchange from the points of view of collectors, extractors, and producers rather than solely traders and governments would certainly be desirable.

7 That pepper was indeed cultivated in the sixteenth century is clear. Although Marco Polo mentions the cultivation of both pepper and ginger in the Eli kingdom (the precursor to Cannanore) during the thirteenth century (Bouchon 1988:3), it is doubtful that he actually witnessed it. The English traveler Ralph Fitch visited Cochin in 1589 where he noticed a group of people who seemed different from other Malabaris, having bushy hair and holding long bows and arrows (Foster 1968:46). Of Cochin, Fisk (Foster 1968:45–6) wrote:

> Heere groweth the pepper; and it springeth up by a tree or a pole, and is like our ivy berry . . . The pepper groweth in many parts of India, especially about Cochin; and much of it doth grow in the fields among the bushes without any labour, and when it is ripe they go and gather it. The shrubbe is like unto our ivy tree; and if it did not run about some tree or pole it wold fall down and rot. When they first gather it, it is greene; and then they lay it in the sun, and it becometh blacke.

The unfamiliar appearance of a swidden field might well have seemed unplanned and unplanted to a European; this confusion may lie at the base of the persistent Portuguese notion that pepper cultivation required no labor.

8 The Hill Pandaram today, for example, collect dammar, inja bark, honey, wax, and cardamom for export as well as hunting various game animals (Morris 1982b:80). These activities are, however, difficult for those with swidden plots to participate in.

9 Rainfall levels are somewhat higher on the Malay Peninsula, however.

10 The expansion of Southeast Asian pepper production is discussed by A. Reid (1993a:7–10), who notes that pepper was grown in northern Sumatra as early as 1500 and, by 1600, its cultivation had spread from there down the west coast of Sumatra "into its Minangkabau heartland" (1993a:9). By 1680, pepper cultivation had spread across that island to the Malay Peninsula.

PART II

Southeast Asia

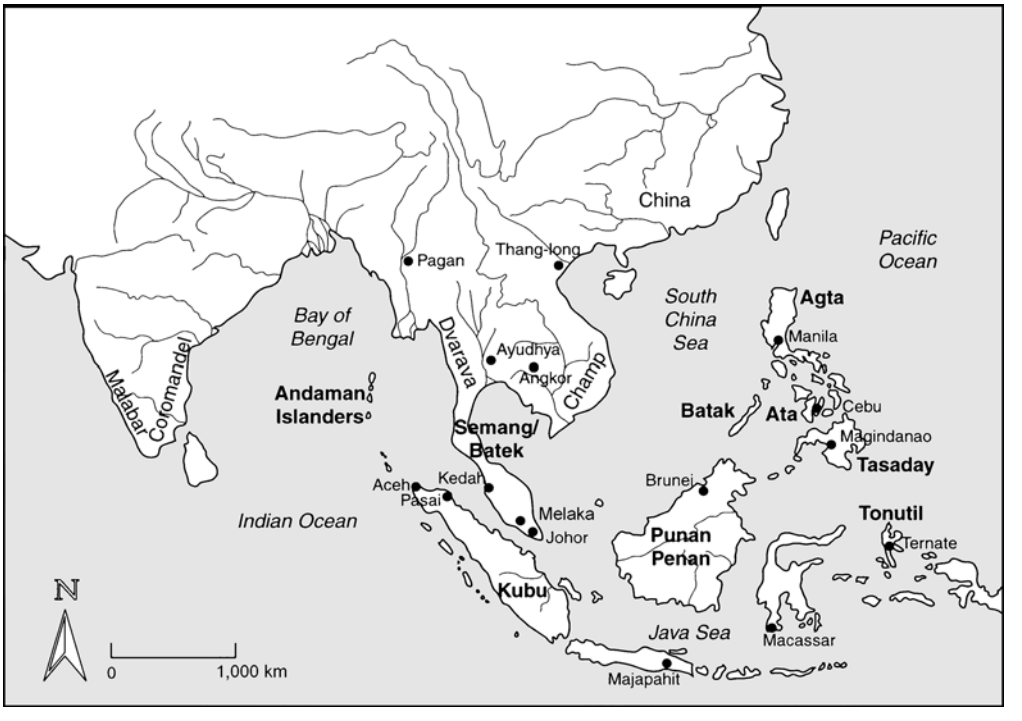
7 Introduction

LAURA L. JUNKER

At the time of European contact, both mainland and island Southeast Asia supported an amalgam of groups with extremely diverse economic orientations, levels of sociopolitical complexity, and linguistic and ethnic affiliations. The significant ecological diversity and geographic fragmentation characterizing Southeast Asia appear to have engendered a high level of economic specialization and intensive inter-ethnic exchange relations between various groups of tropical forest foragers, tribal swiddening populations, and complex chiefdoms and kingdoms focused on maritime trade and intensive rice farming (Figure 7.1). The historic period configurations of such inter-ethnic trade systems have been well documented through early texts associated with literate kingdoms of the late first and early second millennium AD, Chinese trade records and later European histories (L. Andaya 1975; Hall 1985:1–20, 80–9, 1992:257–9; Junker 1999:239–59; Miksic 1984; Wheatley 1983; Wolters 1971:13–14).

Interior hunter-gatherer populations, including a number of groups known as Semang on the Malay Peninsula, the Punan or Penan of Borneo, the Kubu and other interior groups of Sumatra, the Agta, Ata, Batak, and various other groups of the Philippines, the Andaman Islanders, and the Tonutil of Maluku (also known as the Moluccas or Spice Islands), were well known to literate lowland farming populations and traders as the collectors of tropical forest products (such as hunted meat, honey, rattan, resins, and spices) that were much desired by lowland agriculturalists and their foreign trade partners at maritime trading centers. Most historically known or ethnographically reported tropical forest foragers of the region received a significant portion of their carbohydrates, as well as various manufactured goods and dietary supplements (such as metal tools and weapons, pottery, basketry, textiles, salt, marine resources, and occasional lowland livestock), from adjacent sedentary farming populations with whom they appeared to have longstanding economic and social interactions (Griffin 1984; Headland and Reid 1989).

Anthropologists have attributed the development of this type of economic specialization and "symbiotic" exchange relations between ethnically distinct coastal and interior populations to the high degree of



7.1 Southeast Asian historically known kingdoms and chiefdoms and location of contemporary foraging groups

microenvironmental diversity, geographic fragmentation, and high risk of economic failure in the fragile tropical ecosystems of Southeast Asia, particularly the island archipelagos (Hutterer 1976, 1983). Certainly, by the historic period, written sources suggest that such systems were basic to regional economies in pre-modern Southeast Asia (B. Andaya 1975; L. Andaya 1975; Gullick 1965:125–7; Hall 1985:1–20, 81–90, 215, 218–19, 234; Miksic 1984; Wheatley 1983).

However, little is known about the relative antiquity of these forager–farmer trade relations, their evolutionary dynamics, and their implications for ecologically based theory on the viability of "pure" hunter-gatherer adaptations in tropical forest environments. Much of the recent literature on Southeast Asian foraging populations, including works by historians, cultural anthropologists, archaeologists, linguists, and ecologists, has focused on three distinct but related issues. First, there has been a strong interest in the question of whether forager–farmer exchange relations are a recent phenomenon or a fundamental and long-term solution to the ecological limitations of tropical forest environments for both hunter-gatherers

and agriculturalists (e.g. Eder 1988; Headland and Reid 1991; Hutterer 1974, 1976). Ethnohistoric, biological, linguistic, and archaeological investigations have thus sought to demonstrate the time depth of contacts between foragers and farmers by examining oral traditions of trade, biological and linguistic relatedness, and the time-space distributions of artifacts and sites believed to be associated with one or another of these groups. For example, linguistic work has demonstrated that most extant hunter-gatherers of Southeast Asia speak Austronesian languages that are related to those of adjacent sedentary farming populations (Benjamin 1976; Headland and Reid 1991), with language contacts going back at least 2,000 years (Early and Headland 1997:16).

The distinct physical characteristics of "Negrito" foragers such as the Ata, Semang, Andaman Islanders, and Batek have garnered a longstanding view among anthropologists that these groups represent "aboriginal" inhabitants of insular Southeast Asia (more closely related to New Guinea populations) living in the region prior to the large-scale expansion of Austronesian-speaking, agricultural Mongoloid peoples into Southeast Asia around 3000–4000 BC (Bellwood 1997:132–5). However, genetic studies suggest that the biological history of the region is considerably more complex than suggested by a simple wave migration model, and intermarriage between "Negrito" foragers and other populations may have had a history similar in length to that of linguistic borrowing (Fix, this volume).[1] While archaeological investigations relevant to this issue are more limited, work at some sites reveals that rice agriculturalists were living in close proximity to stone-tool-using hunter-gatherers by at least 3,500 years ago (Hutterer 1974, 1976). Notwithstanding claims for "pristine" hunter-gatherers in parts of Southeast Asia (e.g. the controversy over the Tasaday of the Philippines discussed later in this chapter), over the past 5,000 years since the introduction of sedentary farming in Southeast Asia, linguistic, biological, and archaeological evidence is consistent with what Headland and Reid (1989) call an "interactive" rather than "isolate" model of forager–farmer relations.

A second, and more controversial, issue has been whether "pure" foraging adaptations were ever viable in the carbohydrate-poor, equatorial tropical forest interiors of Borneo and many of the islands of the Philippines, Malaysia, and Indonesia (e.g. Eder 1987:45–51; Griffin 1984; Headland and Bailey 1991), with many scholars adopting the view that a hunting-and-collecting specialization in such areas was only possible with the advent of food production in adjacent lowland areas (e.g. Bailey et al. 1989; Dunn 1975; Headland 1987; Headland and Reid 1989). Linguistic, biological, and cultural evidence for a high degree of "relatedness" of foraging

and farming populations, the absence of early archaeological evidence for colonization of many remote forest zones, and ecologically based arguments fuel the views of those who doubt the presences, in any time period, of "isolated" or "pristine" foragers in interior Southeast Asia. Ecological arguments revolve around the general carbohydrate-poor environment of tropical forest ecosystems. The idea is that sparse pre-agricultural populations necessarily occupied richer near-coastal zones and were eventually pushed into trade-dependent specialization in the collection of forest products in what would have been "marginal" ecological zones. Some anthropologists working with groups like the Punan of Borneo have even taken the extreme position that many interior tropical forest foragers are actually "devolved" agriculturalists who became professional collectors in response to the demands of Chinese trade over the past thousand years (e.g. Hoffman 1984, 1986; Seitz 1981).

Other researchers, however, have been skeptical about ecological generalizations within what are clearly varied, complex, and little-understood tropical forest ecosystems. This view also cannot adequately explain archaeological evidence for Early Holocene occupation of the wet rainforests of the interior Malay Peninsula, northern Sumatra, southwestern Thailand, and Vietnam by stone-tool-using, clearly pre-agricultural "Hoabinhian" populations (for summaries, see Bellwood 1992:85–9 and Higham 1989:31–65). Ethnographers have also pointed out that many deep forest foragers in Southeast Asia reduce carbohydrate-related risks through such traditional practices as managing sago stands and even storage of processed sago and nuts (Brosius 1991; Ellen 1988). Others have noted that strong linguistic, biological, and cultural similarities are exactly what one would expect in populations that have interacted regularly over many millennia (Benjamin 1985; Hutterer 1974, 1976) and that these similarities do not mean that these ethnic groups are not "real" (see Morrison, chapter 2 in this volume). At the same time, ethnographers such as Griffin (1989) emphasize that "situational shifting" between foraging, farming, maritime exploitation, trading, and other economic modes is a common phenomenon among both "hunter-gatherers" and "agriculturalists" in Southeast Asia and, in a sense, these dichotomous categories blur a great deal of variation over both time and space in how various groups minimize risk through flexibility and diversification. This controversy contributes to wider scholarly debate on the "pristineness" of hunter-gatherer groups in other supposed "marginal" environments which have yet to be conclusively resolved through ecological reconstructions, ethnohistoric analysis,

or archaeological data (see, e.g. Denbow 1984, Schrire 1980, and Wilmsen 1983 regarding African foragers, and Morrison, chapter 1, this volume).

A third issue, which is more tightly bound to historical circumstances of the Southeast Asian case, is the impact of expanding maritime luxury good trade on the economic choices, mobility and settlement strategies, and social dynamics of tropical forest foraging populations in Southeast Asia. Historical records and archaeological evidence document the rise of numerous maritime trading kingdoms and chiefdoms on the Malay Peninsula and in the island archipelagos of Southeast Asia at least by the beginning of the first millennium AD (Hall 1985, 1992). Because of aspects of geography, ecology, demography, and political structure, these growing complex societies had political economies heavily invested in foreign prestige goods trade, in which luxury goods from China and mainland Southeast Asia (primarily porcelains, silks, bronzes, and other precious metals) were imported for local elite status display and alliance-building (Junker 1999; Wheatley 1983; Wolters 1999). The wealth-generating exports for these maritime trading polities were primarily interior forest products that could only be obtained through coercing intensified trade with foraging groups occupying the island interiors. While it is difficult to support the conclusion that many contemporary Southeast Asia foragers are professional traders created out of the foreign trade demands of recent maritime trading kingdoms, ethnographic and historical analyses point to both economic and social transformations associated with the integration of foragers into non-subsistence trade systems controlled by socially stratified lowland societies.

My primary aim in this introductory chapter is to put the following chapters on Southeast Asian forager–farmer interactions into a larger theoretical and empirical context, focusing on how ecologists, ethnographers, historians, archaeologists, linguists, and biological anthropologists have attempted to address the three major issues outlined above. This chapter is intended not to be comprehensive, but to introduce some of the arguments used by various researchers in promoting certain perspectives. I also aim to clarify some of the problems and limitations of various lines of evidence that make it difficult to come to any consensus about ecological restrictions on forager behaviors, the economic necessities of forager–farmer trade, the long-term history of such interactions, and the impact of commercialized forest collecting on local social relations, power differentials, and economic options. By underscoring some of the diversity in forager strategies, I emphasize the dangers of generalizing patterns over time and over space when, ultimately, a high level of behavioral flexibility and situational

shifting of economic choices appear to be the general "adaptive" strategy most characteristic of Southeast Asian foragers.

The geographic and ecological setting

Southeast Asia is generally geographically and culturally defined as the area of eastern Asia stretching from southern China in the north[2] to the island archipelagos north of Australia and New Guinea, and on the west the islands of the eastern Indian Ocean to the Philippine archipelago in the east (Figure 7.1). Geographic factors generally divide the region further into "mainland Southeast Asia" (consisting of southern China, Myanmar, Thailand, Vietnam, Laos, Cambodia, and peninsular Malaysia) and "island or insular Southeast Asia" (comprising the islands of Indonesia and eastern Malaysia, Brunei, the Philippines, and Taiwan). In terms of geologic and biogeographic factors, however, the significant divisions between mainland and island Southeast Asia occur further to the south and east. During the Pleistocene, lower sea levels connected Sumatra, Java, Borneo, Bali, and Palawan island of the western Philippines to the mainland Asian land mass (known as Sundaland), while the deep sea islands to the east and south (e.g. most of the Philippines, the Maluku islands, and Sulawesi) remained separate and colonization by plants, animals, and humans required ocean crossings (this biogeographical dividing line is known as Huxley's Line). The implication for early use of these perpetual island zones by hunter-gatherers is that the potentially usable flora and fauna are quite distinct (and, in terms of diversity, impoverished) in comparison with these of the once-continental Sunda Shelf (for example, outside Palawan, there is a very limited range of species of large mammals on the Philippine islands, primarily consisting of a few species of deer, civet cat, monkey, and wild boar).

Any summary of contemporary and recent Southeast Asian ecological zones is made difficult by the complex relationship between geomorphology, soils, rainfall, the biogeographic history of the region (discussed briefly above), human landscape modification, and many other factors (Flenley 1979). In Brunei alone, a study by forest ecologists has identified more than fifteen distinct forest "types," each with distinct rainfall, seasonality, and range of resources available for human exploitation (Yamada 1997). The ecological picture is obviously very complex, made more so by the difficulties in sorting out recent ecological impacts associated with historically developing complex societies and modern industrialized nations. In this introduction, it is necessary to grossly simplify and summarize

ecological distinctions relevant to hunter-gatherer adaptations, to focus on the main points of ecologically based arguments for forager histories, and to point out major areas of disagreement in interpreting the ecological evidence. General characteristics of tropical forest environments, compared with those of temperate and sub-arctic environments, are a high index of both plant and animal species diversity but low faunal biomass (i.e. faunal resources are generally not found in bulk), resources that are "patchy" or dispersed rather than concentrated (requiring significant "search time" and difficulties of resource scheduling), and resource locations that are often difficult to predict (due to a lack of seasonality or other factors; Janzen 1975). As discussed below in a review of ethnographic research in Southeast Asia, these features of the tropical forest environment mean that hunter-gatherers of the region almost invariably have a high level of residential mobility, depend very little on long-term storage of resources, and have few resources that can be targeted for intensive exploitation through logistical foraging.

However, to understand the high degree of flexibility of hunter-gatherer economic strategies over both time and space in dealing with these ecological conditions and limitations, it is necessary to get into some specifics of geography, geomorphology, and environments. Mainland Southeast Asia consists of a series of approximately north–south oriented, wide river basins dominated by such rivers as the Irrawaddy, Chao Phraya, Mekong, Tonle Sap, and the Red, Ma, and Ca rivers of Vietnam which flow into the South China Sea and Indian Ocean. These low-elevation, broad river plains and adjacent plateaus are characterized by extremely fertile volcanic soils washed down through millennia of alluviation from the surrounding mountains. Unlike the non-seasonal climatic regime closer to the equator, most of mainland Southeast Asia north of Malaysia, as well as the islands of southeast Indonesia, parts of Sulawesi, and a few islands in the western Philippines, lie within the "intertropical zone" with marked seasonal fluctuations in rainfall, originally associated with more open (rather than canopied) monsoonal tropical forests supporting a higher diversity of plant species (including deciduous plant elements) and some concentrated herbivorous herd grazers such as deer, wild cattle, and elephant which are generally found in significantly lower densities or are absent in more closed, non-seasonal tropical forests (Dobby 1967; Whitmore 1975).[3] Prior to human clearance of this ecological zone, the lowland river plains and lower elevation plateaus would have been relatively rich environments for hunter-gatherers. This is evidenced by the proliferation of Early Holocene forager sites associated with the Hoabinhian, Son Vi,

and related archaeological complexes in this zone (see discussion below). The extremely fertile volcanic soils, the pronounced dry season required for sun-ripening in cereal production, and the more open vegetation allowing easier dry-season burning, made this region attractive for early agriculturalists; it is in this zone that we see the rise of intensive agriculture-based complex societies supporting larger population densities in the Southeast Asian prehistoric and historic periods (Higham 1989:5–14; Shaffer 1996: 9–10).

On the Southeast Asian mainland, upland zones dividing alluvial plains and plateaus often comprise thin and less fertile non-volcanic soils that are more fragile and support a lower biomass of harvestable plants and animals. Above 400 meters elevation and in areas with over 2,000 mm of rain per annum, a canopied subtropical rainforest sustains a dispersed and varied set of wild root crops, edible fruits, and arboreal and climbing small mammal fauna, but few herbivores (typically only the omnivorous pig at ground level) except on stream margins and in cleared grassy enclaves (where small numbers of rhinoceros, banteng, deer, and elephant can be found). At about 1,000 meters, this subtropical canopied forest transforms into a rugged terrain of lower-montane wet forest dominated by evergreen oaks and chestnuts and a considerably lower diversity of faunal and plant resources (Higham 1989:13–14). While some archaeological sites potentially associated with Early Holocene foragers have been recorded in the lower elevations of these uplands, the high-elevation interior forests (today found in parts of western and northern Thailand, the highlands north and west of the Red River delta, the Cardamom mountains, and the Truong Son mountains of Vietnam) show no evidence of prehistoric settlements (Higham 1989:14). Because recent agriculturally based complex societies have monopolized lowland and coastal habitats in most areas of Southeast Asia and, consequently, modern foragers are generally associated with far interior river valleys or the uplands, two ecological zones that may have been significant to earlier foragers have received little attention by archaeologists. Higham (1989:14) notes that the mangrove habitats of sheltered coasts would have offered an attractive array of resources for coastal foragers (including mangrove fruits and nectars, crabs and shellfish, and coastal mammals such as otters, macaques, and pigs), while the coastal deltas and floodplains would include large open areas with harvestable wild grasses, aquatic birds and fish, and grassland-adapted mammals such as rhinoceros, water-buffalo, and swamp-deer. The absence of coastal sites exploited by early foragers is undoubtedly due to shoreline changes (primarily inundation) in the Early to Mid-Holocene

(Higham 1989:39–40), while the lack of such sites in later periods might be attributed to their destruction or usurpation by agricultural populations. However, Higham's archaeological work at coastal Thai sites like Khok Phanom Di and the investigations of Vietnamese archaeologists at various coastal sites (Ha Van Tan 1980) attest to early coastal adaptations among Southeast Asian foragers.

Island Southeast Asia has some of the same geological phenomena, geomorphological features, geographic constraints, and ecological features as mainland Southeast Asia, but there are a few important differences between the two regions that are relevant to hunter-gatherer adaptations. Because of the general absence of broad alluvial plains and the more typical geography of short and steep river basins, there are few regions with large expanses of river-deposited, fertile volcanic soils (parts of Java, Bali, and Sumatra being the exceptions). In addition, a considerable portion of island Southeast Asia (particularly islands closer to the equator) lies within the non-seasonal belt of tropical rainforests (i.e. rainfall is fairly even throughout the year), lacking the distinct dry season necessary for intensive wet rice farming. It is for this reason that island Southeast Asia generally has: (1) few areas suitable for the intensive wet rice production that can support high population densities (Shaffer 1996:9); (2) population levels generally lower than those of mainland Southeast Asia (again, with the exception of areas of Java, Bali, and Sumatra) (Reid 1988:14); (3) urban centers and lowland kingdoms that tend to be smaller than those of mainland Southeast Asia (Reid 1993b:69–77); (4) lowland complex societies that tend to be more heavily focused on maritime and inter-ethnic riverine trade vs. intensive internal production to support their subsistence needs as well as products to plug into foreign luxury good trade networks (i.e. Kenneth Hall's 1985 distinction between the "rice plain" states of mainland Southeast Asia and the "maritime trading" states of island Southeast Asia); and (5) lowland complex societies that tend to be more fragmented, competitive, and politically fragile, characterized by frequent cycles of expansion and collapse (Junker 1999:57–64, 85–96). It is probably no accident that most of the hunter-gatherers in Southeast Asia in the recent historical period and contemporary times are found in island Southeast Asia, in areas where lowland complex societies had a long dependence on their traded forest resources, where the difficulties of terrain and poor conditions for intensive agriculture made the interior uninviting for lowland colonizers, and where the limited power of lowland rulers made direct political dominance and assimilation of foragers unfeasible. Spielmann and Eder (1994:311) note that it is this "unattractiveness" of environments to farmers and pastoralists

that has preserved the hold of foragers on their territories in places like Southeast Asia, although massively expanding populations and industrialized harvesting of resources such as timber have recently opened up many hunter-gatherer-occupied lands to colonization in very recent times (Eder 1987).

Many anthropologists have made ecologically based arguments concerning the possibility of "pure" foragers colonizing the interior upland rainforests of Southeast Asia prior to the advent of food production in the alluvial plains and plateaus of the lowlands (Bailey et al. 1989; Dunn 1975; Headland 1987; Headland and Reid 1989, 1991; Rambo 1988). These researchers have criticized what they call the "Isolate Model," in which recent tropical forest foragers are presented by ethnographers as existing largely independent of economically and socially transforming trade contacts with adjacent farming populations, instead favoring an "Interdependent Model" of forager lifeways involving long-term involvement in external economic systems. The main point made by advocates of the Interdependent Model is that groups focused purely on wild foods for subsistence would have faced severe carbohydrate limitations in the canopied interior forests. They suggest that, not only are carbohydrate-rich grasses rare and starchy tubers unconcentrated and energy-consuming to harvest, but other edible plants such as fruits and most animal species are solitary and dispersed. Adherents of this position suggest that prior to the spread of Neolithic agriculturalists some time around 3000 BC, hunter-gatherers in Southeast Asia primarily occupied the most fertile lowland alluvial plains and plateaus and were displaced into the "marginal" interior zones of canopied tropical forest by the expanding agriculturalists upon whom they relied for carbohydrates. This idea of long-term economic complementarity with farmers as a means of maintaining foragers in what would otherwise be inviable environments echoes similar "revisionist" thinking about African groups such as the San (e.g. Schrire 1984; Wilmsen 1983; chapter 1, this volume).

Leaving aside for the moment arguments based on ethnographic, linguistic, and archaeological evidence, it is difficult to assess the purely ecological basis for denying Southeast Asian populations the ability to survive as "pristine" hunter-gatherers in the interior canopied forest. As pointed out by Hayden (1981), Hutterer (1983, 1991), and others, too little is known about the ecological limitations of tropical forest habitats for human colonization to make an argument purely on ecological grounds. As emphasized above, any perusal of the ecological literature on Southeast Asia reveals an extremely complex and varied set of environments, even within those regions grouped under the general labels

of seasonal or non-seasonal tropical forests (Flenley 1979; Janzen 1975). *Ethnographers*, observing how various Southeast Asian foragers actually obtain resources rather than how they theoretically should behave under these ecological conditions, have pointed out that many foragers like the Penan and Nuaulu reduce carbohydrate-related risks through such traditional practices as managing sago stands and even storing starchy plants (Brosius 1991; Ellen 1988). Certainly a number of Southeast Asian foraging groups who were supposedly tied inextricably to farmed carbohydrate sources have been known historically to have survived lengthy periods in these presumed "marginal" environments when political conditions dictated a more isolated existence (e.g. Eder 1987). What we need to focus on are the specific strategies used by hunter-gatherers in adapting to specific ecological conditions. Clearly, entirely ecologically based arguments have been unable to resolve the issue of long-term forager–farmer economic symbiosis.

Because archaeological sites and hominid remains have been claimed to date back to the period of *Homo erectus* in parts of Southeast Asia and certainly there are some fairly securely dated pre-Holocene archaeological sites in the region (see below), reconstructions of Pleistocene environments are relevant to the issue of early hunter-gatherer adaptations (Bellwood 1992:61–5). Geologist and palaeoethnobotanist John Flenley (1979:77) emphasizes that an earlier assumption that Pleistocene climates affected primarily temperate regions and had limited environmental impacts on tropical zones has now been shown to be incorrect. Pleistocene glaciations to the north would have lowered average annual temperatures up to 8 degrees Celsius, created reduced rainfall and significantly drier conditions, and changed vegetation patterns by expanding more open woodland and grassland species and shrinking canopied tropical forest belts. Perhaps most importantly, however, Southeast Asia saw one of the most dramatic changes in landform anywhere in the world, with sea level drops of up to 130 meters at various times exposing huge areas of the Sunda Shelf and connecting many of the island archipelagos to the mainland in a four million square kilometer subcontinent-sized appendage (see Bellwood 1992:62–5 for a detailed summary of these changes). The significance for Southeast Asian foragers prior to about 10,000 BC is that they would have been faced with quite a different, probably more resource-abundant environment than in recent times. In addition, drowning of the Sunda Shelf resulted in the disappearance of all archaeological traces of early use of vast areas of coastal floodplain, distorting our picture of forager subsistence-settlement strategies prior to the mid-Holocene.

Ethnographic research on foragers

Ethnographic research has been carried out among Southeast Asian hunter-gatherers for more than a century. While groups largely dependent on foraging were likely considerably more widespread in even the recent past (see discussion of history and archaeology below), in the ethnographic present most hunter-gatherers occupy the forested interiors of the islands of insular Southeast Asia and the Malay Peninsula and have long been integrated to a greater or lesser degree into lowland political configurations and economic spheres. These groups that have been most closely studied include the Orang Asli groups known as the Semang or Batek of peninsular Malaysia (e.g. Benjamin 1985; Dentan et al. 1997; Endicott 1979, 1984; Schebesta 1954), the various Punan and Penan groups of interior Borneo (e.g. Brosius 1991; Hoffman 1984, 1986; Needham 1954, 1972), the Agta, Ata, Aeta, Batak, Tasaday, and other groups of the Philippines (e.g. Eder 1987, 1988; Griffin 1984; Griffin and Estioko-Griffin 1985; Headland 1978; Yen and Nance 1976), the Andaman Islanders (e.g. Nag 1972; Radcliffe-Brown 1922), and the Kubu of interior Sumatra (e.g. Sandbukt 1988). In the discussion of biological and linguistic variability below, I note that Southeast Asian hunter-gatherers are divisible into those who appear to be phenotypically distinct from adjacent farming populations and speak languages that are often related but not identical to those of their neighbors (the so-called "Negritos," including some of the Orang Asli, the Agta or Ata foragers of the Philippines, and the Andaman Islanders) and those who exhibit no obvious "racial" differences from nearby agriculturalists and speak mutually intelligible languages (including the Punan and other groups of Borneo, the Kubu, the Tonutil, and the Tasaday). These differences, as well as comparisons of the degree of "cultural" similarity with adjacent tribal populations, have been used by some ethnographers to distinguish "authentic" hunter-gatherers who may have been the earliest aboriginal population of Southeast Asia (see discussion of archaeological evidence below) from those foragers who may have chosen to become "professional primitives" in response to the opportunities of commercialized trade for forest products over the past millennium, a point that will be returned to later in this section.

Tropical forest hunter-gatherers in Southeast Asia, faced with an environment with high species diversity but low faunal biomass and patchy (and somewhat unpredictable) resources, generally have a high level of residential mobility, depend very little on long-term storage of resources, and have few resources that can be targeted for intensive exploitation through logistical foraging (Hutterer 1983). With reference to Binford's (1980)

dichotomy between highly mobile "foragers" and logistical "collectors," virtually all traditional Southeast Asian hunter-gatherers would be classified as "foragers." As discussed in more detail in chapter 10, many Southeast Asian groups (including the Punan, Semang, and the various Agta or Ata groups in the Philippines) average more than twenty residential moves per year, relocating their camps on average 5–15 km from the previous base. However, the length of time a camp is occupied and the distance covered in a subsequent residential move vary widely and they are dependent on the "mix" of economic activities engaged in while in residence at a particular site (i.e. hunting, forest collecting, fishing, horticulture, labor for adjacent farmers, and trading activities), which in turn is dependent on seasonal factors of resource availability and the constraints of "fixed" resources (such as agricultural fields, lowland villages where trade partners reside, and certain stands of concentrated forest resources such as sago). However, it is important to note that generalizations about mobility and non-logistical foraging do not hold true for all Southeast Asian foragers. Roy Ellen's ethnographic study of the Nuaulu of Seram (an island in eastern Indonesia) found that the Nuaulu practiced intensive "management" of sago stands and stored sago flour biscuits, canarium nuts, and smoked meat, allowing sedentism for relatively long periods of time (1988:128–9).

Among most ethnographically studied foraging groups of Southeast Asia, co-residential units typically consist of several nuclear families (typically around 20–50 people) related to one another through bilateral kin ties and, in some regions, through various forms of fictive kinship. However, like many highly mobile foragers in challenging environments, the size and composition of groups are very fluid over time. Group membership changes frequently during the year and over the long term in response to changing economic opportunities (e.g. the lure of trade, swidden planting, cash labor), seasonal changes in the availability of resources, longer-term alterations in environmental conditions, and changing social circumstances (e.g. social friction, exogamous marriages, social relations with sedentary populations). Among the Punan, Agta, and Semang, the fluid extended family residential clusters comprising a group tend to move upstream and downstream along specific river drainages that are recognized as part of their long-term social and economic identities, but do not constitute exclusive territories.

In my chapter on Philippine foragers (chapter 10), I review ethnographic data that emphasize the complex and changing strategies used by hunter-gatherers in scheduling the use of various resources. What is striking is the diverse range of resources and economic modes exploited seasonally or

periodically throughout the year by Philippine foragers, including hunting, river fishing, marine resource harvesting, collection of forest plant resources, planting swiddens, hunting and collecting for trade, and cash labor for adjacent farming populations. Philippine foragers who farm generally stagger their planting of crops to fit with hunting and foraging priorities, and those who rely heavily on trade with farmers tether their dry season camps to the villages of trade partners. Seasonal movements and economic choices vary widely between Philippine foraging groups as a function of ecological differences between islands, micro-climatic conditions affecting rainfall patterns in different areas of the archipelago, the proximity of agricultural groups as resource competitors and as trade magnets, varying access to coastal resources (determined not only by geography, but also by the presence of other groups impeding access), and the proximity of maritime trade routes linking foragers to larger-scale trade systems.

Elsewhere in Southeast Asia, we see the same flexibility and diversity in forager subsistence strategies. Some ethnographically described Punan or Penan groups of Borneo rely heavily on pig-hunting and "management" of sago stands for carbohydrates and engage minimally in trade, while others have been described as functioning as specialized and almost wholly commercial hunters and collectors dependent on farmers for basic foodstuffs (Brosius 1991; Hoffman 1984; Needham 1954). Endicott (1988:118), in his ethnographic study of the Batek of Malaysia, emphasizes that is very difficult to characterize a "typical" Batek economy, since different Batek groups switch frequently between hunting, forest collecting for subsistence, planting swidden fields, managing concentrations of wild yams, and trading forest products (rattan, fragrant woods, hunted game) for rice from lowland Malay traders. In his studies of Philippine foragers, Griffin (1989) makes the important point that the success of Southeast Asian foragers in tropical forest ecosystems has been dependent on this extreme flexibility in economic choices, both on a year-to-year basis and in the long term. Because Southeast Asian foragers live in complex and changing environments, they have long been part of larger cultural and political landscapes that appear to be almost constantly in flux, and their economic choices have long been affected by larger-scale economic processes (such as trade policies of the Chinese and other foreigners; Hutterer 1983, 1991). We must assume that most ethnographically or historically recorded economic patterns (and even archaeological sites isolated in time and space) represent behavior at a single moment in time and should not be projected to represent the whole range of hunter-gatherer adaptations.

Turning to our questions concerning the long-term dynamics of tropical forest foragers in Southeast Asia, obviously historical and archaeological approaches must be added to ethnographic analysis in order to gain the time depth necessary to address these issues. However, ethnographic research has traditionally been the starting point for debate about how various hunter-gatherer populations in Southeast Asia became what they are in contemporary and recent times, and ethnographically based models suggest some ways of testing various scenarios through historical, archaeological, linguistic, and biological data. With regard to the question of the antiquity of forager–farmer interactions, most anthropologists would agree, at least on a very general level, with Headland and Reid (1989, 1991) that ethnographic accounts that present hunter-gatherers in various parts of Southeast Asia as wholly "isolated," "primitive," and independent of regular contacts with farming populations (the best example being the Tasaday; see Headland 1992) have ignored strong evidence for various levels of interaction with neighbors. Virtually every ethnographically described foraging group in Southeast Asia in the twentieth century traded for foodstuffs (particularly carbohydrates) with nearby farmers, harvested targeted forest products for the lowland market, exchanged agricultural labor for cash or needed resources, and/or engaged in swidden gardening or animal husbandry. The fact that such forms of interaction are pervasive in recent times has suggested that they were part of a general repertoire of economic "safety nets" practiced by adaptable Southeast Asian foragers in the past as soon as these new types of economic strategies became available (i.e. with the advent of food production around 5,000 years ago; e.g. Dunn 1975; Rambo 1981). However, the diversity among ethnographically known Southeast Asian foraging groups, in terms of both the degree of their reliance on external economic inputs and their emphasis on particular forms of interaction, again emphasizes the great flexibility of forager lifestyles and the problems of projecting contemporary economic patterns into even the recent past.

Similarly, ethnographic research in the absence of historical and archaeological analysis can tell us very little about whether foragers were ever able to survive independently in the interior tropical forests of Southeast Asia. The debate over the Punan or Penan status as "genuine" foragers is a case in point. While a number of anthropologists have raised questions about the authenticity of the Punan (or Penan) of Borneo as long-term hunter-gatherers (e.g. Blust 1972; Seitz 1981), Carl Hoffman (1984, 1986) has been the most vocal in suggesting that these supposed "foragers" are relatively recently derived from adjacent agricultural populations (such as

the Kayan, Kenyah, or other Dayak groups) in response to the demands for forest products by coastal complex societies engaged in foreign trade. That is, they are commercial foragers who never existed independently in the interior forests of Borneo prior to this specialist trading adaptation. If we extend this argument to groups like the Kubu and Tasaday, and view "Negrito" groups like the Semang and Agta as pushed into the inhospitable interior by coastal-colonizing farmers who could provide them with carbohydrates (e.g. Bellwood 1997:134–5), we are left with no independent foragers in the canopied interior rainforests of Southeast Asia. In later sections, historic, archaeological, linguistic, and biological data will be brought to bear on this issue, showing that there are some real flaws in Hoffman's argument once we gain a diachronic perspective through these other data sources (which also suggest that Bellwood's conclusion is only one possible interpretation). Considering purely ethnographic evidence, other researchers have shown that the contemporary Punan and Penan rely much less on trade than indicated by Hoffman's analysis, that traditional practices such as sago palm management provide a much greater quantity of starch in their diet than suggested by "carbohydrate limitation" arguments, that they are capable of self-sustaining foraging for substantial periods of time, and that many aspects of Punan and Penan culture set them apart from Dayak farmers (Brosius 1988, 1991; Rousseau 1984; Sellato 1988).

Underlying this problem in identifying "genuine" hunter-gatherers in Southeast Asia is our predilection as anthropologists to reify cultural, ethnic, and economic "types" within which we can organize the ethnographically known world (Hutterer 1991; see also Bailey 1981; Barnard 1983; Spielmann and Eder 1994; and chapter 1, this volume). A case that illustrates this point is the Nuaulu of the interior rainforest of central Seram in eastern Indonesia (Ellen 1978, 1988). While the Nuaulu have been classified as tribally organized, relatively sedentary farmers in some ethnographic surveys, Roy Ellen's ethnographic and historical research shows that 63 percent of their total calories come from mostly uncultivated sago palm, and about two-thirds of their protein from wild resources. The Nuaulu appear to have planted subsistence gardens of manioc, sweet potato, and maize for some time prior to the twentieth century, and cash crop gardens of cloves, coconut, and coffee have become common in recent times. However, Ellen's calculations of work loads and energy returns suggest that it would be possible for the Nuaulu to subsist entirely on non-domesticated resources. Curiously, while Ellen views the Nuaulu as somewhat tethered by increasing agricultural pursuits and long-term

participation in long-distance trade (dammar resin, bird plumes, nutmeg, and other forest products for exotic manufactured goods), he suggests that their greater sedentism than most Southeast Asian foragers was primarily due to intensive processing of storable wild resources (particularly sago, canarium nuts, and smoked meat). The Tobelorese or Tonutil of Halmahera (Maluku) also fit this "anomalous" status that matches stereotypes of neither tribal swiddeners nor foragers, since the related groups of the twentieth century are variously described as fishing specialists/pirates, former foragers who now combine hunting and swidden gardening, and deep forest foragers who collect spices and other forest products for trade (Masinambaw 1972). What these cases illustrate is that situational shifting of subsistence modes, a general emphasis on mixed subsistence strategies, and a wide spectrum of economic patterns may be of considerable antiquity in foraging and farming populations of Southeast Asia rather than the result of recent contamination, tending to moot the question of who is a "genuine" forager (Hutterer 1991:224).

Ethnographic research can also provide some ideas that can be tested through historical and archaeological analysis concerning the impact of expanding commercial trade for forest products on hunter-gatherer economies and social organization. Ethnohistoric analysis indicates that, in the prestige-goods oriented political economy of early Southeast Asian complex societies, even trade with tribal peoples and foragers of the interior was predicated on a series of formalized and individually contracted long-term alliances, cemented through ceremonialism and gift exchange. This ritual exchange often involved the circulation of "status goods" manufactured by specialists at coastal chiefly centers (e.g. fancy decorated or slipped earthenware, bronze weaponry, and gold jewelry) or obtained in foreign maritime trade (particularly Chinese porcelain and foreign beads) (Junker 1999; Miksic 1984). Most of the early ethnographic and historic accounts of upland–lowland trade focus on ritualized presentations of lowland political titles, ceremonial regalia, and status-conferring luxury goods to upland tribal leaders of swidden farming populations who already possessed concepts of social ranking and status competition (e.g. the Semai with Melaka and various others kingdoms of the Malay Peninsula, the Tagbanua swiddeners with coastal Palawan chiefdoms, the tribal Manuvu and Tiruray with the Magindanao chiefdom, the tribal Hanunoo with the coastal Mindoro chiefdoms; Conklin 1949; Dentan et al. 1997; Schlegel 1979; Warren 1977). These lowland prestige goods were used by interior tribal groups for bridewealth payments, for status display, as payments for raiding reparations, and for ritual purposes. In many cases, an escalating

demand for these lowland symbols of power fueled an increasing economic emphasis on commercial procurement of forest products in these societies, the institutionalization of political authority, and expanding social cleavages as more successful traders were able to accumulate more lowland political titles and wealth for social display (Benjamin 1985).

This raises the question of whether similar processes of wealth accumulation, the emergence of new political roles, and increased status differentiation may have occurred among foragers in periods of intensified participation in this type of non-subsistence trade. One of the best examples of the effects of foreign trade on a foraging society is the Kubu of the Batang Hari in eastern Sumatra, if we discount the views of those researchers who lump the Kubu with the Punan and others as peoples who have only recently adopted a foraging lifestyle. Sandbukt (1988) uses historical data to support the conclusion that the Kubu are long-term foragers who practiced some swidden agriculture and who collected forest resources for trade-oriented kingdoms such as Palembang and Jambi by the early second millennium AD. Centuries of trade, with an influx of politically manipulable wealth in cloth and metal tools and the bestowal of lowland Islamic titles to local "headmen," have led to some degree of hierarchization of political authority and the emergence of various public forms of status competition (particularly competition to accumulate cloth and metal implements for bridewealth). Similarly, Ellen (1988) reports that shell bangles, foreign porcelains, exotic textiles, and metal anklets obtained through trade were important in Nuaulu household ceremonies (associated with rites of passage, matrimonial rites, dispute settlement, and other events), and that inflationary competition and accumulation of these goods were tied to the emergence of corporate, property-owning political units not typical of foraging societies. In contrast, the Australian aborigines who traded with the Macassans (Bowdler, this volume) and Philippine foragers (Junker, chapter 10, this volume), with considerably less economic investment in external trade, appear to have experienced considerably less impact on their political and social institutions.

Adding time depth: biological, linguistic, and historical perspectives

Investigations of the biological history of contemporary populations, historical linguistics, and the use of early historical records are some of the ways that scholars have added time depth to studies of forager adaptations. Groups identified as "hunter-gatherers" in Southeast Asia have been

traditionally classified as "Negritos" (including some of the Orang Asli of the Malay Peninsula such as the groups known as the Semang and Batek, the various groups known as Agta or Ata in the Philippines, and the Andaman Islanders), and "non-Negritos" (including the Punan and Penan, the Kubu, the Tonutil, and the Tasaday), although even early researchers noted that many specific groups and individuals show a range of morphological and genetic variability that is phenotypically intermediate between the two. "Negrito" foragers have received the most attention by biological anthropologists since many early researchers saw them as forming a distinct biological population, known as "Australoid," which contrasts with the Mongoloid peoples who dominate Southeast Asia today. They are typically characterized as having short stature, dark skin, and tightly curled or kinky hair, with early researchers relating them biologically to the aboriginal peoples of New Guinea, Tasmania, and Australia (Birdsell 1972; Howells 1970).[4] Some early work on genetics supported that Asian and American Mongoloids could be distinguished from the Australoid populations of New Guinea, Australia, Tasmania, and parts of Southeast Asia on the basis of some key genetic markers (e.g. Kirk 1982; Omoto 1985).

On the basis of this biological research, many anthropologists consider all of the "Negritos" to be the aboriginal inhabitants of the region prior to the southern expansion of mainland Asian Austronesian-speaking food producers of "Mongoloid" phenotype around 3000–4000 BC (e.g. Bellwood 1997:132–5; Omoto 1985:129–30; Rambo 1984; Solheim 1981:25).[5] In fact, some researchers link the contemporary Malay Peninsula Orang Asli directly to the archaeologically known Hoabinhian hunter-gatherers whose sites are found in the region from about 8000 to 1000 BC (Dentan et al. 1997:10; and see below). Several implications often follow from this model of Negrito origins. One is that the various Negrito groups must have been pushed out of their original coastal and lowland habitats by the new migrating Austronesian Mongoloid populations, becoming the foraging specialists in a new symbiotic forager–farmer trade system. A second implication is that groups like the Kubu, Tonutil, and Punan who are biologically indistinguishable from their agriculturalist neighbors must necessarily have become foraging specialists at a late date as they diverged economically and culturally from a shared parent population.

However, Fix's genetic study of Semang Orang Asli foragers and their agricultural neighbors, the Senoi and Melayu Asli (this volume), shows that assumptions about the degree and meaning of biological variation in these populations may be flawed, and that multiple scenarios for population histories can be derived from the same patterned biological differences. In

his research, Fix examines the traditional view that there were profound "racial" differences between Semang foragers and adjacent farming populations, that this biological variation meant that the populations had distinct origins in the distant past, and that "migration" and "displacement" were the primary processes creating the biological mosaic of recent times. In contrast, Fix found that traits like stature, skin color, and hair form that were supposed to serve as definitive "racial markers" were in fact continuously variable and significantly overlapping in range within all three populations. Fix notes that the traditional explanation for this lack of sharp biological discontinuities is "admixture" of once-discrete aboriginal populations entering the peninsula in migratory "waves" (e.g. Bellwood 1993; Dentan et al. 1997:8–16). However, this pattern could also be explained by a common ancestral population thousands of years ago and subsequent divergence into distinct populations as each group developed distinct cultural adaptations to specific ecological niches (i.e. deep forest collecting, upland swidden farming, and coastal farming/fishing/trading) as argued by Benjamin (1976) and Rambo (1988).

Turning to the question of language and how it might relate to biological and cultural variation, linguistic work shows that most extant hunter-gatherers of Southeast Asia speak Austronesian languages that are related to, but not always mutually intelligible with, those of adjacent sedentary farming populations (Benjamin 1976; Blust 1976; Reid 1987). However, again, it is not a straightforward process to leap from language similarities to interpretations involving common ancestry or convergence through long-term and intensive cultural interaction. To illustrate some of the complications of linguistic analysis as a means for tracing the origins and cultural history of Southeast Asian foragers, we need only to turn to a few examples. All "Negrito" groups in the Philippines speak Austronesian languages in the same language family as their agricultural neighbors, but the languages are mutually unintelligible. Since glottochronology suggests that Austronesian languages did not spread to the Philippines until around 3000 BC (presumably in association with agricultural populations, as outlined below), and if we accept the assumption that the "Negritos" were the aboriginal population of the islands, then they must have spoken a non-Austronesian language prior to this time. Linguist Lawrence Reid's (1987) "early switch" hypothesis explains this complex linguistic pattern as the result of intensive interaction with agriculturalists and adoption of their language (with wholesale replacement of the aboriginal language) many thousands of years ago. Subsequently, variable levels of contact over time led to gradual linguistic divergence as periods of more isolated language

development alternated with periods of fresh language borrowing. Reid's theory, although complex, is consistent with archaeological evidence for changes over time in the intensity of forager–farmer contacts in response to such factors as the commercial demands of the Chinese porcelain trade (Junker, chapter 10 this volume).

The Semang of peninsular Malaysia have a different pattern of linguistic adaptations. While there is again no trace of an ancient "Negrito-associated" language dating back to the presumed "Hoabinhian" ancestors, the Semang and most other Orang Asli groups retain Mon-Khmer (Austroasiatic) languages which must have been adopted from contacts with mainland Southeast Asian groups to the north some time well before 1000 BC. (Mon-Khmer languages are still spoken by populations in modern Thailand.) However, other Orang Asli have taken on the Austronesian languages of their Malay trade partners with whom they interacted after about 1000 BC (Blust 1989; Dentan et al. 1997:10–11). Groups like the Punan, Kubu, and Tasaday, who on other grounds (biological similarities and shared cultural elements) have been viewed as simply economically specialized offshoots of agricultural parent populations, speak Austronesian languages that are mutually intelligible with adjacent farming populations, often differing at the dialect level (Blust 1989; Molony and Tuan 1976; Sandbukt 1988). At the other extreme are the Andaman Islanders, who historically had limited contacts with outsiders and speak non-Austronesian languages that are not closely related to any other languages of Southeast Asia (Nag 1972).

In cross-cultural comparisons, Spielmann and Eder (1994:307) note that hunter-gatherers who rely on frequent trade with food producers typically learn the language of their trade partners (as well as adopt important aspects of cultural communication, such as body language, concepts of fictive kinship, and rituals of social interaction), but the reverse is not usually the case. For the Australian–Macassan trade, Bowdler (this volume) notes that Australian aborigines often acquired proficiency in the Macassan language, but few Macassans could speak Australian languages. This conformity of hunter-gatherers to the culture and social dynamics of their trade partners to promote continued interaction again points to the power differentials often present in such arrangements, suggesting that the equality-emphasizing idea of "economic complementarity" may not appropriately describe these relationships (see above). An important point is that the mere fact of linguistic and various behavioral convergences cannot be taken as evidence that specific hunter-gatherer groups and their sedentary neighbors are actually indistinguishable ethnically and culturally (e.g. claims that the Punan are actually sedentary Dayak, the Kubu are lowland Indonesians, and the

Tasaday are Manobo farmers under other circumstances). What this tells us is that interaction has been intense and has occurred over a relatively long period of time, in some cases long enough that indigenous languages have actually been completely replaced. As Blust (1989:54) emphasizes, "languages are not replaced without intimate and intensive contact"; the linguistic evidence strongly supports an "interactive" rather than "isolate" model for most Southeast Asian foragers over the past 3,000 or more years. Contrasting in this regard are Australian–Macassan interactions in which limited foreign language acquisition by the Australian foragers for the purpose of trade had little discernible effect on their native language, indicating that trade contacts were probably never as intensive, long-term, and/or economically significant as for many foragers within Southeast Asia. The complex long-term pattern of alternating language convergence and divergence proposed for the Philippine "Negritos" suggests that populations which rapidly acquire the languages of their economically and politically dominant trade partners during particular periods of intense interaction may drift away from shared language patterns at other times, thwarting straightforward glottochronological analysis. These language shifts may occur because of greater isolation (due to a fall-off in trade), attachment to new trade partners speaking different languages, or, in some cases, purposely to preserve cultural identity when such distinctiveness is to their advantage.

One other approach to reconstructing the dynamics of hunter-gatherer strategies over time is to turn to historical records of literate Asian complex societies and early European observers. Unfortunately, many cultural anthropologists have made little use of the rich historical database to add time depth to studies often focused on relatively brief periods of time and showing a relatively static picture of hunter-gatherer lifeways (Hutterer 1991:228; also see Schrire 1984:14). For example, Jean Peterson's (1978a) analysis of exchange between the Philippine Agta and nearby Palanan farmers has been criticized as ahistorical, generalizing forms of cultural interaction and economic strategies observed at a single point in time to argue for symmetrical relations of economic complementarity between foragers and farmers (Eder 1988; Headland 1978). Other anthropologists have been able to show, through analysis of historical sources and decades-long ethnographic research, that massive population growth, the expansion of lowland farmers into the uplands with greater land scarcity, and the introduction of commercialized activities in the interior such as large-scale timber extraction and mining, have often been accompanied by

exploitation and territorial displacement for Philippine foragers (e.g. Early and Headland 1997; Eder 1987).

In her chapter on Australian aborigine–Macassan trade, Bowdler (this volume) makes some important caveats as we attempt to interpret both historical sources and oral traditions, particularly in dealing with even longer-term histories. Along the northern Australian coast, the disjunction between historical records suggesting a mid-seventeenth-century advent of foreign trade and archaeological evidence for considerably earlier contacts is difficult to reconcile unless we put the lack of earlier Chinese records in a broader historical context. Prior to the Late Ming Period (fifteenth to seventeenth century), maritime trade in the southern half of insular Southeast Asia was carried out primarily by Southeast Asians rather than Chinese, and there is good historical evidence that the Chinese had no direct knowledge of Maluku (the Spice Islands), parts of the Philippines, Sulawesi and other southern Indonesian island archipelagos, Australia, and New Guinea as the ultimate sources of their pearls, trepang, spices, and tropical bird feathers until a relatively late date (Andaya 1993:2; Junker 1999:189–97; Swadling 1996). Archaeological work at Tanjay in the Philippines (Junker, chapter 10 this volume) clearly indicates the existence of a maritime-trading chiefdom in the region that acquired Chinese porcelain as early as the twelfth century, yet Chinese records are silent concerning this specific polity.[6] The early reliance on Southeast Asian middlemen traders may explain the presence of abundant archaeological evidence for Chinese trade some centuries before there is a substantial corpus of historic references to native peoples of Southeast Asia and Australia.

In cases where literate Chinese, Southeast Asians, and Europeans did describe early encounters with hunter-gatherers, their views are often difficult to interpret through the distorting lens of perceived cultural dominance (Junker 1998). For example, in one of the few early references to Southeast Asian foragers, Chau Ju-kua, a Late Sung Chinese Superintendent of Maritime Trade, writes in his AD 1225 *Chu-Fan-Chi* ("An Account of the Various Barbarians"; Zaide 1990:7):

> In the remotest valleys [of the Philippine archipelago] there lives another tribe called the Hai-tan. They are small in stature and their eyes are round and yellow (brown), they have curly hair and their teeth show (between their lips). They nest in treetops. Sometimes parties of three or four lurk in the jungle, from whence they shoot arrows on passers-by without being seen, and many have fallen victim to them. If thrown a porcelain bowl, they will stoop and pick it up and go away leaping and shouting for joy.

Chau Ju-kua's highly accurate description of "Negrito" physical characteristics suggests the strong possibility that this represents an actual eyewitness sighting at a coastal port, although ideas about their settlements and proclivities towards raiding appear to reflect the conveyed prejudices of lowland Filipinos who probably viewed their interior trade partners as inferior "savages." The Chinese account is important in establishing that some interior foragers in the Philippines were linked into foreign trade systems by at least the early thirteenth century; however, it tells us only a little about how these interior foragers related to lowland groups with whom the Chinese traded and almost nothing about how significant forest resource collection for export was within their larger economic schemes. Bowdler's work in Australia shows that local oral traditions also must be carefully assessed, since the Australians themselves often conflated all "foreigners" into the ideal "Macassan" type, a pattern that was common in oral traditions describing foreign traders in more remote parts of the Philippines where exotic maritime merchants were often "Chinese" whether they came from Japan, Brunei, Java, Melaka, or Siam.

Archaeological investigations of foragers

Given the difficulties of interpreting biological patterns, linguistic relationships, and historical accounts, and the ahistorical nature of many ethnographic studies, it seems that archaeological evidence would be essential to understanding the long-term dynamics of forager lifeways in Southeast Asia (Hutterer 1991:237). In a brief synopsis of this type, it is impossible to provide a detailed synthesis of all of the archaeological research on sites associated with hunter-gatherers. In their general texts Bellwood (1992, 1997) and Higham (1989) present detailed overviews of the relevant archaeological evidence on early foragers from the Mid-Pleistocene sites associated with *Homo erectus*, to Late Pleistocene and Early Holocene sites attributed to pre-agricultural *Homo sapiens*, to the Mid-Holocene to recent sites spanning the emergence of "Neolithic" farming populations with which these foragers interacted. Here I briefly summarize some of the archaeological evidence, emphasizing some problems of archaeological analysis and what the evidence contributes to our understanding of the long-term history of forager–farmer interactions in Southeast Asia.

Undisputed *Homo erectus* fossils of uncertain date (probably around 1.1 to 1.3 million years ago, but with some claims of a date of 1.75 million years) have been recovered in the Sangiran Region of Java (at the Sangiran site), with some additional skeletal finds of more controversial attribution

in other parts of Indonesia. At one time, archaeologists attributed to *Homo erectus* a crude "chopper/chopping tool" industry occurring widely within Southeast Asia (Movius 1944), including at sites in the same Sangiran Region, sites along the Solo River in Java, in Timor, Sulawesi, Flores, Malaya, and the Philippines (e.g. Fox and Peralta 1974; Harrisson 1975; Heekeren 1972). However, more recent reviews of the geological context of these industries and new radiocarbon dates have shown many of these lithic assemblages to be much later in date, spanning the Late Pleistocene to well into the Holocene (Bartstra 1983; Hutterer 1977b; but see Simanjuntak and Semah 1996). There are no unequivocal tools associated with Southeast Asian *Homo erectus* and no habitation sites or even archaeological features similar to those associated with African and European *Homo erectus*, leaving us with little data upon which to base reconstructions of pre-*sapiens* hunter-gatherer lifestyles.

In the Late Pleistocene period from about 40,000 to 10,000 BC, there are scattered sites clearly associated with *Homo sapiens* excavated in Thailand, Vietnam, Borneo, Sulawesi, Java, Sumatra, the Philippines, and a few other regions of island Southeast Asia. Hunter-gatherers of this period are represented by stone tool technologies that add few elements to the earlier core-flake-pebble-chopper industries of the Pleistocene (except for the appearance of blade technologies and microlithic elements in some regions), underscoring the highly conservative and expedient nature of Southeast Asian lithic industries and their probable function as "tools to make tools" (see discussion below). One of the best-known of these sites is Niah Cave in Borneo (Harrisson 1967; Majid 1982), which has a lengthy sequence of occupation (*c.* 40,000–3000 BC) and has yielded an eclectic technology (a stone flake and pebble industry, bone chisels and points, and later stone mortars and edge-ground axes), a broad range of wild resources (including wild pigs, crocodiles, monkeys, birds, bats, estuarine shellfish, and nuts), and (towards the end of the sequence) burials with grave accompaniments (including rhino bones, hematite, shells, and stone axes). A number of contemporaneous sites in northern Borneo (Bellwood 1997:179–86), Tabon Cave in the Philippines (Fox 1970), and Leang Burung and Ulu Leang caves in Sulawesi (Glover 1981) are similar in yielding flake-core-pebble tool technologies, with some bone tools (Ulu Leang) and evidence for processing perishable materials (Leang Burung). Locations in what would have been drier, seasonal forest zones in close proximity to coastal resources or lake margins suggest an emphasis on subsistence diversity and attraction to "ecotone" areas with multiple resource zones. However, as in the subsequent Early Holocene period, the

lack of regional settlement data and the archaeological focus on isolated cave sites provide limited evidence with which to reconstruct aspects of hunter-gatherer subsistence and settlement systems.

At the beginning of the Holocene, around 10,000 BC, and extending to the expansion of sedentary food-producing lifestyles between around 4000 and 1000 BC, archaeologists have identified a number of stone-tool-using hunter-gatherer populations in both mainland and island Southeast Asia (Higham 1989:31–65). While a number of local industries and associated settlement features (usually in caves) have been studied by archaeologists – e.g. the Toalian of Sulawesi (Glover 1977, 1981), the Son Vi and Bacsonian of the Red River Region in Vietnam (Ha Van Tan 1980) – the best-known of these Early to Mid-Holocene hunter-gatherer adaptations represented by stone tool technologies is the Hoabinhian (see reviews by Bui Vinh 1998, Glover 1977, Reynolds 1990, and Shoocondej 1996). Hoabinhian industries were broadly defined as consisting of relatively amorphous assemblages dominated by unifacial tools manufactured on pebbles and flakes, again differing very little from previous Palaeolithic industries except with the addition of blade technologies and microlithic elements in some regions. It is clear from their lengthy chronology (*c.* 9000 BC to at least 1000 BC) and widespread geographic distribution (in Thailand and parts of the Malay Peninsula, Sumatra, and Vietnam) that similarities in lithic industries do not represent any type of shared "cultural" sphere, but rather convergences in stone technologies used to manufacture perishable tools or process resources common to Southeast Asian tropical forest environments over this broad period (Gorman 1971). Because most Hoabinhian sites are inland cave sites (with a few coastal sites) having few distinct features from which to infer settlement activities, and because there have been few systematic regional settlement studies, we know very little about economic choices, settlement strategies, group sizes, regional population levels, and mobility patterns in this period. The inland cave sites and coastal sites do appear to have been occupied seasonally and the diverse range of plant and animal resources suggests a "broad spectrum" subsistence strategy (Anderson 1990; Pookajorn 1984; Shoocondej 1996), with the possibility of some pre-agricultural "manipulation" of certain plant species (Yen 1977). In general, archaeological data from Hoabinhian and contemporaneous sites are relatively poor, at this stage, for examining issues of pre-agricultural Holocene hunter-gatherer adaptations and the dynamics of early forager–farmer interactions, although some recent regional settlement surveys (e.g. Shoocondej 1996) may soon change this view.

Archaeology has lagged behind linguistic, biological, ecological, and historical approaches in amassing evidence relevant to the long-term dynamics of hunter-gatherer economies in Southeast Asia (Hutterer 1991). Some of this lack of progress is attributable to the acute methodological challenges facing all archaeologists working with humid tropical forest populations. In my chapter on Philippine foragers and in Bowdler's on interactions between Australian hunter-gatherers and Southeast Asian maritime traders (this volume), we note some of these problems and limitations of archaeological analysis, but it is worth summarizing some of this discussion here and emphasizing a few additional points. As noted above, tropical forest hunter-gatherers typically have mobility strategies focused on frequent, short-distance moves, generally aimed at exploiting a diverse range of resources (which may or may not be seasonally predictable), typically using perishable technologies. The archaeological implications are that: (1) numerous small-scale, perhaps overlapping, archaeological sites are created by abandoned camps each year; (2) the ephemeral nature of occupation would almost certainly reduce the archaeological visibility of these camps; (3) the eclectic nature of subsistence pursuits and other activities would make the identification of even redundantly practiced domestic activities difficult; and (4) many activities would be archaeologically "invisible" due to perishable technologies.

In addition, the ethnographic work on Southeast Asian foragers discussed above indicates that these groups are extremely flexible in their selected "mix" of exploitable resources and their economic strategies. For example, the lure of trade partnerships often results in rearranged economic priorities to accommodate export-generating activities (e.g. non-subsistence hunting and collecting targeted forest resources), as well as the time-consuming social interactions required by trade. Viewed in the larger regional economy of Southeast Asia, hunter-gatherer resource scheduling was tied to lowland production schedules and trade networks, which in turn varied according to factors within the lowland polities' complex internal economy (e.g. agricultural cycles, chiefly tributary demands for surplus, fluctuations in the production of craft goods, perturbations in foreign maritime trade; see Junker 1999 for a discussion of these larger economic systems involving Southeast Asian complex societies in interaction with foragers). These differing economic choices have profound implications in terms of the average size of sites (small vs. large), their artifact densities (ephemeral vs. more substantial deposits), the range of artifactual material and features (hunting-related equipment vs. harvesting equipment, many

trade goods vs. few trade goods, the permanence of shelters), settlement locations (concentrated near trade routes vs. dispersed), and even the size of the region that must be archaeologically surveyed to approximate a foraging group's territory. Given the flexibility of economic strategies and the relatively long time spans archaeologists deal with, archaeological settlement surveys of regions occupied by foragers will likely reveal an archaeological landscape with a confusing palimpsest of activities occurring over many years, even centuries. From this complex archaeological record, researchers must then sort out seasonal variations in settlement from short-term changes in economic focus and long-term trajectories of change.

To add to the difficulties of reconstructing hunter-gatherer lifeways in pre-modern Southeast Asia, as in South Asia (see Morrison, chapter 1, this volume) the majority of archaeological research has not involved a regional perspective at all, but instead has been carried out at single sites in widely dispersed regions. Most archaeologically known "hunter-gatherer" settlements consist of lithic scatters (sometimes with animal bone and other food remains) in fortuitously discovered caves or rockshelters. For example, what little we know about early post-Pleistocene "Hoabinhian" and related foragers in Southeast Asia is skewed by the fact that most sites associated with this "culture" or "techno-complex" are rockshelters with highly visible and well-preserved remains or, more rarely, coastal sites (Bellwood 1997:159–203; Gorman 1971; Ha Van Tan 1978; Higham 1989:31–65). These upland sites, which yield a diverse range of tropical forest plants and animals, undoubtedly represent only the most archaeologically accessible of what was probably a wide range of settlement types (Higham 1989:31–65). Archaeological work at a few contemporaneous coastal settlements (e.g. various sites around the Gulf of Bac Bo in Vietnam, Khok Phanom Di near the Gulf of Siam in Thailand) demonstrates that Early Holocene foragers likely used many different environments and varied resource mixes, probably on a seasonal basis and as long-term adaptive shifts in economic strategies. Unlike their predecessors, archaeologists working in Southeast Asia in the past few decades certainly recognize the importance of a regional approach, but have been pessimistic about the prospects of obtaining representative regional settlement data because of what seem to be almost insurmountable problems of site preservation, visibility, and survey logistics in an environment characterized by rapid destruction of perishable technologies, difficult-to-traverse landscapes, and rapidly alluviating river valleys and coastal plains. In the Bais-Tanjay Region survey area of the Philippines discussed in my chapter, a program of systematic

regional survey demonstrated that open-air forager sites are archaeologically visible on the surface (as evidenced in the surface identification of almost 150 sites of this type). However, sites on the lower alluvial floodplain, coast, and rugged mountainous interior are clearly underrepresented (but significantly, not absent) in the survey, while the bulk of recovered sites are located on the lowland margins (in areas near rivers, but not in areas of very active alluviation).

Finally, it is important to note that, while the most durable components of artifact assemblages at hunter-gatherer campsites are lithic materials, most Southeast Asian stone technologies, as well as those of aboriginal Australia relevant to Bowdler's work, are notoriously chronologically undiagnostic, functionally unspecialized, and not amenable to the kinds of stylistic analysis used by archaeologists elsewhere to examine questions of ethnicity or cultural affiliation and to date archaeological sites. Archaeologists have occasionally identified Pleistocene or Early Holocene stone industries in Southeast Asia with regionally and temporally discrete tool forms (e.g. the "Sumatralith" or unifacial discoid axes of the Mid-Holocene Son Vi and related complexes). However, more common throughout the Late Pleistocene and Holocene periods and throughout the region are lithic industries consisting of amorphous quartzite and chert cores, flakes, and blades, with few functionally specific and purposefully retouched "tools" (e.g. some scrapers on flakes, knives on blades, and occasional burins, but rarely projectile points or other highly modified forms; see Bellwood 1997:159–203; Higham 1989:31–89; Solheim 1980). Thus, the flake and core "Hoabinhian" industries span nearly the entire Holocene in some regions of Southeast Asia, suggesting to some archaeologists a high degree of cultural as well as technological stasis among foragers.

A number of archaeologists have pointed out that this appearance of technological crudeness and conservatism in lithic industries of Southeast Asia and Australia is almost certainly related to their primary function as "maintenance" tool-kits rather than "extractive" implements (Flood 1983; Gorman 1970; Hutterer 1977b; Lourandos 1997; Solheim 1970; see further discussion in Junker, chapter 10 this volume). That is, stone implements are largely used to make tools out of the perishable materials which are found in abundance in the tropical forest, and it is primarily this archaeologically invisible tool-kit that shows the properties of functional specificity and stylistic innovation that would allow us to infer aspects of prehistoric forager economies, social groupings, regional configurations, and ethnic identity. For example, Parry's (1982a) ethnographic study of arrow manufacture among the Ata foragers of Negros Island in the Philippines

suggested that both ethnic affiliation and individual identity were encoded in this type of perishable technology, while the stone tools used to make them had little identifiable "stylistic" content. Even more problematic than the "functional" inferences we can make from lithic industries are issues of chronology, given the conservative nature of stone technologies. The lack of any chronologically diagnostic stylistic content has led most archaeologists working with lithic material in Southeast Asia to rely on cross-dating through associated geological phenomena or non-lithic artifacts of known date. However, Hutterer's (1977b) review of the presumed Pleistocene lithic industries in Southeast Asia suggests that geological and archaeological formation processes have not been adequately assessed at most sites, leaving the status of many "Palaeolithic" sites in grave doubt.

Given these daunting limitations in archaeological investigations of foragers, what light can available archaeological evidence shed on the three issues of long-term forager adaptations raised at the beginning of this chapter? Problems of chronology aside, archaeological research in several regions of Southeast Asia indicates the co-existence of hunter-gatherer populations and sedentary farmers, and their interactions through trade, almost from the beginning of food production around 3000 BC. In the Philippines, work at scattered sites in the interior of Luzon, on Panay Island, and on the islands of Leyte and Samar reveals that pottery-making, swidden agriculturalists were living in close proximity to stone-tool-using hunter-gatherers by at least 3,500 years ago (Coutts 1983; Hutterer 1974, 1976; Peterson 1974; Ronquillo 1995; Snow et al. 1986). In the Bais-Tanjay Region (Junker, chapter 10, this volume), regional settlement data show that, for at least a millennium prior to European contact, upland foragers, interior tribal swiddening populations, and lowland intensive agriculturalists occupied distinct ecological zones within the region, traded subsistence resources, raw materials, and manufactured goods, and altered their settlement choices and economic strategies to accommodate this trade. Significantly, there is evidence in the form of regional settlement data and earthenware pottery and iron distributions that clearly indicates that trade took place between foragers and farmers in the region prior to the participation of lowland complex societies in the Chinese porcelain trade. Thus, the recent foreign luxury good trade and its stimulated demand for forest products as exports could not have been the initial catalyst for these exchange relations, as suggested by some ethnographers. The archaeological data from the Bais-Tanjay Region, documenting changes in the intensity and nature of this interaction over time, are consistent with ethnographic research suggesting that hunter-gatherer economic strategies

were extremely dynamic: foraging groups may have emphasized trade with adjacent farmers when it was advantageous to do so (i.e. when the material advantages were great and the costs in terms of forgoing alternative economic possibilities were low), but at other times disengaged from such relations and focused their energies on other activities (e.g. growing their own swidden plots, intensifying subsistence foraging in interior forests, managing highly productive root crops, exploiting new ecological zones such as coastal swamps, etc.).

The work at sites in mainland Southeast Asia that bridge the period of "Neolithic" emergence (particularly the "Hoabinhian" sites spanning the tenth to first millennium BC in Thailand) is revealing in terms of another important point made by ethnographic researchers: evidence for a "mixed economy" of wild plants and animals, "manipulated" plant species (such as various legumes, nuts, and wild grains at sites like Spirit Cave and Banyan Cave), and early domesticated rice during this period muddies the identification of who are the "foragers" and who are the "farmers." The answer may be that, in this early period of agricultural development, as in later ethnographically known groups, foragers are farmers and farmers are foragers, with both groups experimenting with and situationally shifting between economic modes. What is clear from the archaeological evidence with regard to the general issue of long-term forager–farmer interactions is that the extreme position of ethnographers such as Hoffman that most, if not all, Southeast Asian foragers of the forested interior are recent, commercial trade-induced "professional primitives" cannot possibly be correct. In fact, the behavior of the Punan Hoffman studied in the early 1980s cannot be statically extrapolated even into the recent past, given the non-conservative nature of forager adaptations in Southeast Asia and particularly in the absence of any archaeological data and few historical records for the region. In summary, I would suggest that many Southeast Asian foragers incorporated trade interactions with adjacent agriculture-oriented populations, and the specialized production activities associated with these symbiotic exchanges, into their diverse economic "repertoires" at a very early date.

With regard to the question of "pure" foraging as a viable adaptation in the somewhat "impoverished" interior canopied tropical forests of Southeast Asia, the archaeological evidence is more difficult to assess. As noted above, no "Palaeolithic" site of Pleistocene date has been recorded in the deep interiors of Southeast Asian islands and the mainland where such environments may have existed. Late Pleistocene sites with lithic artifacts and other signs of human presence, such as Niah Cave on Borneo (Majid 1982),

Tabon Cave on Palawan, Philippines (Fox 1970), Lang Rongrien Cave in southern Thailand (Anderson 1987), and various (mostly open-air) Sonviian sites in Vietnam (Higham 1989:35–43), tend to be found in what were probably more open forested habitats or ecotones between river floodplains and forest, with a higher biomass, richer array of herd-oriented herbivores, and exploitable starchy plants than the dense canopied forests of the island interiors today. However, as noted above, the archaeological data of the Pleistocene are fraught with problems of dating sites, reconstructing their often disturbed archaeological contexts, and making assumptions about still-controversial palaeoenvironmental reconstructions and landscape changes for the pre-Holocene period. When we move to more recent periods, the evidence is much stronger for at least short-term occupation of these presumed "marginal" zones by populations of foragers prior to the expansion of farming communities into these regions. In particular, there is growing archaeological evidence for Early Holocene occupation of the wet canopied rainforests of the interior Malay Peninsula, northern Sumatra, southwestern Thailand, and Vietnam by stone-tool-using, clearly pre-agricultural "Hoabinhian" populations (for summaries, see Bellwood 1992:85–9 and Higham 1989:31–65). Even some strong proponents of a wholly "interactive" model for deep forest colonization admit that they cannot adequately explain the presence of these apparent forager sites at an early date in these environments (Bailey and Headland 1991; Headland and Reid 1989).

Finally, the archaeological record provides some clues to the ways in which the growing dependence of Southeast Asian maritime trading kingdoms and chiefdoms on foreign luxury goods and their expanding demands for exportable forest products may have transformed the interior foraging populations that were their trade partners. Bowdler (this volume) notes, for the Australian aborigines, that contacts with the Macassans and other Southeast Asian complex societies, both on their own lands and on occasional voyages in which they accompanied Macassans to their homelands, failed to catalyze significant economic changes such as the adoption of agriculture or extreme specialization in procuring trade products. Archaeological work at contact period sites in northern Australia supports the historic evidence on this point. However, Bowdler suggests that regular contacts with island Southeast Asian traders contributed to subtle changes in ritual practices (as manifested in the incorporation of Islamic elements into burial patterns) and material symboling of authority relationships (e.g. metal axes becoming a significant symbol of male leadership), but did not

apparently lead to the development of nascent concepts of status, prestige, and power differentials as suggested by the Kubu case in Sumatra and the Nuaulu case on Seram. Similarly, my archaeological research in the Philippines (Junker, this volume) indicated that an influx of lowland "prestige" goods (porcelain, decorated earthenware, metal weaponry) into the island interior with the intensification of foreign trade had no appreciable effect on the non-hierarchical nature of hunter-gatherer social relationships or on their basic subsistence-oriented economic system (i.e. we see no tendency towards wealth accumulation or increased sedentism over time).

Discussion

The evidence suggests that the early to mid-second millennium AD maritime porcelain trade was unlikely to have been the initial impetus for creating a human niche of specialized tropical forest foragers in Southeast Asia. In particular, archaeological evidence from the interior of the Philippines and from parts of the Malay Peninsula, Thailand, and Vietnam, indicates that Hoabinhian hunter-gatherers (and contemporaneous groups) successfully occupied these presumed "resource-poor" zones thousands of years prior to food production by practicing a flexible strategy of mixed hunting, fishing, gathering, and possibly even management or manipulation of particularly productive resources. Even in the controversial case of the Punan of Borneo and other groups seen by some as "professional primitives" recently engendered through the demands of commercialized forest trade, the ethnographic and historic evidence is far from clear-cut and the necessary archaeological data for testing this model are lacking. It is also apparent that linguistic and biologically based arguments for positing relationships between "Negrito" populations and other groups, and for labeling the Punan, Kubu, Tasaday, Tonutil, and other non-Negrito populations as "devolved agriculturalists," fail to recognize that patterns of language similarities and biological relationships can be interpreted in many alternative ways, ranging from common ancestry and subsequent divergence to convergence through intense interaction.

Furthermore, ethnographic observations suggest that Southeast Asia hunter-gatherers are extremely diverse in their economic strategies, with subsistence hunting and forest collecting, swidden agriculture, marine resource exploitation, storage of highly productive resources, commercial hunting and forest collecting, various forms of trade, and labor exchanges with farmers all part of an extended repertoire of economic choices. What

Southeast Asian foragers appear to have in common is not any particular economic mode but their high degree of flexibility and ability to shift economic strategies, and the form and intensity of social interactions with outsiders, according to changing circumstances. Because of this high degree of economic flexibility, relatively static views of hunter-gatherer behavior at specific points in time and space (whether gleaned from ethnographic portrayals or isolated archaeological sites) simply cannot be projected to represent long-term patterns of behavior.

What archaeological, ethnographic, historic, linguistic, and biological data tell us, however, is that external interactions with food producers have long been part of this arsenal of economic choices for Southeast Asian hunter-gatherers, probably going back to the very origins of food production and sedentary village life in the region around 3000–4000 BC. Archaeological sites dating from the transition to food production to the rise of coastal complex societies in Thailand, Vietnam, the Philippines, and various other parts of Southeast Asia attest to the fact that throughout this period interior foragers almost invariably traded (but in geographically varying and temporally fluctuating volumes) for lowland durable goods and agricultural products (presumably for the more archaeologically invisible forest products). Early historic accounts describing contacts with foraging populations by Chinese traders, who were at the outer rim of multiply-layered trade systems in Southeast Asia, indicate that hunter-gatherer populations were generally not the mysterious isolates suggested by some ethnographers. Biological studies like those of Fix (this volume) show that the distinct "racial" characteristics and genetic isolation of recent foragers and farmers assumed by many early researchers in Southeast Asia are illusory, and indeed evidence suggests that the population dynamics of both groups have been intertwined in complex ways for many millennia.

Given the generally high level of sustained social and economic interaction between forager and farmer populations in Southeast Asia, and the propensity of both groups for situational shifting of economic modes and even ethnic identities, what is remarkable is how these populations have been able to maintain distinctive ethnic and cultural identities in the face of all this "flux."

NOTES

1 Unfortunately, we presently lack ethnohistorical and archaeological evidence regarding long-term patterns of intermarriage vs. isolation of marriage pools

in Southeast Asian foraging societies. James Eder (1987) notes an explosion of inter-ethnic marriages among the Batak Negritos of the Philippines after World War II, and the Ayta Negritos of western Luzon appear phenotypically to have had a long history of gene flow from non-Negritos (Headland, personal communication). However, we are currently unable to extend these ethnographic observations back in time. A major problem is the lack of historical documentation on foragers during the period of Chinese trade and European colonialism, with written accounts primarily focused on the more accessible coastal complex societies with whom foreigners regularly interacted. A second limitation is the lack of archaeological skeletal material from past foraging populations that could be compared morphologically with past non-foraging populations well represented in cemeteries.

2 Although not traditionally included within the designation "Southeast Asia," the southernmost area of China has been recently viewed as related more closely to Southeast Asia than to the northern region centered around the Huang Ho and the seat of the great states and empires of China. Southern China was not incorporated into Chinese civilization until the expansion of the Han around two thousand years ago, and in terms of environment, culture, and language, this region remained tied to areas south of the modern China border throughout its history. Much of South China falls within the humid tropical zone dominated by the rice farming and root crop swidden agriculture typical of areas to the south, many Austroasiatic languages persist among groups of southern China, and archaeological research shows that southern China may have actually been the source of early Neolithic farming and pottery-making populations expanding into Southeast Asia around 3000 BC (Bellwood 1992:56; see discussion later in the chapter).

3 Peter Bellwood (1992:61), citing Pfeffer's (1974) study of fauna in Southeast Asian forests, aptly illustrates this difference in protein capture potential by noting that densities of 1–2 animals per hundred hectares typical for wild cattle in canopied forest areas of island Southeast Asia rise to 10–15 animals per hundred hectares in the savannah grasslands of eastern Java, where herds of more than two hundred animals have been observed.

4 While it is not possible to go into the history of arguments concerning "Negrito" origins, it should be noted that some early studies ultimately linked the Southeast Asian Negritos to African groups such as the Pygmies, based on similarities in skeletal traits, hair form, and skin color (e.g. Birdsell 1972). However, other researchers have effectively argued that such phenotypic similarities are likely the result of convergent physical adaptations to similar environments in parts of tropical Africa and Asia (e.g. Omoto 1985).

5 Most anthropologists and linguists currently agree with Blust (1976) and Bellwood (1997) that the ultimate homeland of the Proto-Austronesian speaking people was Taiwan. Migrations out of Taiwan in all likelihood reached the

Philippine archipelago at a fairly early date. However, Austronesian languages spread quickly to the east, southeast, and southwest, and the specific routes and timing of language spread are not well known.

6 Interestingly, the word "Tanay," given to the first Spanish visitors as the name of the contact-period chiefly polity, is of probable Chinese derivation, supporting the archaeological evidence for many centuries of Chinese trade in the region (Junker 1999:45–53).

8 Hunters and traders in northern Australia

SANDRA BOWDLER

Australia has long been considered the continent of hunter-gatherers (e.g. Lourandos 1997). There has been a tendency to assume that Aboriginal people in Australia persisted in the foraging mode until historical times because they had been isolated from the rest of the world and its different economic histories. While most archaeologists agree that Australia was almost certainly first colonized from Southeast Asia, there has been a reluctance to accept further contact after that initial settlement (Bowdler 1993). However, there is evidence to suggest that such contact did occur at various times in the past. In this chapter, I present archaeological and historic evidence to suggest that contacts between traders of the southern Southeast Asian archipelagos and Aborigines of the northern coast of Australia have been more or less continuous over several millennia and possibly date back to 5000 BP. However, to flesh out the dynamics of these trade relations, I concentrate on interaction with traders outside the continent in the relatively recent past for which we have a larger corpus of archaeological data, oral histories, and written accounts, specifically the case of Aboriginal trade with the Macassans of southern Sulawesi.

In 1803, Matthew Flinders, as he carried out the first English circumnavigation of the Australian continent, encountered a fleet of Indonesian boats (*praus* or *prahus*) off the coast of Arnhem Land (Figure 8.1). They were crewed by men from Macassar in southern Sulawesi (then known as the Celebes) who made annual journeys to Australia to fish for *bêche de mer* (trepang, or sea cucumber), which was eventually traded to China. In the course of these journeys, the Macassans (as they are generally now known) were obliged to land on the Australian coast to carry out processing of the catch, and acquire water and wood for themselves and their activities. They also entered into relationships with local Aboriginal people, who appear to have been involved in some form of trade.

Aspects of these interactions are still unclear. Flinders himself wondered for how long these voyages had been made, and this long-term history is still subject to controversy. There has also been scholarly debate concerning the effect the Macassan visitors may have had on Aboriginal culture, with

8.1 Australia and island Southeast Asia with locations mentioned in the text

respect to technology, economy, social and ritual matters, language, and the gene pool. Recent archaeological research has begun to supply some new evidence, which amplifies the ethnographic observations and oral histories previously recorded. One of the more fundamental, but still opaque, aspects of the Macassan visits is the nature of the relationships between Aborigines, who were, and in many respects still are, hunter-gatherers, and Macassans, who were emissaries of an agricultural, metal-using, literate society geared towards a global trading system.

The not uncommon use of the term "Macassan" as indicating any traveler from the Indo-Malay archipelago tends to pre-empt the question of whether there were seafaring visitors from other parts of Southeast Asia, before the arrival of Europeans. For the purposes of the present work, I am avoiding this wider meaning of the term, and restricting its use to the historically documented trepang traders who set out from the port of

Macassar in the southern Celebes. To focus more narrowly at this point allows us to later consider the possibility of other visitors from what is now Indonesia, or indeed Malaysia, or other parts of coastal Southeast Asia.

Antiquity of Macassan visits to northern Australia

Until recently, most of the scholarly commentary on the Macassans' relationship to Australian foragers was provided by anthropologists (e.g. Berndt and Berndt 1954; Rose 1961; Thomson 1949; Warner 1932; Worsley 1955; and, in this capacity, Tindale 1925–8), and offered no secure footholds for dating. Macknight (1976) carried out historical and archaeological research into the antiquity of Macassan visits to Australia, but his results appear contradictory. On the one hand, historical records appeared to indicate that the earliest possible voyages could not have taken place before AD 1650. On the other hand, radiocarbon dates on Macassan sites in the Northern Territory of Australia suggest that they could have been occurring up to a thousand years ago.

It should be noted that the terms of Macknight's inquiry were very precise: "when did praus from Macassar begin to visit the coast of the Northern Territory for the purpose of collecting trepang?" (Macknight 1976:93). He did not address the question of visitors from Asia who were not from Macassar, and furthermore he limited his inquiries to the coast of the modern Northern Territory. He thus deliberately excluded the Kimberley coastline of northwestern Western Australia, where pre-European Asian visits are also known to have occurred, commenting that the history of this area is "more complex and difficult" than that of the Arnhem Land coast (Macknight 1976:5).

There are several categories of historical evidence considered by Macknight. First, there is the Chinese literature. Trepang procured by the Macassans was destined for the Chinese market, and there is no mention of it in any Chinese sources before the sixteenth century AD, nor are there references to its importation prior to the seventeenth (Macknight 1976:7, 93). Secondly, there are the documentary sources of island Southeast Asia, which contain detailed records of that region's intricate trade history, but do not mention the Australian trepang industry before the mid-eighteenth century (Macknight 1976:8, 94). Thirdly, records of Dutch exploration of the north Australian coast for the early eighteenth century make no mention of Macassans (Macknight 1976:96). On these bases, Macknight concludes that the "industry must have begun between about AD 1650 and 1750" (1976:98).

The archaeological evidence is more equivocal. Macknight visited numerous Macassan processing sites on the Northern Territory coastline, and carried out excavations at several. On the one hand, he observes that, in terms of artifacts seen, collected, and excavated, by himself and others, "it cannot be shown that any item need have been in use before 1700" (Macknight 1976:98). On the other hand, he obtained radiocarbon dates from three sites which all indicate a considerably earlier date for trepang processing on the Arnhem Land coast. The sites are located in western Arnhem Land (Anuru Bay, Entrance Island) and on Groote Eylandt in the Gulf of Carpentaria (Lyäba). The dates were all obtained from charcoal from wood used in a trepang boiling locale (Macknight 1976:98). When calibrated, the radiocarbon dates span the period AD 1000 to AD 1400. Macknight is certain that these dates do indeed derive from materials associated with trepang processing, but rejects them none the less as being at odds with the historical evidence (Macknight 1976:99). He is, however, at a loss to explain this contradiction. Crawford's (1969) doctoral thesis also finds no earlier evidence on the Kimberley coast for trepang fishers from Macassar. On the basis of the historical evidence, he argues that "the trade must have developed after 1669 and before 1763" (Crawford 1969:103). His archaeological research in the Kimberley does not in any way contravene this recent dating.

Schrire (1972) investigated Macassan and Aboriginal sites in eastern Arnhem Land, with the stated intention of testing a model contrasting pre-contact hunter-gatherer behavior patterns with those of post-contact hunter-gatherers. This model was derived from the ethnohistoric record and from her own ethnographic research in eastern Arnhem Land. According to this model, pre-contact hunter-gatherers were strongly dependent on seasonal changes with respect to residence patterns, group size, and diet. Post-contact hunter-gatherers differ in that "residence is more permanent so as to permit maximum interaction with foreigners," the foreigners in this case being either Macassans or Europeans. This model is important with respect to the time frame of foreign interaction insofar as it has influenced not only Schrire's views on Macassan chronology, but also those of subsequent researchers.

In testing her model, Schrire excavated two sites in eastern Arnhem Land. One was a Macassan site on Gwopalinna Island in Port Bradshaw, the other an Aboriginal site known as Borngolo rockshelter on the nearby mainland (White 1970). Three radiocarbon dates were obtained for the Borngolo deposit, which was divided into an upper and a lower layer on the basis of its contents. The top of the lower layer was dated to 4200±160 BP

(ANU 399), the bottom of the upper layer was dated to 1220±75 BP (ANU 400), and the top of the deposit was dated to "Modern" (ANU 401) (Schrire 1972:662). The two layers differed in terms of both artifact content and faunal remains. The presence of shellfish hooks was attributed to the influence of Macassans, and they occurred only in the upper level. The differences in faunal remains suggested to Schrire increased occupation during the wet season in the settlement phase represented by the later deposits. From this evidence, Schrire argued that the date of 1220±75 BP indicated the beginning of Macassan–Aboriginal contact. She assumes that Macknight's research "suggested an antiquity [for Macassan sites] of some 800 years" (Schrire 1972:661), much to Macknight's (1976:162) evident annoyance.

Further archaeological research has been carried out in recent years. Two doctoral projects have investigated Macassan sites in the Northern Territory, one concentrated on the Cobourg Peninsula in the west (Mitchell 1994), the other on Groote Eylandt in the east (Clarke 1994). Mitchell interprets his evidence as providing strong support for Macknight's argument concerning the recent nature of the industry, whereas Clarke believes she has tentative support for an earlier dating. Both have approached this problem from the point of view of Aboriginal land occupancy and economic strategies, and through the study of Aboriginal rather than Macassan sites.

Mitchell, like Macknight, finds that the historical records do not suggest Macassan visits to the Northern Territory coast prior to AD 1700. He does concede, however, that "it is possible that sporadic or accidental voyages from Indonesia to the Australian coastline took place before a regular industry developed" (Mitchell 1994:42). With respect to the Aboriginal archaeological sites he has investigated, he is able to assign them to a pre-Macassan or post-Macassan phase on the basis of their contents, with some sites representing both phases; radiocarbon dates for these sites support his historical chronology (Mitchell 1994:223, 314, 332).

Clarke's archaeological evidence also appears to suggest a similar chronology for a Macassan presence on Groote Eylandt, although it should be noted that "where [radiocarbon] dates are older than AD 1650 I have interpreted them to indicate pre-Macassan occupation of the site" (Clarke 1994:128). The artifactual contents of the sites investigated do not appear to disagree with this assumption, apart from a single possibly wayward potsherd found in a level dated to 930±60 BP. This is of course of a similar age to the problematic dates obtained by Macknight, including one of *c.* 780 BP from the Lyäba site on Groote Eylandt. Clarke also finds some evidence for earlier contact in her consideration of subsistence and

settlement patterns. Following Schrire's model, she suggests that there is evidence in her Groote Eylandt sites for an increased intensity of coastal occupation about 1000 BP, coupled with a decrease in the occupation of inland sites after 1500 BP, and that this may reflect a contact situation. She argues that "this initial contact was not necessarily of the order of magnitude of the later trepang industry, organized from the city of Macassar and may have been both sporadic and small scale" (Clarke 1994:470).

Effect of Macassan visits to northern Australia

Leaving aside for the time being the possibility of an earlier contact, the time period for Macassan visits which is universally accepted by researchers spans about 200 years, from *c.* 1700 to 1900 AD. These two centuries would be conventionally considered to include at least ten generations, so we can assume a priori that these interactions were likely to have had a significant impact on the Aboriginal inhabitants of northern Australia. The best documentation of the numbers of foreigners involved, and the time spent in Australia, not surprisingly, comes from the nineteenth-century records and refers in most detail to the Arnhem Land coast.

These records show that the Macassan fleet usually numbered between about thirty and sixty vessels, each with a crew of about thirty men. The men were mostly ethnic Macassarese, but crews also included men from Bugis in Sulawesi, Alor, Wetar, Timor, Timor Laut, and Aru (Berndt and Berndt 1954:40). Women did not participate in these voyages. The vessels left Macassar with the onset of the northwest monsoon in about December, taking one to two weeks to strike the Australian coast in the vicinity of the Cobourg Peninsula and then working slowly eastwards. Camps were established near the patch of sea being harvested, with wood and leaf dwellings, stone structures for processing the catch, and wooden smokehouses. With the shift of the monsoon in April, the fleet was scattered around eastern Arnhem Land, Groote Eylandt, and down into the bottom of the Gulf of Carpentaria. With the southeast wind behind them, they all then returned to Macassar (Macknight 1972:283–4). The usual time of the Macassan presence, therefore, was the wet season in the Northern Territory, when the Aboriginal population would normally have been concentrated on the coast, and during a time of relative resource scarcity (Macknight 1972:284; see also Schrire 1972). Even so, the size of the Aboriginal groups which encountered the visitors would generally have been considerably smaller than the crew of one or, more usually, several *praus* (Macknight 1972).

Prior to systematic archaeological research, there was considerable debate amongst anthropologists about the effect of Macassan visits to northern Australia on the indigenous people. One might summarize the polar views as the "minimal effect" camp vs. the "major impact" camp, but it is probably more accurate to emphasize the range of opinion, in terms of both the level of impact and its nature. Some anthropologists have emphasized the economic effects, while others have focused on the social impact. All researchers, however, are unanimous in the observation that the Aboriginal people of Australia have shown no inclination whatsoever to move from a hunter-gatherer economic base.

Warner (1932) sees perhaps the least impact by Macassan visitors. He argues that "the influence of the Malay race and culture has not been important in north-eastern Arnhem Land . . . the greatest influence is found in the material culture and the least in the social institutions of Murngin civilization" (Warner 1932:495). Crawford, on the other hand, writing about the Kimberley area of northern Western Australia, suggests that "Indonesian influence suspected on historical and archaeological grounds to be minimal is seen after examination of the anthropological data, to have been a highly significant force modifying Aboriginal myth and ritual at the same time it modified the material culture of the Aborigines hardly at all" (Crawford 1969:332).

Thomson (1949) reacted strongly against Warner's views, particularly with respect to the impact of new material culture items, which affected the trading cycle and hence social and ritual aspects of life (a point with which Worsley [1955] was essentially in agreement). Rose (1961) particularly emphasized changes in subsistence and settlement pursuant on the introduction of new material items.

The main items of material culture that were introduced by the Macassans were metal tools, particularly axes and spear points, fish hooks, the idea of detachable harpoon heads, tobacco and pipes for smoking it, and the dugout canoe. According to Rose (1961), the introduction of the dugout canoe, harpoon, and fish hook was particularly significant, leading to increased productivity through a heavy reliance on marine products such as dugong and turtle. This shifted the overall emphasis from land to sea hunting, representing a fundamental change in the "hunting and collecting . . . pattern of life." He saw this as particularly evident on Groote Eylandt, which, he believed, was not permanently occupied before the advent of the Indonesians (1961:527).

Thomson (1949) and Worsley (1955) document the further social consequences of these introductions. Thomson focused his research on the

ceremonial exchange system of Arnhem Land, which depended on a ritualized set of relationships involving reciprocal presentations of desirable goods (*gerri*). He considered the system as he had observed it as having its impetus in material items introduced by the Macassans (Thomson 1949:93). As important as were the contributions made by the Indonesian visitors in actual material objects, such as iron for knives and fish hooks, wooden *lippa lippa* (dugout canoes) and the axes with which to cut canoes and so to augment food supply, their most important contribution was social. What was significant was the dynamic effect these things exercised on the social and ceremonial life of the Aborigines, under which the important, but less obtrusive, economic exchange system developed (Thomson 1949:94). Thomson and Worsley both point out that the exchange cycle involved inland groups who had no direct contact with the Indonesian visitors.

Mitchell, on the basis of his archaeological research, discerned three major changes in Aboriginal culture concomitant on Macassan visits. These included the following:

1 there was an increase in the intensity of exploitation of large marine animals with the introduction of the dugout canoe and iron harpoon;
2 the regional indigenous exchange networks in northwest Arnhem Land accelerated; and
3 there was a shift in the nature of settlement patterns on the coastline, with larger group sizes and decreased residential mobility during the post-contact period (Mitchell 1994:xii).

It should be noted that these observations provide archaeological confirmation of the historically and ethnographically based arguments put forward by Rose, Thomson, and Schrire above.

Clarke's (1994) archaeological research on Groote Eylandt produced similar results. She found changes in residence patterns, subsistence, art, totemic systems, and trade and exchange networks which are all indicative of a strategic and active response to Macassan contact. "The changes occur within the broad bounds of traditional practice and it can be suggested that there is a trajectory of change in both resource use and residence patterns before the period of [European] Mission settlement" (Clarke 1994:465). She felt, however, that the changes proposed by Rose (1961) were somewhat overstated, with respect to a total reorientation from a terrestrial to a marine economy. The archaeological data indicated some "limited evidence" for a shift in settlement patterns away from inland sites in favor of

coastal locations, and this has been linked to changes in the religious and ceremonial landscape (Clarke 1994:468).

With respect to linguistics, Macknight (1972) and, more recently, McConvell (1996) and Evans (1992), canvassed the range of Macassan loan words evident in Northern Territory languages. McConvell and Evans both suspect, but cannot confidently support, an influence deriving from earlier than AD 1700. With respect to genetic influence, there is little doubt that sexual relationships between Macassan men and Aboriginal women took place (see below), but the significance of this with respect to overall genetic makeup of Northern Territory populations has never been clarified (Macknight 1972:292).

Worsley (1955) discussed other impacts on the Aborigines, particularly with respect to religion and art, issues also addressed by Berndt and Berndt (1954). Macassan objects and ideas were adopted as clan totems and incorporated into certain rituals. Perhaps the most radical arguments for change are those of Crawford (1969), although it must be noted that he is writing from the perspective of the Kimberley region of northern Western Australia rather than Arnhem Land. He argues that postpartum rites for mothers and children that are unique to west Kimberley derive from Indonesia (Crawford 1969:294). The more widespread northern Australian practices of exposing dead bodies on platforms and placing the defleshed skeletons in caves are also viewed as related to non-Islamic practices in east Indonesia (Crawford 1969:295). Perhaps his most significant claim is that the practice of circumcision, which is fundamental to Aboriginal puberty rites for young men across a very large part of Australia, is derived from the Islamic visitors (Crawford 1969:311). This claim is, however, disputed by Macknight (1972:293). A more recent work considers the impact of Indonesian and other external influences on Aboriginal religion as being profound and enduring (Swain 1993), but the details of this study are not particularly germane to our discussion here. Instead, I would like to turn to a consideration of evidence for the nature of Aboriginal–Indonesian relationships as they have been observed, or can be constructed, on a more day-to-day basis.

Relationships between Aborigines and Macassans

Varying observers and commentators have considered the relationships between Indonesians and Aborigines to have been almost anything from antagonistic in the extreme (e.g. Crawford 1969:103; Mitchell 1994:95–6)

to an Aboriginal perception of the time of Macassan visits as a "Golden Age" (Worsley 1955:8). Berndt and Berndt (1954) argued for chronologically traceable changes in interaction, with an early peaceful relationship deteriorating over time; Mitchell (1994:96–199) argued for the reverse, with respect to the Cobourg Peninsula at least, with early hostile relationships ameliorating under the sway of the British presence. Unlike Macknight (1972), he does not see the latter as being the direct cause of this improvement, but he suggests that it facilitated this change. Macknight argues that, "the issue of co-operation or antagonism depended on chance and circumstance, and varied from place to place, from time to time, and from individual to individual" (Macknight 1972:289). This is undoubtedly true, but, like the other discussions on this issue, it does not tell us much about the nature of the social relationships between Macassans and Aborigines over what was quite a considerable period of time. It can be observed that "hostile relationships" may take place within the context of institutionalized relationships between societies, and it is these relationships between Macassan traders and Aboriginal foragers that are of interest here. Macknight goes on to suggest that "the picture is that of two cultures existing side by side, involved neither in major co-operation nor in competition" (Macknight 1972:290). This is to place the relationships in question within a rather simplistic economic frame, and it is clear that there were wider social implications than Macknight suggests. It is of course true that, from the Macassan point of view at least, the relationship was an economic necessity and we need to consider that economic basis.

The Macassans probably did not need to enter into relationships with Aborigines as long as they stayed in their *praus*. On the *praus*, they carried dugout canoes, earthenware pots, and other items that allowed them to harvest and process the catch themselves, as well as subsistence food and the wherewithal (e.g. fish hooks) to procure more. As soon as they needed to land for any extended period, however, there were Aboriginal landowners to contend with who controlled necessary resources. The needs of the trepang fishermen included water and firewood, and access to land for processing the trepang. The Macassans also required firewood and other plant products to construct smokehouses. All of these resources could potentially be acquired by the Macassans themselves, if they were not overly harassed or excluded from access by the landowners (Macknight 1976:45, 83). Local control of resources was an obvious consideration and clearly their task would have been easier if the locals had cooperated, but it should be emphasized that it was not impossible to obtain these resources without local assistance.

There were other ways in which the cooperation of the Aborigines could facilitate their activities, including provisioning with local fresh produce. The Macassans were also interested in items other than trepang that could be traded on their return, such as pearlshell and pearls, and the shell of the hawksbill turtle, marketed as "tortoiseshell." The Aboriginal people of Australia could help acquire these other products as well as contribute labor to the trepang processing. Finally, Macknight observed that, "relatively friendly relations were needed for at least some Macassans to find solace in Aboriginal women" (1972:286).

There were clearly advantages for Aborigines who maintained friendly relationships with the Macassans and assisted them in obtaining and processing these products, given their interest in acquiring Macassan material goods such as metal tools and dugout canoes. Aborigines also obtained foodstuffs such as rice and alcohol through these exchanges. The records of the nineteenth and twentieth centuries AD make it clear that these items were not, by then at least, merely of pragmatic interest, but entailed significant considerations of prestige and social status (Macknight 1976:84). According to Mitchell, the fact that more Aborigines from the Cobourg Peninsula could speak the Macassan dialogue than Macassans could speak the local Aboriginal language indicated that it was the Aborigines who were the more active partners in seeking to establish social and economic relationships (Mitchell 1994:113).

The available European records of the past few centuries and the recollections of Indonesians and Aborigines do show that, despite sporadic outbreaks of animosity and violence, the two groups did enter into continuing relationships. According to Thomson, "the Macassar voyagers recognized the native ownership of land, and the people say that they paid tribute each season to the owners of the territories for the right to fish for trepang and pearls" (1949:51), but it must be said no other sources appear to support this idea.

There is no doubt that trading relationships were established. On the Australia side of the exchange, the Aborigines tendered pearls, pearlshell and particularly hawksbill turtle shell. The Macassans reciprocated with metal fish hooks, harpoon heads, axes, other metal items, dugout canoes, cloth (apparently purely for exchange purposes), pipes and tobacco, beads, belts and string, food and alcohol. Foodstuffs included rice, tamarind fruit, and syrup, and there is one record of Aborigines using betel (Macknight 1972:305–6; Mitchell 1994:98, 115, 386, 425). It seems likely that this trade was not conducted on a simple bartering model, but rather that Aboriginal men entered into structured exchange relationships with

Macassan men, of the sort they maintained with men of other Aboriginal groups (Berndt and Berndt 1954:22).

These organized relationships involved sexual relationships between Macassan men and Aboriginal women (Berndt and Berndt 1954:17). It seems likely that at least some Macassan men were in specific kin relationships with the relevant husbands, since the Berndts mention the "sending over" of women during the Indonesians' ceremonial periods (Berndt and Berndt 1954:17; cf. Hiatt 1996:55). These relationships seem to have been the prerogative of the captains of *praus* and other important men among the visitors. One Indonesian man, Daeng Sarro, remembered that his father, a captain, " 'had been very good friends with the [Aboriginal] chieftain . . . a man called like Bangkala', and they treated each other like brothers" (Macknight 1976:84). The reference to a "chieftain" may indicate a senior man of high ritual standing. One captain, Using Daeng Rangka, is said to have fathered about ten children by three mothers in eastern Arnhem Land, and one of his daughters, Kunano, visited Macassar (Macknight 1976:86). According to a late nineteenth-century European source, observing that some Arnhem Land Aborigines were "evidently partly of Malay extraction," Aboriginal children with European fathers were killed at birth, but those with Malay fathers were allowed to live (Mitchell 1994:100). The Berndts contrast these relationships with the "irregular promiscuity" which apparently occurred in the later period of Macassan visits to Australia (after the beginning of European settlement), along with an increased use of alcohol (Berndt and Berndt 1954:17, 22).

At times, Aboriginal men worked on the trepang processing sites. Although this is often commented on in terms of labor rewarded in kind, this is probably better viewed from the Aboriginal perspective in terms of sharing between members of a cooperative enterprise, as pointed out by Worsley (1955:3–4). Mitchell indicates that "no historical data is available concerning the amount of labor which Macassans expected the Aborigines to provide in return for dugout canoes or metal" (1994:371), but this may be because no such calculation was entered into. According to Thomson, "my informants stated that the natives themselves did not actually work for the Macassar trepangers but occasionally, when men were short, they helped to make up the crews of canoes which operated as tenders from the *praus* in diving for trepang" (1949:51). In contrast, the Berndts state that Aborigines were employed as laborers "for specified payments" (Berndt and Berndt 1954:16).

Dugout canoes occupied a unique position in the local Arnhem Land economy in recent times, as documented by Thomson (1949:52). They

were the only object or activity for which a form of direct payment was required, unless the canoe was received as a particularly prestigious gift. The foreign-introduced canoes could be obtained from other Aborigines in exchange for a similarly valued steel axe, or a recognized local canoe craftsman might make one in exchange for the gift of a steel axe. It is not clear how long this particular specific exchange has been in operation. Mitchell (1994:115, 371) mentions several cases of dugouts being obtained by "stealing."

Occasionally, a Macassan man stayed in Australia after the fleet departed, staying with an Aboriginal group and traveling with them on their annual round, until his colleagues returned for the following season (Macknight 1976:86; Mitchell 1994:99). More commonly, Aboriginal men and women traveled on *praus* to Macassar. We have already mentioned the case of Using's daughter Kunano by an Aboriginal woman, who visited Macassar in 1903 (Macknight 1972:286). This was said to be a common occurrence by European observers in the nineteenth century (Mitchell 1994:99). It is not clear whether any Aboriginal people stayed in Macassar longer than the period between trepang fishing seasons, although the Berndts suggest that some did (Berndt and Berndt 1954:17). One British report had seventeen Aborigines in Macassar in 1876 (Macknight 1976:286; Mitchell 1994:100). Many Aboriginal people were said to have stayed in a particular house belonging to one of the regular captains (Macknight 1976:286). They are all said to have returned to Australia before the end of the Macassan trepang industry in 1906.

Pre-Macassans?

Aboriginal people in the 1940s told anthropologists Ronald and Catherine Berndt through stories and songs that, before the Macassans came to Arnhem Land, another, lighter-skinned people called the Baijini came from the islands to the west, beyond the Arafura and Timor seas. Unlike the Macassans, they brought women with them, lived in stone dwellings, wove and dyed cloth, and cultivated small gardens (Berndt and Berndt 1954:15). They are said to have collected trepang, like the Macassans. Their cultivation activities are said to receive a great deal of attention in the traditional songs of northeast Arnhem Land, especially with respect to Baijini women growing rice in specifically named areas (Berndt and Berndt 1954:34–5). The Baijini women are described as wearing sarongs or pantaloons, while the men wore turbans (Berndt and Berndt 1954:36). Aboriginal people actually prepared topographical maps for the Berndts, indicating the

"tremendous extent of Baijini contacts" (Berndt and Berndt 1954:37). Clarke (1994:13) was more recently told a version of the same tale about pre-Macassan voyagers by Groote Eylandt people: in the southeast of the island there were people who had dark hair and fair skin, who lived in stone houses, grew crops, brought women, and were ruled by a king.

The era of the Baijini was spoken of as a golden era belonging to the far distant past, almost of the Dreaming period. The songs suggest the Baijini were "early traders from the East Indies." The name itself resembles a word (clearly Austronesian) for "women" found in islands south of Sulawesi. The Berndts also suggest that they may have been Bajau or sea gypsies, who "were to be met with in all parts of the East India Archipelago," and, unlike most of the later Macassan traders, traveled with women (Berndt and Berndt 1954:34).

Macknight, in 1972, felt that the theory that the Baijini were Bajau could not be supported: "It is my opinion that the Baijini myths are totally derived from Aboriginal experience in south Celebes and possibly other areas, obtained during visits with the Macassans. The remarkable associations with particular sites are the product of complicated transference mechanisms, while the temporal element is a more or less inevitable rationalization" (Macknight 1972:313; see also Macknight 1976:92).

It is, however, of interest to note recent observations of the activities of the Bajau or Turijene (and a variety of other names indicating sea gypsies or water people). These seafarers are found in many parts of island and coastal Southeast Asia, exploiting the resources of the coast. In 1840, a fleet of eleven *praus* that armed in Australia included one belonging to "Badju" people from "the vicinity of Macassar." They concentrated on hunting turtles for the shell. Other Bajau people were known to have visited Australian waters at that time, more commonly the Kimberley coast than Arnhem Land, where they concentrated on turtle shell, although they were known for their trepang collecting elsewhere. There is one record of high prices for tortoiseshell, leading some Bajau *praus* to come to Australia specifically for this product (Macknight 1976:18, 147). Although the Bajau *praus* encountered in these instances carried no women, this was not their usual practice and they may have been influenced by the Macassans to form unisex voyaging groups (Macknight 1976:29). While the Bajau seen in Australian waters in relatively recent times need not be the same ethnic group as the Baijini, there is no reason to suppose there have not always been sea gypsies drifting around island Southeast Asia. The Berndts' suggestion has found recent support from Pelras, as discussed by linguist Nicholas Evans (1992:66–7):

> [Macknight's view] does not rule out earlier mercantile visits by a group such as the Bajau, who would have collected trade items such as turtle-shell and sandalwood. As a result of the close relationship between the Sulawesi Bajau and the Macassans, the latter would have learned about Arnhem Land and eventually followed the Bajau there, upgrading the Bajau visits into the more intense and lucrative sojourns required by the trepang trade . . . [however the] linguistic evidence so far . . . fails to support the hypothesis that the Bayini were Bajau speakers. On the other hand, there remains a large set of suspected loans for which I have been unable to find a Makassarese, Malay, Bugis or Bajau source; . . . suspecting an Austronesian (or at least a non-Australian) origin.

Pre-trepang traders?

While there is a convincing argument against trepang being a trade item prior to *c.* AD 1700, there is abundant evidence for active trade involving the eastern parts of what is now Indonesia and the western parts of Melanesia with China and indeed the Middle East for many thousands of years. Archaeological research shows that, five thousand years ago, trade networks of some kind linked island Southeast Asia with the north coast of the island of New Guinea (Swadling 1996). Betel nuts, pigs, and pottery were introduced to New Guinea, and cloves, marsupials, and obsidian were traded west from New Guinea (Swadling 1996:205, 270). Cloves have been found in an archaeological site in the Middle Euphrates in Syria dating to 1750–1600 BC, that is, nearly 4,000 years ago (Swadling 1996:22). People on the Ramu coastline of mainland New Guinea had obtained betel nut by nearly 6,000 years ago. It is also during this period that Austronesian speakers are thought by linguists to have arrived in New Guinea (Swadling 1996:51).

Somewhat before 2,000 ago there was an almost simultaneous appearance of metal and glass artifacts associated with changes in pottery styles across island Southeast Asia as far as New Guinea. These included the Heger type I kettle drums and other bronze artifacts associated with the Dong Son culture of northern Vietnam. They occur in the island arc extending from Sumatra, Java, and the Lesser Sundas to New Guinea (Swadling 1996:53–4). A bronze drum from Sangeang Island, near Sumbawa, east of Bali, shows a dwelling with a saddle-roof and people who appear to be in costumes worn during the Chinese Han dynasty (221 BC to 220 AD). Another panel of the same drum shows two men in costumes from northwest India, one astride a horse. A drum from Salayar depicts elephants and peacocks, and a Kei Islands drum has not only elephants, but tigers as well.

It is suggested that these were made in northern Vietnam before 250 AD (Swadling 1996:55–7).

In New Guinea, large numbers of prehistoric bronze artifacts have been reported at Lake Sentani, inland of Jayapura (Swadling 1996:205). Three large bronze tops from Heger type I drums have been found near Aimura Lake, in the interior of the Bird's Head of Irian Jaya. A small tabular bronze artifact has been found in archaeological deposits dated to between 2,300 and 2,100 years ago on Lou Island (Swadling 1996:55–7). Apart from this fragment, bronze and glass artifacts themselves do not extend beyond the New Guinea mainland, but some trading networks are evident in stone skeuomorphs of bronze artifacts and certain design motifs which occur in Manus, Sepik, Oro, and Milne Bay provinces, and the Bismarck Archipelago within what is now Papua New Guinea (Swadling 1996:273).

Swadling argues that the bronzes represent the surviving and visible aspect of a trade network whose main function was supplying bird of paradise plumes to the Asian markets, particularly China (Swadling 1996:272). Not only do historical records show that Asians desired beautiful feathers at this time, but Swadling also infers the plumed headdresses of the people depicted in Dong Son motifs to be composed of bird of paradise feathers. She argues that "the occurrence of these artifacts at Lake Sentani is not so surprising, when it is known that Hollandia (now Jayapura) was a famous export port for bird of paradise plumes on the north coast of New Guinea during the late nineteenth and early twentieth centuries" (Swadling 1996:53, 205). Other items were also undoubtedly part of the trade traffic at this time. The Roman writer Pliny the Elder refers to cloves in 70 AD (Swadling 1996:22). As well as feathers, Chinese chronicles dating to before 2,000 years ago mention cinnamon and scented woods, ivory, pearls, and turtle shell as luxury imports (Swadling 1996:53). Within the past thousand years, bird of paradise plumes were still being traded west from New Guinea to the Indonesian kingdom of Srivijaya, whose Maharaja carried plumes to the Chinese Emperor as tribute (Swadling 1996:59). By the sixteenth century AD, Portuguese records describe bird of paradise skins being traded to Persia and Turkey (Swadling 1996:62). In this way, the feather trade linked Melanesia to world markets beginning over 2,000 years ago and continuing until the time of European incursions into the southwest Pacific.

While it may have been the case that the first Chinese junk did not arrive in Macassar until 1615, this was very far from being an early instance of Chinese trade in the region. As we have seen, the Sangeang drum appears to depict Han dynasty people. Chinese trade chronicles from Sung

times (AD 960–1279) show highly developed trade links extending across Southeast Asia as far as, and probably incorporating, western New Guinea. Tortoiseshell, specifically from the hawksbill turtle, was brought to China from Borneo, the Philippines, Java, and the islands of eastern Indonesia (Wheatley 1959:83). Captive parrots were also a desirable import, and it is possible they were being sent from the islands of eastern Indonesia (Wheatley 1959:123).

Hunters and traders: a long relationship?

The likelihood that Aboriginal people in northern Australia have been in contact with traders from Southeast Asia for a longer period than the past three hundred years must be entertained. It may be correct to argue that the visits of *praus* specifically from Macassar, and specifically in search of trepang, have only occurred within that time frame. However, given the antiquity of active trading in the region immediately to the north and west of the northern Australian coastline, it would seem unlikely that no such visitors ever made landfall there. Quite apart from anything else, we may assume that the historically recorded Macassan trepang collectors were not the first "foreigners" to set foot on the Australian coast; someone must have gone there and established the possibility of trade.

It is hard to overlook the Aboriginal traditions of pre-Macassan voyagers from Southeast Asia, which seem quite specific in relating songs and stories to the Australian and not the Sulawesi landscape. The archaeological evidence, however, is problematic. There seems no good reason why the older dates obtained by Macknight from trepang processing sites should be erroneous, yet it seems historically unlikely that trepang processing was occurring at that time. It is true that no further dates of that antiquity have been generated by archaeological research, but it needs to be borne in mind that archaeological investigations have been on an extremely limited scale, given the area involved. Some slight evidence suggesting a longer antiquity of Asian trader visits for Macassan trepang harvesting has been produced from Aboriginal archaeological sites examined by Schrire and Clarke.

When we consider the Australian prehistoric archaeological record in general, there are clear indications of much earlier visitors from Southeast Asia whose purposes and activities are considerably less clear. Microlithic stone tools, identical to those found in Sulawesi and other parts of the world, appear in archaeological deposits over wide areas of mainland Australia. Generally speaking, they seem to appear about 4,000–5,000

years ago. The dingo, a domestic dog, appears about 3,500 years ago; it is considered to resemble dogs found on Timor (Bowdler and O'Connor 1991). The intention of this chapter is not so much to attempt to narrow the gap between episodes of foreign contact, as to suggest that such contact has probably been more or less continuous over the past 5,000 years, the time within which major trading networks were established over much of the southwest Pacific region.

Whatever the time frame, it can be seen that Aboriginal people in parts of northern Australia established essentially stable relationships with foreign traders over a period of at least 300 years, and very possibly over a much greater time. Throughout this period, there is not the least suggestion whatever that they had any inclination to change the economic basis of their society, that is, to be anything other than hunter-gatherers. There has been much discussion as to how conservative Aboriginal society was, indeed, is. The recent discussion by Swain (1993) suggests a rather radical overhaul of our notions of Aboriginal conservatism at the philosophical level, at least. With respect to subsistence economics, however, exposure to the agricultural practices of the Macassans produced no apparent change at all. Although it is often observed that Aboriginal people saw limited aspects of Macassan culture and lifeways, this rather overlooks the fact that many Aboriginal people made the trip to Macassar. If we extend the time frame of foreign contact, we can observe that the Aborigines were well able to hold their own with representatives of the wider world without seeing any need to change their food procurement strategies. Perhaps we can leave the last words to Ronald and Catherine Berndt: "why should they cultivate gardens as the Baijini had done, when they could live adequately without so much additional labor?" (Berndt and Berndt 1954:38).

9 Foragers, farmers, and traders in the Malayan Peninsula: origins of cultural and biological diversity

ALAN FIX

Introduction

Within the narrow confines of the Malayan Peninsula existed a microcosm of the human diversity to be found throughout Asia. The present-day majority populations include representatives from South Asia and China, recent migrants in response to economic developments in mining and plantation agriculture, and the Malays, also migrants from the islands of Indonesia over the past several hundred years. The traditional view has been that earlier waves of migration to the peninsula were the source for the so-called "aborigines" or Orang Asli ("Original People") who, although a tiny minority of the current population, contribute even greater diversity to the Malayan human mosaic.

The classic anthropological literature (summarized in Carey 1976) divided the Orang Asli into three groups on the basis of both biological and cultural characteristics: Semang (or "Negritos"), Senoi, and Melayu Asli (proto- or "aboriginal" Malays). The Semang hunter-gatherers were considered the oldest cultural and biological stratum, a remnant of a once widespread population of Oceanic Negritos which also included the Andaman Islanders and several groups of foragers in the Philippines. These early inhabitants of Southeast Asia were small-statured, dark-skinned, and "frizzy-haired," hence the name "Negrito." The Senoi, swidden farmers, were linked to the Veddas of Sri Lanka to the west and some viewed them as the residue of a population that colonized Australia (Skeat and Blagden 1906). Phenotypically, the Senoi peoples were lighter in skin color and were wavy-haired. The Melayu Asli, in turn, entered the peninsula perhaps 4,000 years ago, displacing some of the previous Semang and Senoi inhabitants. As their name implies, these peoples were broadly similar to Malay populations of the islands (sometimes called "deutero-Malays"), that is, possessing even lighter skin color than the Senoi and straight hair similar to other "Mongoloids," and making their living by more intensive farming and trading. Thus, in the traditional view, diversity in the peninsula was

the result of a series of migrations of peoples, each already differentiated in some other homeland, who maintained their cultural and biological distinctiveness after arriving in Malaya. Each wave would have pushed the earlier settlers further into refuge zones as the newcomers appropriated lands. At the end of this process, foraging Semang were inhabitants of the deep jungles around the periphery of the central hill and lowland forest swiddens of the Senoi. Latest to arrive, the Melayu Asli occupied the lowlands and coastal areas.

Recently, this traditional view has been challenged by Geoffrey Benjamin of the National University of Singapore (1976, 1985, 1986). Benjamin (1976) noted that all three of the Orang Asli groups spoke related languages contained within the Mon-Khmer group of the Austroasiatic language family. In contrast to the situation in central Africa, the foraging Semang have not obviously simply adopted the languages of nearby farmers. Rather it appears that all Orang Asli share a common linguistic ancestor some 5,000 to 6,600 years ago. Linguistic differentiation from a single speech community implies that these groups originated *in situ* from a common cultural matrix and the wave theory of successive invasions of the peninsula is incorrect.

Further, the pattern of shared cognates and word borrowing between the three Orang Asli traditions is compatible with the socioeconomic patterns characterizing each group, and the glottochronologically derived dates of separation for each tradition correspond to major events in the prehistory of the peninsula including the earliest dates for agriculture and sedentary life (*c.* 6000 BP) and the beginnings of outside trade (*c.* 5000 BP; Benjamin 1986).

This alternative explanation for the origin of Malayan Orang Asli diversity implies a very different history of interaction between foragers, farmers, and traders than the migrational model. Rather than a series of physical displacements of the previous peoples from portions of their range, Benjamin's model requires a process of cultural divergence between the traditions. Instead of being shunted into refugia, foragers and swiddeners actively adopted explicit cultural practices to maintain these opposing lifeways.

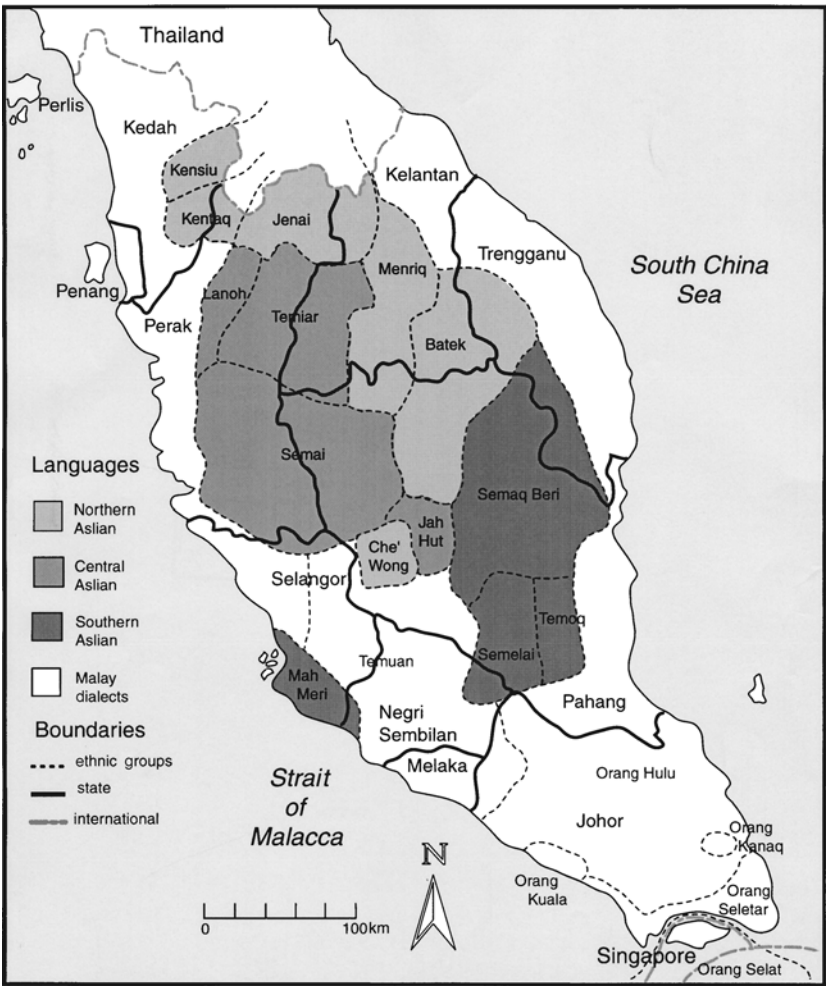
A comprehensive test of these competing arguments would require consideration of data from numerous sources, biological, linguistic, archaeological, and cultural, a task far beyond the scope of this chapter. My goal will be to briefly present the Benjamin model, identify its biological implications, and evaluate these in terms of their fit to the biological data. One question that must be addressed is the actual degree of biological

difference between each group. If divergence has occurred *in situ* over the past 6,000 years, then these biological differences might not be expected to be profound. Although the traditional image is of a separate "racial" status for each group, it will be seen that differences are not neatly apportioned among the three and some supposed facts such as the pygmy stature of the Semang compared with the Senoi are simply wrong. Other aspects of Malayan Orang Asli biology dovetail in interesting ways with the Benjamin model. Thus the patterns of genetic microdifferentiation observed in the different communities and the evolution of malaria-selected genes such as hemoglobin E and ovalocytosis are explicable as results of the different population structures and lifeways of foragers, farmers, and traders. Finally, it will become clear that while the traditions have remained distinct, the genetic data demonstrate that they are not hermetically sealed isolates; gene flow has occurred, linking these populations both to the mainland of Southeast Asia and to the islands of Indonesia and near Oceania.

Linguistic prehistory

At the heart of Benjamin's reconstruction of Orang Asli palaeosociology is his classification of the Aslian languages (Benjamin 1976). Corresponding to the three traditional groups of Orang Asli, Semang, Senoi, and Melayu Asli, are three geographic divisions of "Aslian," the related set of Austroasiatic languages spoken by these peoples: a northerly group of languages, spoken mostly by people who are Semang in culture and "Negrito" in phenotype; Central Aslian, comprising primarily the swiddening Senoi; and Southern Aslian, spoken by Melayu Asli farmer-traders. These correspondences of language, culture, and phenotype are not perfect and several interesting deviations from the pattern exist (see Benjamin's papers for detailed discussion); however, the correlation between language, geography, and cultural tradition is strong enough to provide historical inference (see Figure 9.1). The degree of differentiation between the languages suggested a long, separate history since common ancestry (Benjamin 1976). Glottochronology provided dates for the splits between the subdivisions: the initial divergence occurred about 6,000 years BP while the division into the three groups was some thousand years later (*c.* 5000 BP). The earlier date is consistent with archaeological estimates for the beginnings of agriculture in the area, the second with the beginnings of outside trade in the peninsula (Benjamin 1976, 1986; see below for further discussion).

The linguistic data also provide sociological information. The pattern of loan words and the frequency of cognates between each subdivision reveal



9.1 Distribution of Orang Asli groups in the Malay Peninsula (after Benjamin 1986)

different modes of inter-group contact and communication (Benjamin 1976). Recalling that speakers of Northern Aslian are nearly all Semang foragers living in small nomadic bands of fluid composition, the wide geographic mesh of shared and borrowed words linked in dialect chains makes sense. As will be outlined below, these groups also practice an extreme form of exogamy, further spreading individuals over space and placing a premium on wide intercomprehensibility. In contrast, Southern Aslian languages are sharply separated and show low rates of loan words, implying a pattern of distinct populations with little inter-group contact.

Table 9.1 The three "traditions" of Malayan Orang Asli

Tradition	Language	Technology/economy	Societal pattern
Semang ("Negritos")	Northern Aslian	Nomadic foragers	Exogamy, mobile, conjugal families, extensive networks
Senoi	Central Aslian	Sedentary swiddeners	Nodal kindreds, fission-fusion
Melayu Asli ("Aboriginal Malays")	Southern Aslian	Sedentary farmers, collectors-for-trade	Endogamy

Central Aslian is intermediate in these respects: the component languages are clearly separated, but a fair amount of word borrowing suggests sedentary settlements with some exogamy, which is indeed the residential and marriage pattern of the swiddening Senoi.

Cultural traditions

The cultural traditions associated with the three linguistic groups are based on distinct subsistence strategies. Table 9.1 shows the correspondences between language, subsistence, and social pattern in the Benjamin (1986) model. This is not to say that language, culture, and biology are isomorphic, only that fundamentally different lifeways produce different patterns of speech communities and social interactions. Further, these different lifeways (see table 9.1) may impose differing selective constraints on the biology of the populations practicing them (as will be seen below in the case of malaria).

Benjamin (1986) has argued that the historical subsistence modes characterizing each Orang Asli group have critically affected their social organizations. Kinship rules, in particular, encode the ideal patterns of interaction of individuals and the spatial and temporal distribution of the social groups of which they are members. The differentiation of the three traditions over the past 5,000 years involved populations in the north strengthening their attachment to foraging (Semang) in response to the adoption of hill swiddening in the central highlands (Senoi) and the later hiving off of southern groups (Melayu Asli) into the lowlands to collect forest items for trade. Rules of filiation, exogamy, and kin behavior express the values associated with each of these lifeways, as Benjamin (1986:9) says, to "lock in" the social relations appropriate to each lifeway.

Semang foraging is based on extreme nomadism. Consonant with this orientation, Semang de-emphasize long-term kin associations and force marriage ties outward, prohibiting marriage between all kin including those related affinally. The conjugal family is the basic social unit, and no larger residential corporate groups of kin are formed. This extreme form of exogamy extends kin ties widely, a common feature of nomadic hunter-gatherers (Fix 1999).

The Melayu Asli pattern contrasts sharply with that of the Semang; indeed, it appears to reverse completely the Semang network model of kinship with a "central place" focus on the local settlement. Villages are seen as long-term sedentary associations of kin, each being exclusive social units *vis-à-vis* other villages. Preferential consanguineous endogamy further isolates kin ties with other groups. These social practices are consistent with the combined sedentary agriculture–collecting for trade economy of the Melayu Asli. Agriculture requires a commitment to the fields and cooperation in carrying out agricultural labor. Trading with outsiders might also engender local exclusiveness as each village would be in competition for trading partners. Thus, local groups, conceived as kin groups, both managed the land and engaged in trade competition with other such groups.

The Senoi pattern is intermediate between the Semang network and the Melayu core group models. Settlements combine a temporally persistent core group of cognatically related kin surrounded by a peripheral group of less closely related persons. Marriage is proscribed with consanguineal kin (contrasting with the Melayu Asli) but preferred with affinal kin (contrasting with the Semang), resulting in a wider net of relatives than Melayu but less dispersed than Semang. The extensive system of long-fallow swidden farming practiced by the Senoi and their relatively low population densities (fewer than five persons per km^2) reduce the competition for land and thereby the need for corporate kin group control of scarce resources. Local crises, ecological or political, can be resolved by settlement fission and fusion. This process is facilitated by kin linkages to other settlements brought about by earlier marriages and/or prior fission/fusion events.

These comparisons could be extended greatly and Benjamin's papers should be consulted for a much fuller development of his model. However, it now should be clear that three contrasting cultural traditions arose in the peninsula from a single cultural matrix, historically differentiating in a cultural analog of the biological process of character displacement (Brown and Wilson 1956). That is, the differences between the traditions were accentuated by their proximity, each developing cultural forms in opposition

to the other. Each tradition provided a charter for a particular lifeway, locking people into ideologies appropriate to their ecological/economic circumstances (Benjamin 1986:9).

Biological origins of the Orang Asli

The traditional view was that each Orang Asli group originated in a different homeland and sequentially colonized the peninsula. Accordingly, biological and cultural differences would have arisen long before each population arrived in Malaya. Diversity, rather than developing locally, would have persisted so long as isolation between groups was maintained. In so far as contact and admixture between groups occurred, shared cultural and biological traits would have resulted.

According to Benjamin's hypothesis, diversity arose from a common ancestor *in situ* within the past few thousand years. While language and culture may be rapidly borrowed, the usual assumption is that biological evolution is considerably slower. Indeed, a common presumption is that profound "racial" differences such as those supposedly characterizing the three Orang Asli groups would require a very long time to evolve. This being the case, it would seem that biology might constitute a strong negative argument against the recent divergence hypothesis. However, on closer inspection, the actual amount of biological distance between each of these populations turns out to be less than commonly supposed.

Perhaps the most salient trait thought to distinguish these populations was stature. "Negritos" have been considered "pygmoid" peoples (*vide* the title of Schebesta's popular account of his study with the Semang, *Among the Forest Dwarfs of Malaya*) whereas Senoi and Melayu were more "normal" in stature. Despite this stereotype, actual data on height among Negritos and Senoi show *no difference*. Table 9.2 summarizes the available figures. Only the small sample of Semai Senoi living in the highlands of the Main Range are slightly taller than lowland Semai and Semang. Clearly, all of these people are short by world standards, but the Semang are no more pygmoid than the Semai.

Frequency data for other purported diagnostic phenotypes such as skin color and hair form are rare. Several investigators have commented on the variability of such traits within populations. Although Semang were often considered darker-skinned, Noone (1936) described an "older stratum" among Senoi with dark brown skin and tightly curled hair. Similarly, I observed many individuals among Semai Senoi populations with quite dark skin color.

Table 9.2 Stature of Semang and Senoi

Group	Males		Females	
	(N)	(height in cm)	(N)	(height in cm)
Senoi (Semai)[a]	48	151.5 (140.5–161.7)	32	142.1 (135.6–156.2)
Senoi[b]		152		142
Senoi (Semai)[c]	35	158		
Senoi (Semai)[d]	50	154.7		
Semang[e]	127	153.6	86	142.7

Notes: [a] Fix, unpublished data
[b] Martin (1905)
[c] Polunin (1953), highland groups
[d] Polunin (1953), lowland groups
[e] Schebesta (1952)

Although hair form was thought to be a primary distinguishing feature between the types, the actual distribution of "frizzy," wavy, and straight hair also showed considerable intra-population variation. Thus, Williams-Hunt (1951) found "only three truly curly bits" in a sample of nearly a hundred Negritos; similarly Dentan (1968) reported that most Semai Senoi populations show some individuals with tightly curled hair.

These traditional "racial markers" are not neatly apportioned among the actual populations of Semang, Senoi, and Melayu Asli. The usual explanation for this variability was "admixture." For instance, Skeat and Blagden (1906) captioned a photograph of a group of "Jakun" (Melayu Asli) as mixed with Negrito and Senoi "blood," since hair form among individuals obviously varied from tightly curled to straight. Similarly, the early literature described "mixed tribes" of Negritos and Senoi throughout their ranges to account for the observed variability in phenotypes (e.g. Evans 1915).

An alternative explanation for the lack of sharp biological discontinuities among the groups is that they all share a recent common ancestry and have diverged to some degree in response to different environmental selective pressures but maintain a suite of shared "ancestral" characteristics. This hypothesis fits the Benjamin reconstruction of a shared cultural origin with subsequent ecological and cultural displacement into separate traditions. Biological differentiation would have been aided by the tendency of each social group to limit social interaction and intermarriage with groups of complementary ecologies. Endicott (1984) has suggested just such a

mechanism for the Batek Semang who maintain their cultural identity as foragers partly by reduced intermarriage with neighboring Senoi. Thus ecological differentiation into different habitats with potentially different selective requirements combined with traditional endogamy could account for phenotypic differentiation. Along these lines, Rambo (1988) has argued that the tendency for Semang to forage in lower elevation habitats than those occupied by Senoi increased their exposure to higher temperatures and selection for heat-resisting phenotypes. He suggested that the "Negrito" physical type (or constellation of biological characters) evolved from the undifferentiated ancestral Malayan Orang Asli population in this way.

A model of *in situ* biological differentiation does not preclude some gene flow among the groups. Indeed, evidence for occasional intermarriage linking the populations will be presented below. Just as a nexus of gene flow connects all human populations, allowing for the spread of adaptive genes throughout the entire species without eradicating some local differentiation, the Orang Asli are a subdivision of the Southeast Asian gene pool and are in turn subdivided into regional and local populations (see below for the pattern of genetic microdifferentiation).

Comparative studies of craniofacial morphology (Bulbeck 1981; Hanihara 1993), dental morphology (Turner 1990), and molecular genetics (Ballinger et al. 1992) agree in deriving essentially all modern Southeast Asian populations from a common "Late Pleistocene stock" (Turner 1990:315). The mitochondrial DNA data (Ballinger et al. 1992) included samples from the Orang Asli (mostly Senoi). Orang Asli haplotypes do not form a tight separate cluster when compared with Vietnamese, Koreans, Malays, Taiwanese, Malaysian Chinese, and Sabah aborigines. Similarly, comparison of the frequency of a 9-base pair deletion in the mitochondrial genome commonly found in remote Oceania shows Semai Senoi as closely similar to Filipinos and Taiwan aborigines (Melton et al. 1995). Since Orang Asli languages belong to a different family than either of these populations (Austroasiatic vs. Austronesian) and are geographically distant from either, this result also suggests an ancient pan-Southeast Asian gene pool.

These biological data are not very informative about possible recent migrations within the area. Since most of the data refer to Senoi (very little is known of the genetics of Negrito populations), ancient connections by either shared ancestry or more recent gene flow could account for their morphological and genetic similarities to other Southeast Asian populations. Certainly this pattern would not preclude migrations of populations

from within the region to the Malay Peninsula along the lines suggested by Bellwood (1993, 1997). However, a generalized continuum of biological similarity is also compatible with a hypothesis of *in situ* differentiation.

More direct evidence on biological patterns in prehistory could potentially be provided by archaeological skeletal evidence from the entire region. Rather than attempting to infer ancestry and migrations from present-day genetic or morphological similarities and differences, these data could document the presence or absence of characteristics in past populations. In particular, the theory that the entire region was originally occupied by peoples of Negrito physical type could be tested with skeletal evidence (in so far as "Negrito" traits can be identified skeletally). Unfortunately, skeletal remains from archaeological sites are not abundant in the region (see Bellwood 1997). The few data show no evidence for a Negrito substratum (Bellwood 1993; Bulbeck 1981). Even more relevant to the proposed Malayan case, Bulbeck (1981) examined a number of pre-Neolithic skeletons from the site of Gua Cha in Kelantan, a state occupied by both contemporary Semang and Senoi. These materials were dated to between 3,000 and 10,000 BP and are associated with Hoabinhian stone tool technology, a prehistoric tradition that some consider to be ancestral to modern Orang Asli (Solheim 1980; Junker, chapter 7, this volume). Again, no characteristic "Negrito" skeletal features were found; indeed, the stature of these individuals was greater than that of either present-day Semang or Senoi (ranging from 150 to 170 cm compared with the 150 cm Semang-Senoi average), suggesting that *both* populations have evolved toward reduced stature.

Thus, the biological data fail to confirm either the wave model or the *in situ* differentiation model. Both models are capable of accounting for present-day patterns of phenotypic differences among Orang Asli, the wave model by positing different origins with subsequent mixing and the *in situ* model by arguing for divergence (although incomplete) from a common ancestor. The only potential direct test of the alternative models, the archaeological demonstration of Negrito (and later Senoi) physical features in skeletal remains associated with the appropriate cultural levels, also seems incapable of disconfirming either hypothesis. A good measure of this failure is due to the notorious difficulty of inferring history from biology (Fix 1979). In addition, the lack of crucial data (particularly for the Semang Negritos) limits the power of the test. Perhaps as important is the strong likelihood that both local differentiation and gene flow were important in Orang Asli biological history. Indeed, evidence to be presented below

illustrates clearly how adaptive genes spread and enter local populations without large-scale migratory waves of colonizers introducing them.

Genetic microdifferentiation

As previously noted, the different cultural traditions of each Orang Asli group may have served to isolate their gene pools (at least to some extent) from each other, allowing phenotypic divergence to occur. At the same time, each cultural pattern had different consequences for *internal* group differentiation. Just as the nature of the local social unit varies among the traditions, so might the degree of genetic differences among local groups within each tradition; that is, the amount of genetic microdifferentiation should covary with population structure as affected by social practices. The marked differences among the Orang Asli in marriage expectations and proscriptions especially could structure the flow of genes and the pattern of genetic variability.

Recall that the Semang pattern prohibited marriage with any known kinsperson, consanguineal or affinal. This extreme form of exogamy would force marriages outward as in each generation individuals must search for unrelated spouses, possibly in distant groups. This practice fits with the high mobility and constant realignment of camp composition associated with their foraging way of life.

The genetic consequences of the Semang pattern should be the homogenization of the gene pool. The entire group should be a single evolutionary unit with little local differentiation. Genetic variants would quickly diffuse to the extent of the overall Semang range as individuals marry and move into distant groups each generation. Furthermore, the generally lower population densities of foragers increase the geographic extent of their populations. Average mating distances for such populations may be an order of magnitude greater than for agriculturalists (Fix 1999). Local groups of Semang are ephemeral over the short term of weeks and months (Endicott 1984) as individuals and families shift to new localities and camps. The causes of local differentiation, isolation and local adaptation, are thus absent.

Although insufficient genetic data exist to test this clear prediction rigorously, the only systematic study of local variation among the Semang is consistent with expectation. Polunin and Sneath (1953) showed that four Jehai Negrito groups were essentially identical for ABO blood-group alleles.

The Melayu Asli system of community and kin endogamy is at the opposite extreme from the Semang pattern. Local groups (villages) are long-term units semi-isolated from other such groups. The genetic prediction from this population structure is microdifferentiation – sharp genetic differences among villages. Again, the genetic data are not extensive, but again they are consistent with this prediction. Polunin and Sneath (1953:244) found it difficult to compare Melayu Asli settlements as representing local variation since in their view "some of the communities are virtually small tribes in their own right." Similarly, Baer and colleagues (1976) showed considerable genetic diversity among four Temuan (Melayu Asli) areas.

The Senoi pattern, intermediate between the extreme exogamy of the Semang and the equally extreme endogamy of the Melayu Asli, suggests an intermediate degree of genetic microdifferentiation for this population. In general, this prediction holds true. Both Polunin and Sneath (1953) and Fix and Lie-Injo (1975) showed that marked differentiation exists among Senoi settlements. The patterns of association of kin are particularly important in Senoi population structure. Biological kin by definition share genes. The relatively persistent core group of kin providing the nucleus of each settlement means that the Senoi gene pool is assorted along kin lines; each local group may be a non-representative sample of the entire gene pool. The fission–fusion nature of Senoi local groups (Fix 1975) results in periodic settlement splits with migrant groups establishing new settlements or fusing with an established village. The fact that these splits usually occur between kin groups leads to the kin structuring of migration, a phenomenon I have shown to increase microdifferentiation (Fix 1978).

Apparently, then, the marriage practices and patterns of kin association characteristic of each of the three cultural traditions have had significant effects on genetic variation within these populations. But culture is not transmitted via the germ plasm. There is no *necessary* linkage between Semang culture traits and Negrito phenotypes and people can change their behavior. A case in point is that of the Lanoh, a group generally considered to be Negritos, but according to Benjamin (1980:8), "Lanoh kinship accords more with the 'Senoi' type than any other." This population has become more sedentary and has relaxed its strict exogamous marriage rules, thereby becoming more like the Senoi. Interestingly, this sociological change has had a predictable effect on the degree of genetic microdifferentiation among their settlements. In contrast to the Jehai Negritos who were genetically homogeneous, Polunin and Sneath (1953) found some differentiation in blood groups among the Lanoh. By adopting a Senoi-like

more localized kin association, the Lanoh may have also increased local genetic variation among their settlements also similar to the Senoi.

Isolation and interaction: spread of malaria-adapted genes

The usual rationale for the covariation of language, culture, and biology is that similar causes affect their variation. That is, all other things being equal, isolation tends to produce divergence among groups with respect to all three domains and contact and interaction tend to decrease such variation. Genetic drift produces random differentiation among gene pools and analogous mechanisms (sometime directly compared; Dunn 1970) seem to occur in cultural and language "pools." Likewise, cultural and linguistic analogs to gene flow exist and probably adaptation and some form of selection apply to culture (Boyd and Richerson 1985). Far from being an explanatory panacea, the availability of numerous causal mechanisms means that several hypotheses must always be considered to explain any biocultural-linguistic pattern.

The three traditions of Orang Asli, differentiating in the peninsula linguistically, culturally, and to a limited extent, biologically, are the end products of both isolation among groups and also adaptations to different ways of life. At the same time, none of the groups has been completely closed to interaction (including intermarriage). Cultural and language borrowing and assimilation, migration and intermarriage may counteract the diversifying processes of isolation, drift, and local adaptation.

The distribution of several malaria-protective genes in the peninsula provides a clear example of the interaction of these processes of local differentiation and adaptation along with long-distance gene flow linking the local with the wider regional gene pool.

Until recently, many populations in the Malayan Peninsula were exposed to holoendemic malaria; indeed, some groups, including particularly some Orang Asli, continue to suffer from high rates of malaria (Baer n.d.). Not surprisingly then, several genetic traits that resist malaria have attained high frequency among the indigenous peoples of the peninsula. These include hereditary ovalocytosis (or elliptocytosis), named for the oval or elliptic shape of the red blood cell, a deficiency of the enzyme glucose-6-phosphate-dehydrogenase, and hemoglobin E (Hb*E) (see Livingstone [1985] for the world-wide distribution of these genes and discussion of their adaptive significance). Where malaria has been an important selective factor, we should expect to see high frequencies of these protective alleles. However, since natural selection only works on variation present

Table 9.3 Ovalocytosis and hemoglobin E (Hb*E) gene frequencies

	Ovalocytosis		Hb*E	
Population	N	% positive	N	Q_E
Negritos	?	<2.0	?	0.024
Senoi				
Temiar	?	6.7	80	0.319
Semai				
Perak	242	6.6	332	0.255
Pahang	545	21.3	520	0.215
SA	196	25.2	198	0.168
RU	81	28.4	75	0.346
BU	79	5.1	80	0.250
Melayu Asli				
Temuan	315	35.2	406	0.015
Semelai			41	0.171
Jakun	?	19.0	116	0.017
Malays				
Selangor	?	<0.3	536	0.015
Negri Sembilan	629	13.2	629	0.026
Indonesians				
Sulawesi	?	40.0–50.0		
Bali			219	0.018
Minangkabau	83	7.2	235	0.011
New Guinea				
Kar Kar Island	334	13.8		
Thailand				
Khmer			133	0.327

in the population, mutation or gene flow must first introduce the adaptive variant into the gene pool. Thus the frequency of Hb*E and hereditary elliptocytosis (El) should depend on the intensity of malarial selection in their respective habitats *and* gene flow from other populations.

The three Orang Asli traditions differ in population structure, density and ecology as well as geographic location and history of outside contact. These differences have resulted in marked differences in gene frequencies among groups (table 9.3).

The contrast in ecologies between the foraging Semang and the Senoi farmers has major implications for the transmission of malaria and the consequent adaptive value of Hb*E and El. As Livingstone (1958) elegantly demonstrated for West Africa, the effect of agricultural practices on the populations of mosquito malaria vectors can be profound. He showed that

forest removal for fields greatly enhanced the habitat for the major malarial vector mosquito species. Further, the greater density of sedentary farmers increased their attractiveness as blood sources for the mosquitoes, increasing malarial rates and selection for (in West Africa) sickle-cell hemoglobin (Hb*S). Although the situation in Malaysia is not identical to the West African case, since the mosquito species have somewhat different requirements (Sandosham 1965), the increased population density, lower mobility, and forest clearance by farmers may have parallel consequences.

The two major mosquito vectors of malaria in Malaysia were *Anopheles maculatus* and the *A. umbrosus* species group (Sandosham 1965). The latter species complex preferred shady breeding locations and inhabited coastal swamp forest. The potent vector *A. maculatus* on the other hand was similar to the West African species group (*A. gambiae*) in breeding in open sun-lit pools. The consequences of agricultural clearing were opposite in the ranges of these vectors: clearing swamp forest reduced malaria by destroying the shade prerequisite to *A. umbrosus* breeding, whereas clearing hill forest opened up breeding pools for *A. maculatus*. Thus neither virgin hill forest nor cleared plains planted in rice were malarious (Sandosham 1965). Dunn and his colleagues (1968) found that malaria in undisturbed Malayan lowland rainforest was restricted to the animals of the canopy and middle-zone. The implication is that until humans cleared hill forest for crops, malarial transmission would be minimal and little selection for malarial resistance would exist. However, any groups inhabiting coastal swamp forest might be subject to malaria transmitted by the *A. umbrosus* complex.

A further factor identified by Livingstone (1958) as affecting malarial rates was the size and mobility of human host populations. Small nomadic groups are less efficient malarial transmitters since they usually move to another locale before infecting the local mosquito population (Polunin 1977). Large settled groups are more attractive to the mosquito vectors that might ordinarily depend on monkeys. These considerations also suggest that human foragers in hill forests are less likely to be malaria-infested than are swiddeners.

The Semang groups in historic times occupied undisturbed rainforest (although it is possible that prior to the entrance of large groups of Malays into the peninsula, their range may have extended to some coastal forest areas). Their opportunistic foraging way of life entailed low population density and frequent movement (Endicott 1984). These characteristics (nomadism, low population density, and undisturbed forest habitat) should have kept the Semang relatively malaria-free although if some

groups ranged into the coastal swamps, malarial transmission might have occurred.

The Senoi, in contrast, cut swiddens in hill forest thus opening up breeding habitat for the most important vector in Malaya, *Anopheles maculatus.* Moreover, their population densities are higher (although not by the standards of more intensive agriculturalists) and they maintain relatively long-term settlements providing opportunities for the local mosquitoes to become infected and transmit malaria. Similarly, Melayu Asli groups living in hill forest and cutting swiddens are at risk for malaria, while those groups farming in the lowland plains may be less subject to infection. Surveys of malarial incidence in Orang Asli (Wharton et al. 1963) confirm high rates in Senoi while coastal Melayu Asli rates are lower.

Malaria in the island world of Indonesia is erratic in its distribution; in some coastal regions (e.g. New Guinea) it has been common but many of the islands have been relatively malaria-free. Thus, the homeland of most of the Malays has not been a region of high malarial endemicity and selection for malarial-resistant alleles would have been spotty.

Reference to table 9.3 shows that Hb*E and El frequencies mirror the history of malarial selection reasonably well. The Senoi (Temiar and Semai) have high frequencies of Hb*E compared with all other groups, in keeping with their malarious habitat. Note also that this allele is very frequent in other Mon-Khmer speaking groups on the mainland of Southeast Asia from Vietnam to Assam (e.g. the Khmer of malarial regions of Thailand with a gene frequency of Hb*E of 0.327 – see Livingstone [1985] for more examples). The frequency of the allele among Malays and Indonesians and Melayu Asli (with the exception of the Semelai) is quite low, perhaps partly due to lower selection intensities in less malarious regions. However, several Melayu Asli groups (such as the Temuan) cut swiddens in the forest and are subject to high rates of malaria. Interestingly, it is in this population that the frequency of the other protective allele, El, achieves its local maximum: 35 percent of the population tested positive for elliptocytosis (Baer et al. 1976). Several other populations from Indonesia and near Oceania (Sulawesi and Kar Kar Island) also show high frequencies of this variant.

The only gene frequency data for the Semang show that both Hb*E and El occur in very low frequencies. Unfortunately, the sample sizes were not reported for this study (Lie-Injo 1976) and the representativeness of these frequencies is unknown. None the less, these low frequencies are consistent with the prediction that Semang should not be strongly selected by malaria.

Malaria selection alone, however, does not account for the complementarity of the distributions of Hb*E and El. The former gene is found primarily in mainland Southeast Asia and Flatz (1967) early associated it with Mon-Khmer speaking populations. Not surprisingly, then, since Aslian is clearly a Mon-Khmer language, the allele is in high frequency in those Orang Asli groups living in malarial regions of the peninsula (Temiar, Semai, Semelai, but not Negritos – see table 9.3). Melayu Asli populations located to the south (Temuan and Jakun), on the other hand, have lower rates for Hb*E and correspondingly high frequencies of El, linking them to the regions of Indonesia where El is polymorphic. This allele has not been discovered on the mainland of Southeast Asia (other than in these peninsular Orang Asli groups).

In fact, the south-to-north cline in El frequencies in the peninsula suggests that this gene may have been introduced relatively recently to the Orang Asli via gene flow to the Melayu Asli from their Indonesian trading partners. Most of the Malay groups now resident on the peninsula live in non-malarious environments and show low frequencies of El. An exception is the population of Negri Sembilan, nominally Minangkabau from Sumatra, among whom El reaches the relatively high frequency of 13.2 (nearly double the frequency of Sumatran Minangkabau). The southern Melayu Asli in malarial environments have the highest frequency of El on the peninsula (over 35 percent in the Temuan). Northern and western Senoi populations such as the Temiar and Semai living in Perak State possess the allele in lower frequencies whereas the southeastern-most Semai population (Pahang State) shows a much higher frequency of El (over 21 percent).

The role of gene flow in spreading El through the Orang Asli can be documented from the genealogies of current Pahang Semai. The descendants of a single immigrant from Selangor State (the homeland of many Temuan Melayu Asli) who married into a southern Semai settlement account for eighteen of the fifty elliptocytosis-positive individuals now living in that settlement (see Fix 1995, Figure 2 for the genealogy). Based on the ages of current descendants of this (putative) Temuan migrant, this event most probably occurred around 1870. Evans (1915) also described marriage of several Selangor Orang Asli with Semai women in another region of the Semai distribution. While these recent events cannot explain the entire distribution of El in the northern Orang Asli, the process whereby this adaptive allele could enter Senoi populations by gene flow and then increase by selection over many generations seems a likely explanation of its distribution.

Certainly the outward orientation of the Melayu Asli to their trading contacts with Indonesian seafarers provides a plausible mode of introduction of the allele to the peninsula. Occasional matings with traders from the islands would have been advantageous for the exchange relationship. At the same time, given the relatively endogamous marriage system of the Melayu Asli *vis-à-vis* other Orang Asli communities, the diffusion of the allele to northern Asli groups such as the Semai would have been a slow process.

Conclusions: implications for forager–farmer–trader relationships

The prehistory of the Malayan Peninsula as reconstructed by Geoffrey Benjamin from linguistic and cultural evidence derives foragers, farmers, and traders from a common cultural matrix and implies the long-term coexistence of these differing traditions. The pattern of relationships among them has not been one of cultural symbiosis, with foragers linked in trade with settled people, but the adoption of complementary (rather than competitive) lifeways. The demographic replacement of foragers by farmers (called "demic diffusion" in the context of the spread of European agriculture from the Near East; Cavalli-Sforza et al. 1993) apparently has not occurred in the peninsula.

Although the biological data, both morphological and genetic, do not definitively reject a migrational origin for present-day diversity, this chapter has shown that they are consistent with Benjamin's model. In particular, the *pattern* of biological differences within and among contemporary populations fits the inferred population structures and interactions of the three Orang Asli traditions: undifferentiated forager (Semang) populations lacking malarial-adaptive genes, genetically microdifferentiated local populations of swidden farmers (Senoi) strongly selected for malarial resistance, and even more locally differentiated populations of farmer-traders (Melayu Asli).

The origin and maintenance of biological differences among the three traditions depended on some degree of isolation. Cultural differences raised barriers to intermarriage. However, this isolation was not absolute. Over the long term, gene flow linked them together in a larger gene pool and, as the ovalocytosis data showed, even more widely to the island world of Oceania.

10 Economic specialization and inter-ethnic trade between foragers and farmers in the prehispanic Philippines

LAURA L. JUNKER

Introduction

Ethnohistoric research and archaeological investigations indicate that, at the time of European contact, the coastlines and large interior river valleys of the Philippines were occupied by numerous small-scale chiefdoms supported by intensive rice production and maritime trading (Hutterer 1977a; Jocano 1975; Junker 1990b; Scott 1994). The adjacent lowlands and upland areas were inhabited by an amalgam of ethnically and linguistically distinct groups ranging from small bands of hunter-gatherers to tribally organized swidden agriculturalists and emergent ranked societies practicing intensive agriculture. While these groups occupied distinct ecological zones, pursued varying economic strategies, and were characterized by different levels of sociopolitical complexity, they were integrated through extensive interactive trade networks involving specialized production and exchange of both utilitarian and non-utilitarian resources (Hutterer 1974, 1976). The significant ecological diversity and geographic fragmentation characterizing island Southeast Asia appear to have engendered in many regions economies dependent upon specialization and intensive inter-ethnic exchange relations between tropical forest foragers, tribal swiddening populations, and chiefdoms or kingdoms focused on maritime trade and intensive rice production (Hall 1992). The historic period configurations of such inter-ethnic trade systems in the Philippines and elsewhere have been well documented through early texts associated with literate kingdoms of late first millennium AD and early second millennium AD Southeast Asia, Chinese trade records, and later European histories (e.g. Hall 1985:1–20, 1992:257–9; Miksic 1984; Wolters 1971:13–14). However, little is known about the relative antiquity of these forager–farmer trade relations, and how they may have been transformed by expanding maritime trading networks which eventually linked these regional economies into a larger "world system."

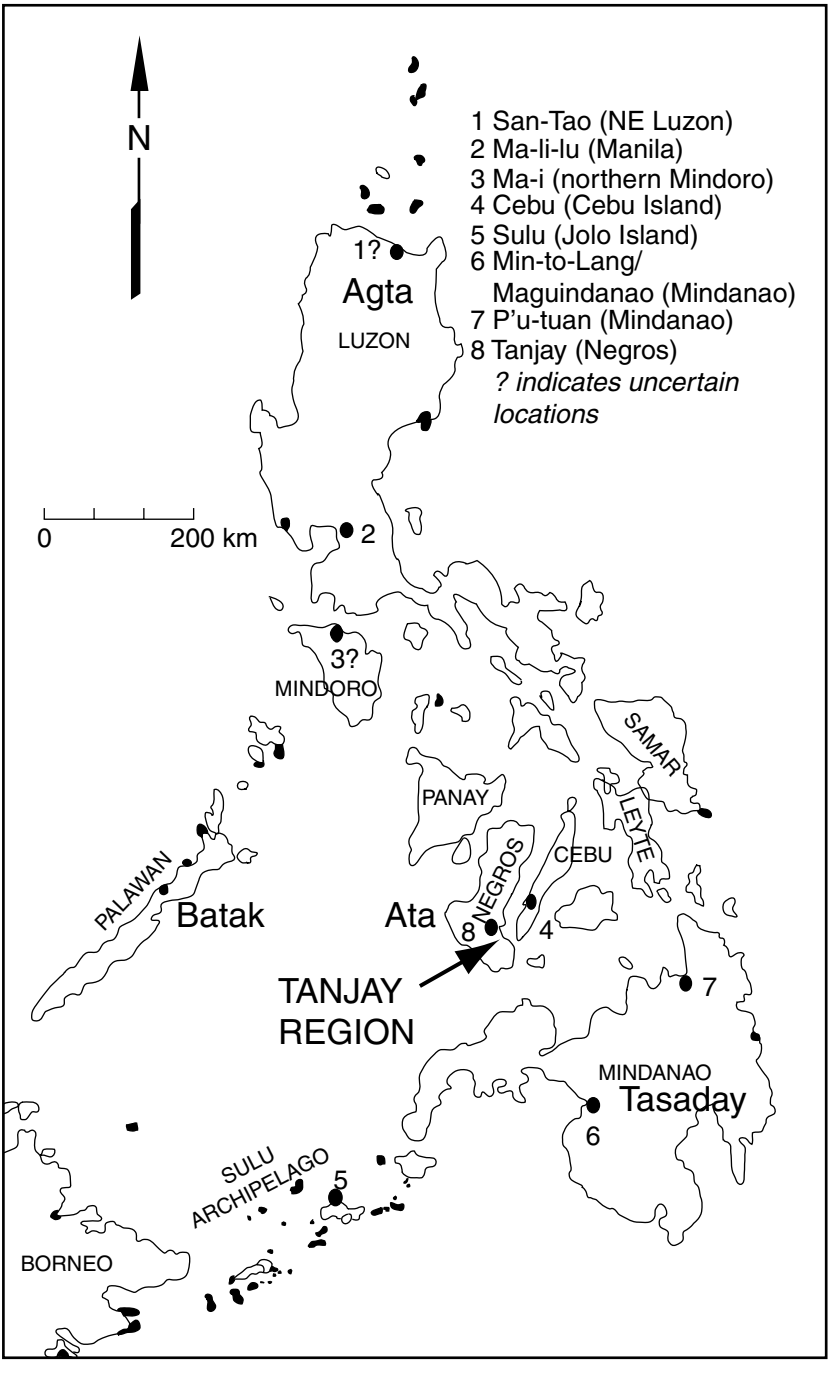
The evolutionary dynamics of hunter-gatherer/agriculturalist exchange systems can be fruitfully investigated through archaeological settlement pattern and artifact distribution studies, as demonstrated by work on Early Neolithic Europe (Dennell 1985a; Green 1991; Gregg 1988; Zvelebil 1986), the Late Stone Age/Early Iron Age transition in Africa (Denbow 1984; Wilmsen 1989), and the proto-historic US Southwest (Spielmann 1991). Despite the fact that Southeast Asia may represent one of the most long-term cases of co-existence and sustained interaction between foragers and farmers (Hutterer 1976, 1983), comparatively little archaeological research has been specifically devoted to examining economic, social, and political aspects of these relations and their long-term evolutionary implications. The present study focuses on an ethnohistorically well-documented system of exchange and social interaction between interior tropical forest hunter-gatherers and lowland intensive rice farmers in the Tanjay Region of Negros Island in the central Philippines. Archaeological settlement pattern data, analysis of stone tool assemblages, and regional distributions of trade commodities ranging from marine shell to earthenware pottery, will be used to examine the changing nature and intensity of inter-ethnic exchange relations over a period of roughly a thousand years prior to European contact. A major focus of this study is on how increasing sociopolitical complexity within the lowland chiefdom and the early second millennium AD advent of foreign prestige goods trade affected the organization, material emphasis, and intensity of these trade interactions. While the archaeological analysis is focused on sixth- through sixteenth-century economic developments within a single region of the Philippines, the ethnohistoric model of forager–farmer interactions developed here is broadly based. It examines inter-ethnic trade with adjacent agricultural populations as one of a number of adaptive mechanisms used by hunting and gathering groups to cope with the resource limitations of tropical forest environments.

Trade and social interactions between Philippine hunter-gatherer societies and lowland agriculturalists

Ethnohistoric, linguistic, and archaeological evidence all point to a lengthy history of intense and frequent trade interactions between Philippine hunter-gatherer groups and adjacent agriculturalists of both the uplands and lowlands (e.g. Headland and Reid 1989; Hutterer 1974; J. Peterson 1978b). Grouped under the general term "Negrito" or referred to by various self-designating terms (e.g. Agta, Ata, Batak), Philippine hunter-gatherers

comprise some twenty-five ethnically and linguistically distinct groups, together numbering about 15,000–20,000 and inhabiting the interior tropical forests of most of the major islands of the archipelago (Figure 10.1). The most isolated and "unacculturated" of these groups, the Agta of northeastern Luzon and the Batak of Palawan Island, have been the focus of the most intense ethnographic study (e.g. Eder 1987; Griffin and Estioko-Griffin 1985; Headland 1986; J. Peterson 1978a). These highly mobile bands typically occupy small, frequently relocated camps within the interior rainforest, with subsistence focused on bow-and-arrow and trap hunting of wild pig, deer, monkey, and small mammals, river fishing, and forest collecting of wild starches. However, rice, obtained through trade or grown seasonally in small swidden plots, is a significant dietary staple in even the most isolated of these groups. This has generated debate on whether trade with sedentary agriculturalists and the practice of small-scale rice cultivation are recent phenomena or, alternatively, represent long-term adaptations involving situationally shifting economic modes and cross-cultural interaction (e.g. Eder 1988; Griffin 1984; Headland and Reid 1991; Rai 1982).

Among the Philippine food producers in close geographic proximity to the Negrito bands are both small-scale, tribally organized societies of swidden farmers (primarily inhabiting the uplands) and intensive rice agriculturalists (occupying major lowland river valleys and coastal areas). The latter form the productive core of numerous maritime trade-oriented coastal chiefdoms engaged in foreign luxury good trade with the Chinese in the tenth to sixteenth centuries AD (Hutterer 1977a). Early Spanish sources indicate that lowland Philippine chiefs were dependent on upland forest products and raw materials directly controlled by interior hunter-gatherers for the manufacture of prestige goods (e.g. gold ore, iron ore, wax, and forest hardwoods) and as export commodities for foreign trade with the Chinese (e.g. nutmeg, pepper and other spices, beeswax, honey, hardwoods, gums and resins, and gold; Artieda [1569] 1903:202; Colin [1660] 1975:151; Loarca [1582] 1903:115–21; Sande [1576] 1903:68–9). While foreign "prestige goods" trade dates to at least the tenth century, both ethnohistoric and archaeological evidence point to a dramatic increase in inter-polity competition for control of this luxury good trade in the fifteenth and sixteenth centuries, coinciding with a period of political expansion in some Philippine coastal trading polities (Junker 1994b:241–3). An important competitive strategy for Philippine chiefs in attempting to attract foreign trade to their coastal ports was to intensify trade relations with interior foragers who could provide the export products most desired by Chinese traders (Junker 1999:221–60).



10.1 Location of some historically known hunter-gatherer groups in the Philippines, with reference to historically known chiefdoms

However, ethnographic data and historic records suggest that inter-ethnic trade contacts were not wholly catalyzed by recently emerging lowland chiefly political economies and the early second millennium AD advent of foreign trade. Exchange between coastal agriculturally focused populations and forest collectors of the interior is likely to have been related to intra-regional ecological diversity, and this type of "symbiotic" exchange may have developed over many millennia (Hutterer 1974, 1976). This trade involved the movement of both mundane subsistence goods and manufactured household products, and appears to have been integral to the economy of both exchange partners (Allen 1985:60; Conklin 1957:153; Estioko-Griffin 1985:23; Keesing 1962:121, 135, 139; Schlegel 1979: 105–9; Scott 1982:118, 190, 209; Scott 1983:143; Warren 1977:233, 240; see also Artieda [1569] 1903:202; Loarca [1582] 1903:115; Morga [1609] 1979:275, 284–5). In addition to raw materials related to their "prestige goods economy," lowland populations regularly obtained wild animal pelts and meat, swidden crops and wild tubers, and possibly manufactured goods such as basketry from their interior exchange partners. Upland groups (including both tribal swiddeners and hunter-gatherer bands) were in turn dependent on the coastal populations for iron tools and weapons, salt, earthenware pottery, lowland livestock, and marine resources. However, ethnohistoric sources suggest that lowland prestige goods (e.g. Chinese porcelain, decorated earthenware) also routinely flowed into the interior along riverine trade routes. Chinese porcelain, beads, fine metal ornaments and vessels, and "aristocratic titles" were often conferred on upland tribal leaders to ensure continuance of trade alliances, particularly in the case of interior agricultural societies with incipient social ranking (Manuel 1973:218–19, 343–4; Schlegel 1979:105–9; see also Colin [1660] 1975:115). Ethnographic and historic sources indicate that trade contacts between interior hunter-gatherers and coastal populations involved both direct interaction, frequently taking place at the ecotone between upland and lowlands (e.g. J. Peterson 1978a), and indirect "down-the-line" exchange with adjacent upland tribal swiddening groups functioning as trade intermediaries (Conklin 1957; Schlegel 1979).

Both linguistic and archaeological evidence support the contention that these hunter-gatherer/agriculturalist trade interactions have considerable prehispanic time depth in the Philippines, as elsewhere in Southeast Asia. Linguistic work has demonstrated that Philippine Negrito hunter-gatherers speak Austronesian languages that are related to those of adjacent non-Negrito populations (L. Reid 1987), pointing to sustained and long-term interaction (Headland and Reid 1989). While the archaeological evidence

for prehispanic hunter-gatherer/agriculturalist exchange is limited, isolated finds from a number of sites and periods are consistent with what Headland and Reid (1989) call an "interactive" rather than "isolate" model of relations. For example, archaeological remains from scattered sites in northeastern Luzon reveal that rice agriculturalists were living in close proximity to areas presently inhabited by Agta hunter-gatherers by at least 3,500 years ago (W. Peterson 1974; Ronquillo 1995; Snow et al. 1986; Thiel 1980). Similarly, Hutterer's (1973) regional settlement study along the Basey River of Samar recorded roughly contemporaneous stone tool-yielding cave occupations (interpreted as hunter-gatherer camps), open-air settlements (interpreted as the house-clusters of agriculturalists), and cave burials, with evidence for trade interactions over a substantial time span prior to European contact. This archaeological evidence, though meager, points to the early co-existence of food producers and hunter-gatherers in the heavily forested interior of the Philippines, a co-existence that may have been maintained through ecological specialization and economic symbiosis (Hutterer 1974, 1976).

However, the problems of archaeological identification of distinct economic modes (i.e. hunter-gatherer vs. agriculturalist) (see discussion below) are compounded by the fallacy of associating particular ethnic/linguistic groups with a unitary subsistence orientation. Griffin (1984), in particular, has pointed out that many Philippine groups, including both those labeled as "hunter-gatherers" and those designated as "agriculturalists," in reality practice what may be a long-term strategy of situational shifting between agricultural and foraging economic modes (Griffin 1984; see also Layton et al. 1991 for a general discussion of ecological factors selecting for mixed economies amongst hunter-gatherers). In a general review of the history of Southeast Asian agriculture, Hutterer (1983) has criticized the tendency of researchers to see foraging and food production as fundamentally different subsistence modes, since both hunter-gatherers and farmers manipulate their environment in various ways to increase its productivity, and subsistence diversification appears to have been a fundamental adaptive strategy in all pre-modern populations of the humid tropics.

The seeming ubiquity of trade relations with adjacent farmers and/or horticultural activities by recent tropical forest "foragers" in the Philippines has led inevitably to debate on whether such strategies are vital to survival in the carbohydrate-poor tropical forest (e.g. Eder 1987:45–51; Griffin 1984; Headland and Reid 1989, 1991). As in other regions of Southeast Asia, some ethnographers have suggested that a "pure" foraging adaptation is not viable in the interior tropical forests of the Philippine islands where

foragers are presently found, and that a hunting-and-collecting specialization was only possible with the advent of food production by adjacent coastal or lowland populations (e.g. Headland 1987; Headland and Bailey 1991; Headland and Reid 1989). For reasons discussed more fully below, the archaeological data from the Tanjay Region of the Philippines cannot directly address the issue of a pre-agricultural foraging adaptation in the interior tropical forests of the Philippines or the absolute time depth of forager–farmer exchange relations. However, archaeological evidence from this region will be used to argue that forager–farmer trade interactions extended back more than a thousand years in some regions of the Philippines. The significant antiquity of these trade relations, and the archaeologically evidenced diversity of exchanged commodities, suggest that trade contacts could not have been catalyzed wholly by the recent demands of an evolving maritime trading chiefdom for exportable forest products, but instead represent a longstanding solution to the ecological problem of diverse and scattered resources. At the same time, the ethnohistoric evidence presented below suggests that inter-ethnic trade was likely a situationally advantageous "choice" rather than a necessity for both exchange partners, who could alternatively obtain critical resources through diversification of their own range of productive activities. This is manifested in the significant geographic and temporal variation amongst historically known Philippine foraging groups in their relative reliance on external trade, horticultural activities, targeted wild plant resources, and other strategies to combat the supposed "carbohydrate deficit" of their tropical forest habitat.

Mobility and settlement strategies in Philippine tropical forest hunter-gatherers

In order to examine prehispanic hunter-gatherer/agriculturalist interactions in the Philippines from an archaeological perspective, it is first necessary to reconstruct mobility and settlement strategies in extant Philippine hunter-gatherers and how trade with sedentary farmers constrains other economic choices within their traditional annual cycle of foraging activities.

Mobility strategies refer to the seasonal movements of hunter-gatherers across their landscapes in response to problems of resource availability and acquisition (Binford 1980; Kelly 1983); these mobility strategies in turn determine the structure of hunter-gatherer settlement systems over time and over space. Tropical forest hunter-gatherers, faced with an environment with high species diversity, but low biomass and patchy (and somewhat unpredictable) resources, generally have a high level of residential mobility

(i.e. frequent moves), depend very little on long-term storage of resources, and have few resources that can be targeted for intensive exploitation through logistical foraging. Rai (1982:105–7) observed an average of twenty residential moves per year amongst the northeastern Luzon Agta group he studied, and Eder (1987:32) recorded between seventeen and twenty-six residential moves annually amongst the Batak of Palawan, with both groups transferring their camps relatively short distances with each move (Rai reports an average distance of 5.3 km per move). In a comparative study by Kelly (1983), he found that the Punan of Borneo and the Semang of Malaysia similarly average more than twenty residential moves per year, with camp generally relocated between 5 and 15 km. The length of camp occupation and distance covered in a subsequent residential move, however, are dependent on the "mix" of economic activities engaged in while in residence (i.e. hunting, forest collecting, fishing, horticulture, labor for adjacent farmers, and trading activities), which in turn is dependent on seasonal factors of rainfall and constraints of "fixed" resources (i.e. agricultural fields; Eder 1987:31). These seasonal differences in settlement and resource use are discussed in more detail below.

In the Agta groups of northeastern Luzon studied by Estioko-Griffin and Griffin and the Batak investigated by Eder, bilaterally related extended families are the primary co-residential unit (Eder 1987:28; Estioko-Griffin 1985:21; Griffin 1989:63). The co-residential group frequently consists of two to six nuclear families (typically thirty-five to fifty individuals) related through kinship (Eder 1987:30–1; Estioko-Griffin 1985:21; Griffin 1984:105), although the size and composition of groups varies according to the seasonal round of economic activities and according to social factors (e.g. social friction, exogamy and outside affinal ties, and various external social obligations) that favor residential group fluidity (Estioko-Griffin and Griffin 1975:243). These extended family residential clusters primarily move upstream and downstream along specific river drainages which, while not constituting formalized "territories," are part of their long-term social and economic identities (Eder 1987:28–30; Griffin 1984:104–5, 1989:61; Rai 1982:61–3).

While meteorologists refer to the humid tropical climate of most areas of the Philippines as "non-seasonal," ecological studies by Allen (1985:47–56) and Griffin (1984:98–103) make a strong argument for slight but significant seasonal variation in rainfall, air temperatures, wind velocities, and storm frequencies that affect resources available to Agta hunter-gatherers. The Agta and other Philippine foraging groups recognize these "seasons" themselves, cognitively dividing their year at least minimally into "rainy" and "dry" seasons characterized by varying economic choices, mobility

strategies, and settlement patterns (Allen 1985; Eder 1987:68–71; Griffin 1989). Since the Agta of northeastern Luzon have been the subject of most intensive ethnographic analysis with regard to ecological factors of subsistence and settlement (Headland and Headland 1999; also see Headland and Griffin 1997 for a published bibliography of sources on the Agta), I focus discussion on these groups to build a general model of Philippine hunter-gatherer mobility and then turn more specifically to the far more meager ethnographic data for Negros Island hunter-gatherers.

During the height of the rainy season in northeastern Luzon (approximately October to February), the co-residential group tends to be at its peak size, as related nuclear families come together to construct a cluster of small pole-and-thatch houses in a favorable location along the river that may be occupied up to several months (Griffin 1984:105; Griffin 1989:65). The relative sedentism (at least short-term) associated with these rainy season settlements and the relatively larger investment in shelter construction are related to both the physical difficulties of mobility (with high rivers and soggy forest floors), the availability of stored rice and other recently harvested crops, and the mobility constraints associated with horticultural activities (primary clearing in anticipation of burning and crop planting at the end of the rainy season). Rainy season camps tend to be placed in the same or adjacent locales year after year (Griffin 1989:67), generally along the middle or upper tributaries of the river system, in close proximity to reusable swidden fields cultivated in previous seasons. Stored rice from the last harvest in September generally lasts until January and the relative sedentism of the rainy season allows the Agta to prepare for the next year's swidden crops. While hunting is a year-round activity that dominates the Agta economy, the rainy season is considered to be the best time for hunting the larger game animals such as wild pig, deer, and monkey, since these animals are generally fattest and most numerous at this time and can be silently stalked in the wet forest (Griffin 1989:63). Hunting forays by groups of men and/or women radiate out in a "tethered" pattern both upriver and downriver from the sedentary rainy season camp.

The dry season (approximately May to September, but beginning as early as April and ending as late as October) is a time of greater mobility and diversification of subsistence activities amongst the Agta. The nucleated co-residential groups of the rainy season tend to disperse during the dry season (Griffin 1984:105), with the more varied economic activities favoring the establishment of short-term camps occupied by one or two nuclear families strung along the river. For the Nandukan Agta of northeastern Luzon, according to Allen (1985:54–5), river terraces within the lowland forest are favored campsites during the dry season, in close proximity to good hunting

and fishing locales, and to special resource collection areas. Agta groups with a heavy reliance on horticulture (e.g. the Nandukan) tether their dry season camps to be in relatively close proximity to swidden fields so that they can return periodically for burning, planting, and harvesting (Griffin 1989:64), while Agta groups who rely primarily on trade with farmers rather than their own horticultural activities for plant staples emphasize proximity to trade partners in the location of these dry season camps (Griffin 1989:67–9).

Dry season habitations consist of flimsily built lean-tos that might be constructed in less than one hour, and can be readily transported from one location to another or simply abandoned for possible reuse (Griffin 1989:64). A wide variety of economic activities take place out of these small, short-term camps, including hunting (game drives involving smaller animals are particularly favored) and collecting in the forest (including wild roots, fruits, greens, and honey), spear-fishing and mollusc-collecting in the river, periodic horticultural activities in nearby swidden clearings, trading expeditions to exchange hunted meat and forest products for rice and other lowland products, and (in some groups) seasonal agricultural labor for permanent farmers (Estioko-Griffin 1985:21–3; Griffin 1984:107–13). Special collecting trips are frequently made at this time to procure honey, rattan, and orchids for export to lowland traders (Allen 1985:60). Dry season camps are frequently occupied for only a few days as nearby resources are exhausted and economic priorities shift (e.g. because of the need to harvest a ripening crop in a distant field; Estioko-Griffin and Griffin 1975:243). While the inclusion of horticultural activities necessarily impacts on time available for hunting and other activities (Griffin 1989:64–6), it does not exert an overwhelming pull on settlement and mobility choice. This is due to the staggered planting of crops, the minimal attention to swidden fields between planting and harvesting (Agta generally do not concern themselves with weeding), and the generally low priority given to horticulture as a subsistence mode in most groups (Estioko-Griffin and Griffin 1981:55; Headland 1975:249; Headland and Reid 1989:45). In his 1983–4 ethnographic fieldwork amongst the Casiguran Agta, Headland (1986) found that 96 percent of the rice consumed at their meals was acquired through trade and only 4 percent through swidden gardening, and thus farming activities had limited influence on mobility decisions in this group. However, 92 percent of the meals consumed by these foragers included rice, emphasizing the dietary significance of this carbohydrate staple and the importance of trade for rice in determining the seasonal round of activities.

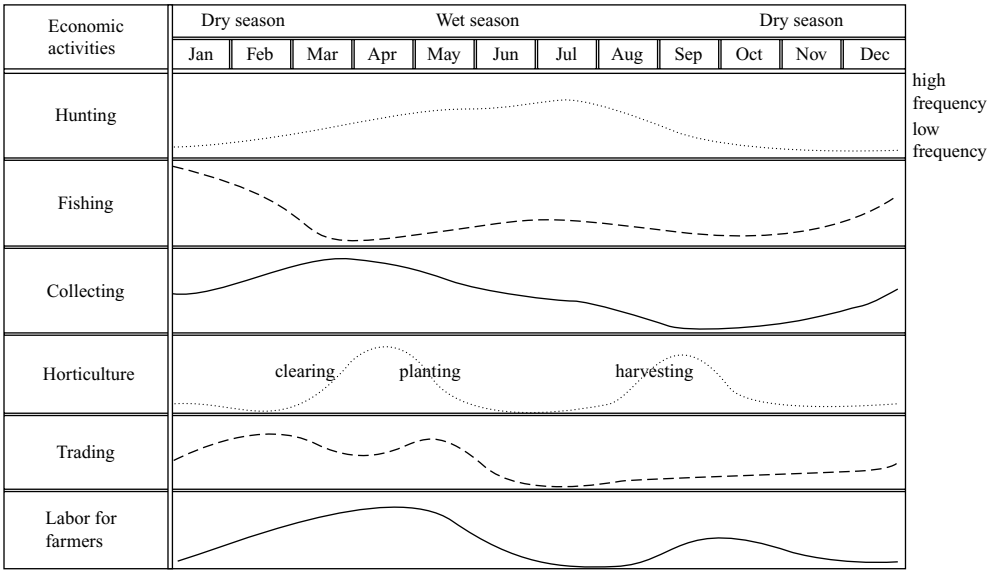
While long-term ethnographic research amongst the various Negrito groups of northeastern Luzon has yielded the most complete data on economic strategies and mobility patterns, we should note that no one Philippine foraging group can be considered "typical." Seasonal movements appear to vary widely between Philippine hunter-gatherer groups as a function of numerous factors, including: (1) specific environments and the distribution of resources within their territories; (2) micro-climatic conditions affecting rainfall patterns in different parts of the Philippines; and (3) the proximity of agricultural groups as resource competitors and as trade magnets. In a chapter of this length, it is not possible to discuss these complex regional patterns of variability in climatic regimes, resource distributions, and social interactional systems and the constraints they may have placed on hunter-gatherer economies. However, it can be noted that differing patterns of monsoonal rainfall in the southern Philippines (summer rains and winter dry season), a differing mix of faunal and floral forest resources (particularly in Palawan), and close proximity to major maritime trading routes may have resulted in very different economic emphases in groups like the Batak of Palawan (e.g. more reliance on inter-ethnic trading vs. horticulture; Eder 1987).

The tropical forest-covered volcanic mountains and highland plateaus of the interior of southeastern Negros, the focus of my study, were also traditionally occupied by mobile hunter-gatherers known historically as the Ata (Beyer 1903, 1921; Oracion 1960; Rahmann and Maceda 1955). The Ata shared this upland zone with linguistically and ethnically distinct, tribally organized swidden farmers (known historically as the Bukidnon and Magahat) (Beyer 1916:62–3; Oracion 1954, 1961, 1967), and both upland populations traded interior forest products downriver to Visayan-speaking intensive agriculturalists who formed the core of a maritime-trading chiefdom. Unfortunately, rapidly expanding logging operations and colonization of the interior of Negros Oriental by lowland farmers over the past fifty years has led to displacement of a small number of the Ata hunter-gatherers to a reservation near Mabini (outside the Tanjay Region) and the absorption of others into lowland populations (Cadelina 1980; Oracion 1961:59; Reynolds 1975). Therefore, we do not have the same type of detailed ethnographic information on traditional social structures, economic organization, and settlement systems available for the more remote groups of northern Luzon and Palawan.

Despite increased sedentism and emphasis on wage labor since the 1950s, ethnographic research (particularly that carried out prior to the 1950s in the mountainous interior of Negros) suggests that the Ata of

Negros had similarly flexible "mixed" economies (hunting, collecting, fishing, horticulture, labor for lowland farmers, and trading) and had mobility strategies which mirrored those of the better-known groups elsewhere in the Philippines. The relative significance of horticulture in the Ata economy in the early twentieth century and the time depth of food production activities are unknown since we have almost no pre-twentieth-century references to these groups. The Negros Ata, similar to other groups, divided the year into a "dry" (approximately November to April) and a "rainy" season (approximately May to October; Cadelina 1980; Hutterer 1982a; Oracion 1961),[1] with consequent shifts in subsistence orientation and settlement choices. At the beginning of the rainy season (usually May), the Negros Ata settled near their swidden fields in the foothills and mountains of the interior, planting dry rice, sweet potato, cassava, yams, taro, jackfruit, and papaya for harvest in September. When not engaged in horticulture, hunting for subsistence and for export, as well as gathering of forest resources for local consumption and for lowland trade, was the primary pursuit between May and the September harvest. Ata in close proximity to lowland farmers exchanged field labor during peak planting and harvesting times, for lowland subsistence goods or manufactured commodities (or, more recently, cash wages). By November, when precipitation declined and rivers no longer swelled, fishing activities reached their peak and hunting for subsistence declined (except for export-related pig-hunting near known waterholes). Towards the end of the dry season and peak heat of March and April, river fishing declined (due to the drying up of many tributaries) and most protein again was obtained through hunting activities. The typical cycle of economic activities for the Negros Ata, primarily reconstructed from Cadelina's (1980) account, is presented in Figure 10.2. It should be noted that, although Cadelina's (1980) collection of quantitative data on annual subsistence cycles was undertaken after Negros Ata populations became almost largely sedentary, his description is based partially on oral histories and is consistent with early twentieth-century historical accounts of these groups (see Rahmann and Maceda 1955 for a summary).

Since both river and foot travel were less arduous, the dry season was also a time when Negros Ata increased their forest collecting trips for such products as rattan, beeswax, honey, tree resins, and spices specifically for exchange with Visayan lowlanders (Cadelina 1980:101; Oracion 1961:209–10, 1967:168–70). Trade partnerships with lowlanders to obtain critical manufactured goods and coastal resources (pottery, textiles, fish and shellfish, salt, metal tools, and possibly rice) appear to have been most active at this time. Relevant to the spatial organization of exchange



10.2 Seasonal round of subsistence activities for the historic Negros Ata, as reconstructed from Cadelina (1980)

are ethnographic and historic references to dry season movements of Ata hunter-gatherers downriver to the lowlands to fish, to collect wild resources at lower elevations, and to engage in trade interactions with lowland agriculturalists (Rahmann and Maceda 1955:825). Unfortunately, early ethnographic and historical accounts of the Negros Ata do not provide more detailed information on mobility patterns and settlement forms tied to seasonal changes in subsistence and trade interactions. However, it is likely that the Negros Ata, like those of northeastern Luzon, occupied larger and more permanent camps during the rainy season when mobility was impeded, moving to smaller, short-term camps with less well-built shelters during the dry season when greater mobility was possible. In terms of archaeological patterning, we expect rainy season camps amongst the pre-modern Negros Ata to be larger, with more permanent features and higher overall artifact densities, than dry season camps.

The Agta of the Sierra Madre region in northeastern Luzon demonstrate how the proximity of permanent farmers constrains mobility and subsistence options for hunter-gatherers, as well as promoting certain types of exchange interactions. The Agta of the eastern watershed of the Sierra Madre, due to the absence of a substantial agricultural population on the narrow eastern coast, move seasonally to the coastal beaches to exploit marine resources; in contrast, movements of the Agta of the western watershed

of the Sierra Madre are limited to the upper sections of the river courses due to the concentration of permanent agricultural populations along the lower river courses (Griffin 1989:61). In terms of the proximity of farming populations and the constraints they might put on economic choices and mobility decisions, the late first-millennium and early second-millennium AD Ata of the Tanjay Region would have been more similar to the western Sierra Madre Agta. Adjacent complexly organized agricultural groups would have prohibited the direct exploitation of certain lowland resources (particularly coastal resources) and required them to obtain them through trade. The proximity of ready sources of starch may have favored trade for agricultural products rather than engaging in their own horticultural activities. The increased opportunities for subsistence exchange, coupled with the lure of readily available manufactured goods, may have promoted an increased emphasis on hunting for meat, as well as increasing energies devoted to the specialized collecting of forest products desired by lowland trade partners. Dry season movements downriver to the margins of lowland agricultural settlement were likely to have been determined as much by trade opportunities as by the traditional seasonal subsistence activities unrelated to these exchange relations. In terms of archaeological patterning, we expect some dry season camps to be located in relatively close proximity to lowland village settlements and to contain archaeological materials indicative of trade interactions with these lowland agriculturalists (marine shell, ceramics, metal, etc.).

Problems in the archaeological analysis of hunter-gatherer settlement systems

Before discussing archaeological evidence for hunter-gatherer trade activities, it is necessary to address some methodological issues concerning the archaeological visibility of hunter-gatherer behaviors. A general problem in the archaeological identification of hunter-gatherer activities in prehistoric Southeast Asia is the predictably poor archaeological visibility of most types of hunter-gatherer encampments. As noted above, most tropical forest hunter-gatherers have mobility and settlement strategies characterized by frequent, short-distance moves by the entire residential group, generally aimed at exploiting a diverse range of seasonally available resources rather than a narrow range of targeted resources (i.e. a non-logistical strategy). The archaeological implications are that (1) numerous small-scale, perhaps overlapping, archaeological sites are created by abandoned camps each year; and (2) the ephemeral nature of occupation reduces the general

archaeological visibility of these camps, and almost precludes the identification of even redundantly practiced domestic activities (and see Junker, this volume). Ethnographic studies of extant Philippine hunter-gatherers have shown some redundancy and predictability in settlement location, with longer-term rainy season camps likely to be located at or near the same site with some regularity (usually at strategic points along the river with a confluence of critical resources; Griffin 1989:67). Thus, some components of the settlement system may be more archaeologically visible due to repeated occupation, and it may be possible to predict these settlement preferences through analyses of topography, proximity of transportation routes, and the distribution of water and other resources.

Given the long time spans over which the archaeological record is formed, archaeologists also need to consider the effects of year-to-year variation in hunter-gatherer mobility strategies in response to annual resource fluctuations, as well as longer-term changes in adaptations associated with climatic perturbations (Binford 1982; Hayden 1981; Winterhalder and Smith 1981). The relative imprecision of archaeological dating means that most settlement pattern studies of hunter-gatherers will involve a *palimpsest* of settlement activities over many years and even many centuries, obscuring both short-term variability and long-term change. Ethnographic work on Philippine hunter-gatherers indicates that these groups are extremely flexible, both on a year-to-year basis and in the long-term, in their selected "mix" of exploited resources and economic strategies (hunting vs. collecting vs. fishing vs. horticulture vs. trading; Griffin 1989:69).

As noted above, the lure of trade partnerships often resulted in rearranged economic priorities to accommodate export-generating activities (e.g. non-subsistence hunting, the collection of targeted forest resources) and the time-consuming social interactions required by trade. While trade partnerships were individualistic, on a general level hunter-gatherer resource scheduling was tied to lowland production schedules and trade networks, which in turn varied and fluctuated according to factors within the lowland polities' complex internal economy. These factors include agricultural cycles, chiefly tributary demands for surplus, fluctuations in the production of craft goods, and perturbations in foreign maritime trade (see Junker 1990b, this volume). As an example of the kind of variability in settlement and economic choices that can be catalyzed by trade relations, general ecological theory suggests that an increased emphasis on hunting for export is likely to lead to an overall increase in the size of the residential group's territory and greater residential mobility for the entire group or a shift to include some logistical mobility of persons most heavily involved in

trade (Kelly 1983). In contrast, increased horticultural production and less reliance on inter-ethnic trade for carbohydrates is likely to result in longer periods of sedentism and to lessen the attraction of establishing seasonal camps near sedentary agriculturalists. These differing economic choices have significant archaeological implications in terms of the average size of sites (small vs. large), their artifact densities (ephemeral vs. more substantial deposits), the range of artifactual material (hunting-related equipment vs. harvesting equipment, many trade goods vs. few trade goods), and settlement locations (concentrated near trade routes vs. dispersed).

A more basic archaeological issue involves the perishable nature of material culture in tropical forests, with the attendant problems of establishing relative chronologies and functional interpretations of sites that are essential to archaeological settlement pattern studies of hunter-gatherers. While the most archaeologically durable and abundant components of artifact assemblages at hunter-gatherer campsites are lithic materials, Philippine stone technology is notoriously chronologically undiagnostic. Holocene period lithic industries in the Philippines generally consist of amorphous quartzite and chert cores, flakes, and blades, with few functionally specific and purposefully retouched "tools" (e.g. scrapers on flakes, knives on blades, and occasional burins, but no recognizable "projectile points") and a high level of conservatism over time (Coutts 1984; Fox 1970; W.J. Parry 1982b; W. Peterson 1974). A number of archaeologists working in Southeast Asia have attributed the relative "crudeness" and the highly conservative nature of lithic industries to their function primarily as "maintenance" rather than primary "extractive" implements (see Junker, chapter 7, this volume). Thus, attempts at both "functional" classifications aimed at defining activity-specific "tool-kits" and "stylistic" classification focused on geographic and/or temporal variation are likely to be relatively unproductive. Ethnographic studies suggest that a whole range of archaeologically undetectable perishable tools (made of wood, bamboo, rattan, animal skin, abaca, and other fibers) are the primary technologies used in the hunting and collecting activities of Ata foragers (e.g. Allen 1985:60–2). W.J. Parry's (1982a) investigation of Ata arrow manufacture indicates that it is in these perishable technologies unlikely to enter the archaeological record that "stylistic" expressions reflecting "ethnic" affiliations and individual identities are encoded.

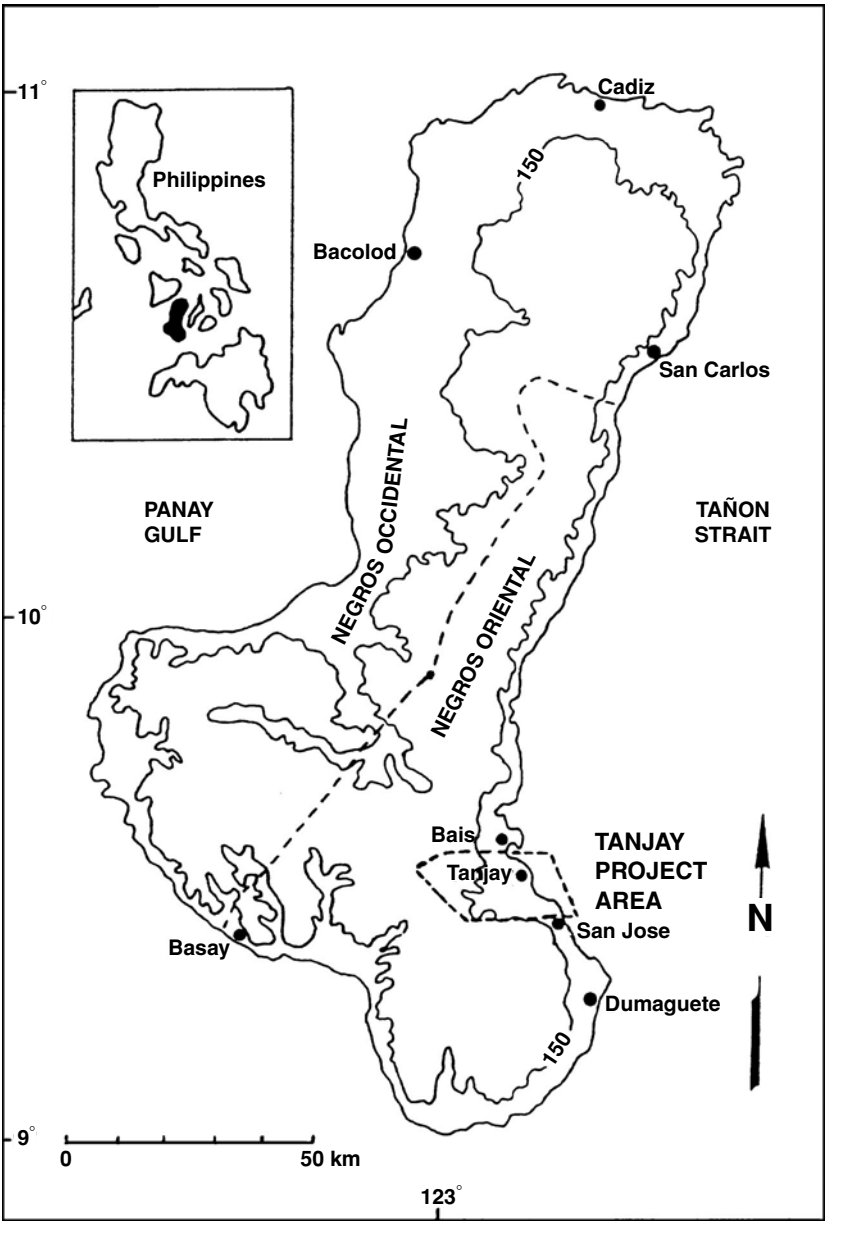
In a later section discussing analyses of stone tool assemblages from Tanjay Region sites, it will be demonstrated that some "functional" interpretations of Philippine lithic materials are possible if we focus on specific traits such as the edge angles of retouched tools. The problem of

dating sites based on conservative lithic assemblages with no discernible stylistic content is more difficult. Cross-dating through association with geological phenomena or chronologically diagnostic non-lithic artifacts has allowed archaeologists to relatively date assemblages at some surface-collected sites and excavated sites in Southeast Asia. However, associations between stone tool assemblages and other archaeological materials are frequently problematic even in apparently stratigraphically secure contexts (Hutterer 1977b). With surface-collected material, archaeologists must assume that any surface concentration may represent multiple occupations occurring over a long period of time, although long-term continuity in hunter-gatherer mobility and settlement strategies may tend to produce redundant patterns in the archaeological record that can be interpreted in very gross functional, if not historical terms.

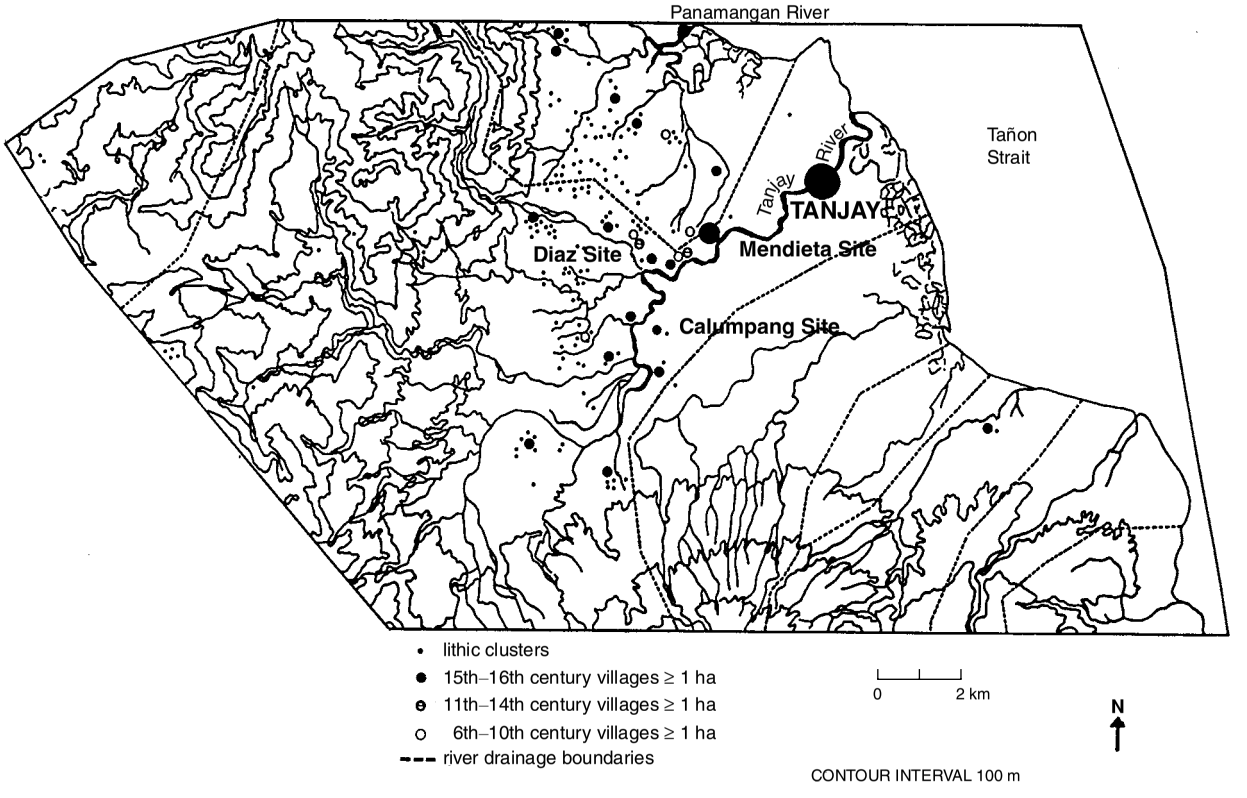
Archaeological investigations in the Tanjay Region of the central Philippines

Since 1979, a program of extensive regional archaeological survey and excavation has been carried out in the Tanjay Region[2] of Negros Oriental (Figure 10.3). One of its principal aims has been to provide a diachronic perspective on agriculturalist/hunter-gatherer trade interactions (Hutterer 1981; Hutterer and Macdonald 1979, 1982; Junker 1990a, 1990b, 1994b, 1999; Macdonald 1982). The Tanjay Region is known ethnohistorically to have been the locus of one of many relatively small-scale chiefdoms dotting the Philippine coasts at the time of Spanish contact (Loarca [1582] 1903:47; Rodriguez [1565] 1903; see also Martinez Cuesta 1974). This region consists of an alluvial plain 3–15 km wide drained by the Tanjay River, occupied in the sixteenth century by Visayan-speaking intensive rice agriculturalists who were the core population of the maritime-trading chiefdom centered at the large coastal port of Tanjay (Figure 10.4). As noted in the preceding section, at the time of European contact the mountainous interior of the Tanjay Region was inhabited by both tribally organized swidden farmers known as Bukidnon and Ata hunter-gatherers who were linked economically to lowland farmers through extensive inter-ethnic trade networks.

Since the research issue of forager–farmer interactions is one that is regional in scale, it can only be addressed through regional settlement pattern studies based on systematically collected settlement data. While the enormous size of the study region (315 km^2) precluded full-coverage survey, a combination of probability-based and contiguous-block regional



10.3 Location of the Tanjay Region, Negros Oriental, Philippines (from Junker 1994b:236)

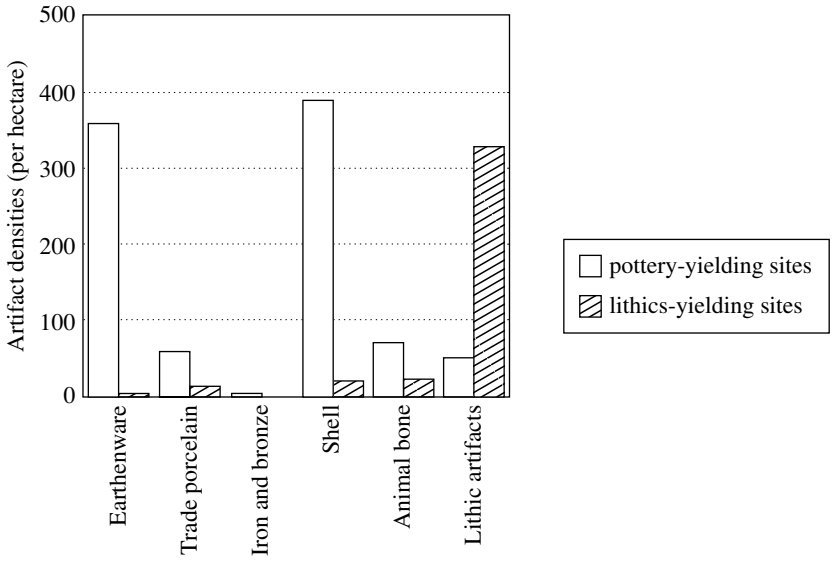


10.4 Tanjay Project area, showing the location of lithic clusters recorded in regional surface survey relative to large lowland villages

surveys in 1979 and 1982 allowed us to cover approximately 24 percent of the Tanjay Region (Junker 1990b; Macdonald 1982) and to record 390 sites (176 with substantial occupation), spanning a roughly 4,000-year period before Spanish contact. Both small-scale and more extensive excavations at nine Tanjay Region sites in 1979, 1981, 1985–6, and 1994 (Hutterer 1981; Hutterer and Macdonald 1982; Junker 1993a, 1993b) have allowed the construction of six regional cultural phases beginning in the early second millennium BC (see Junker 1990b:186–7 for a summary of regional chronology). Only the three most recent of these prehispanic phases have yielded reliable regional settlement pattern data relevant to the research presented here, including: (1) the Aguilar Phase (AD 500–1000); (2) the Santiago Phase (AD 1000–1400); and (3) the Osmena Phase (AD 1400–1600).

Sites that have been extensively excavated include the coastal chiefly settlement of Tanjay, initially emerging as a regional trade center in the sixth- to tenth-century Aguilar Phase (Junker 1993a, 1993b; Junker et al. 1994), and three upriver "secondary centers" dated primarily to the fifteenth- to sixteenth-century Osmena Phase (Figure 10.4). Changes in the size and internal complexity of the chiefly center in the fifteenth–sixteenth centuries, along with the growth of a dendritically organized lowland settlement hierarchy focused on river-based secondary centers as interior trade nodes (Junker 1990b, 1994b), together suggest that the Tanjay chiefdom was transforming politically and expanding economically in the period just prior to Spanish contact. These transformations in the lowland chiefdom, attributed to increased chiefly participation in foreign "prestige goods trade" (Junker 1994b) and a spiraling system of "competitive feasting" amongst lowland chiefs (Junker et al. 1994), have important implications for the nature and volume of trade with interior populations.

The 176 Tanjay Region sites with evidence for substantial occupation can be segregated into two distinct "types" of settlements based on qualitative and quantitative differences in their artifact assemblages. As shown in Figure 10.5, the first type of site is characterized by relatively high densities of earthenware, shell, and animal bone, and low to moderate densities of foreign trade porcelains, metal objects (both bronze and iron), and lithic material, with the surface scatters ranging from about 0.1 hectare to more than 7 hectares in size. In the lowlands, excavations at this type of site have yielded evidence for permanent occupation (posthole patterns, hearths, pits, midden areas, and occasionally craft production areas and burials; Hutterer 1981, 1982b; Junker 1993a, 1993b, 1994b). They are interpreted as the varying-sized villages of fully sedentary, intensive



10.5 Comparison of artifact densities for sites primarily yielding earthenware pottery and sites primarily yielding lithic artifacts in the Tanjay Region

agriculturalists incorporated economically and politically into the lowland maritime trading chiefdom centered at Tanjay (see Junker 1990b, 1994b, 1999:221–60 for detailed discussion of lowland settlement hierarchies). In the upland zone, these sites are uniformly smaller (generally less than one hectare), and they are less likely to contain lowland-derived metals and foreign trade porcelains. They most likely represent the dispersed homesteads of partially sedentary upland tribal swiddeners importing manufactured goods from the lowlands.

Contrasting with these primarily pottery-yielding sites are both lowland and upland sites with artifact assemblages dominated by lithic material and animal bone, interpreted as the probable "camps" of mobile hunter-gatherers. As shown in Figure 10.5, these sites generally contain animal bone densities comparable to the pottery-dominated sites, but shell, metal objects, trade porcelains, and earthenware are either absent or found in significantly lower densities. These sites are also considerably more compact than the presumed agricultural homesteads and villages, ranging from 0.1 hectares to 2.6 hectares, but averaging only about 0.25 hectares in size. In later discussion, it will be shown that these "hunter-gatherer camps" differ in size and assemblage composition between the upland and lowland zones, variation that may be interpreted in terms of seasonal patterns of mobility and settlement.

The stone technology from the Tanjay Region, like that of other lithic-yielding sites in the Philippines and elsewhere in Southeast Asia, has little discernible "stylistic" elaboration that might allow us to define chronologically diagnostic forms. Therefore, the stone tool assemblages themselves provide no information on the relative date(s) of occupation, and we must rely on associated features and materials. Where chronologically diagnostic earthenware or foreign porcelains have been found in association with Tanjay Region lithic clusters, they have been assigned a tentative date. The majority of the lowland lithic sites discussed below have been tentatively dated to the fifteenth- to sixteenth-century Osmena Phase, a smaller number of sites have been assigned to the sixth- to tenth-century Aguilar Phase, and a significant portion of the lithic sites are presently undatable due to the absence of associated ceramics. However, relative dating on the basis of artifact associations in the case of surface-collected material is problematic. Because of the large number of undated lithic sites and the provisional dating of others, the analyses of hunter-gatherer settlement patterns presented below will be largely synchronic – i.e. locational aspects of all lithic clusters (regardless of tentative chronological assignment) will be compared with all sixth- to sixteenth-century agricultural villages, regardless of dating. Ethnographic and historical sources on Philippine hunter-gatherers suggest that an assumption of significant prehispanic continuity in locational choices and seasonal mobility patterns would not be unrealistic (e.g. Eder 1987; Griffin 1989; Rai 1982). However, coastal–interior trade patterns, as monitored through the regional distribution of chronologically diagnostic ceramics and metal, are analyzed diachronically according to discrete cultural phases suggested by these datable materials. Due to the largely chronologically undiagnostic nature of lithic assemblages in the Tanjay Region and a failure to recover any pre-second-millennium BC deposits at excavated sites, no definitively "pre-agricultural" settlements have been identified. Therefore, the present archaeological database from Tanjay cannot contribute meaningfully to the issue of "pristine" tropical forest foraging prior to food production.

Hunter-gatherer mobility strategies and settlement location

One of the ways in which prehispanic hunter-gatherer mobility strategies and trade with adjacent agriculturalists can be archaeologically assessed is through analyses of settlement patterns. Since ethnohistoric reconstructions of traditional mobility patterns suggest movement upstream

Table 10.1 Comparison of lowland and upland lithic-yielding sites in the Tanjay Region identified as possible "hunter-gatherer camps"

	Lowland sites (below 100 m elevation)	Upland sites (above 100 m elevation)
Number of sites analyzed	120	11
Mean number of sites/km^2	6.08*	1.12*
Mean site sizes (in hectares)	0.65*	0.21*
Mean lithic densities (in items/1000 m^2)	15.90*	70.40*
Mean pottery densities (in items/1000 m^2)	25.40*	6.80*

Note: *Indicates statistically significant (at the .05 level) differences between lowland and upland sites, using the Student's t-test.

and downstream for seasonal subsistence and exchange activities, we can compare features of lithics-yielding sites along upstream tributaries of the Tanjay River (and adjacent rivers in the research region) above 100 meters elevation with lithics-yielding sites concentrated along the Tanjay River's lower tributaries below 100 meters (presumably in closer proximity to lowland agriculturalist trade partners). The 1982 regional survey yielded eleven potential "hunter-gatherer camps" (i.e. sites with high lithic artifact densities) in the upland zone (above 100 meters) and 120 sites in the lowland zone (below 100 meters).[3] It should be noted that the disparities of site sample sizes are related to differing sampling techniques carried out in the two environmental zones: 104 of the lowland sites were recovered within a 48 km^2 transect across the lowlands with 100 percent coverage, while all of the upland sites were recorded in probability-based survey covering approximately 3 percent of the upland zone (with the necessity of extrapolating site densities from this "representative sample" of sites). Contrasts in surface visibility may also affect the comparability of the upland and lowland samples, since the rugged terrain and thick vegetation in areas above 100 meters substantially decreased our chances of finding surface traces of these sites.

Bearing these limitations in mind, settlement analyses of Tanjay Region sites identified as possible "hunter-gatherer camps" reveal significant differences between the lowlands (below 100 meters elevation) and uplands (above 100 meters elevation) in terms of density of sites, site location, site size, and density of cultural material. As shown in table 10.1, the lowland zone has a greater density of these presumed hunter-gatherer camps and

Table 10.2 Comparison of the degree of clustering of high-density lithic-yielding sites (probable hunter-gatherer camps) in the Tanjay Region (using the variance/mean [V/M] ratio)

	Mean sites/km^2	Variance sites/km^2	Variance/mean ratio
Lowland zone (below 100 m elevation)	6.08	148.35	24.4 highly clustered
Upland zone (above 100 m or greater elevation)	1.12	5.71	5.1 clustered

the camps are, on average, larger in size than those of the uplands. However, while the upland sites are smaller and less numerous, they have generally higher artifact densities within their compact surface areas, in particular larger amounts of lithic artifacts. As shown in Figure 10.4, the upland camps are never more than one kilometer from water sources, tending to cluster on relatively flat terraces above small tributaries of the Tanjay River that might be expected to flow during the rainy season. This is consistent with settlement preferences suggested by ethnohistoric descriptions of the Agta of northeastern Luzon and other extant Philippine foragers, who generally establish their "base camps" close to rivers for daily access to drinking water, fishing opportunities, and easy transport routes. We would expect the presence of a large number of temporarily utilized foraging and hunting sites away from the river, but these may be virtually "undetectable" archaeologically given their ephemeral occupation and the generally poor surface visibility.

The more numerous and larger lowland sites are even more strongly clustered than those of the upland zone. The majority of sites are tightly clustered in the upper reaches of the Panamangan River drainage and the northern branch of the Tanjay River, with most sites within three kilometers of the abrupt transition between lowland alluvial plain and uplands. A statistical analysis of clustering tendencies, using the V/M (variance/mean) ratio, confirms the comparatively higher degree of clustering amongst these seasonal hunter-gatherer camps on the lowland margins (table 10.2). Furthermore, these clustered lithic scatters are themselves clustered in close proximity to specific lowland agriculturalist settlements strung along the Tanjay and Panamangan rivers and their subsidiaries (Figure 10.4). A statistical test presented in table 10.3 indicates that these lithic-yielding sites are found near the riverbank agricultural settlements more often than would be expected under conditions of purely random placement of the two site types, suggesting that locational choices may be influenced by anticipated economic interactions with the inhabitants of nearby villages.

Table 10.3 Comparison of the probability of an individual lowland hunter-gatherer camp having a large (>1 hectare) lowland agricultural village as its "nearest neighbor" in a "random" settlement pattern with the actual incidence of large lowland villages as "nearest neighbors" (using the Z-statistic)

Total number of settlements in the analysis (N)	92
Lowland agriculturalist villages greater than 1 hectare (n_1)	24
Lowland hunter-gatherer camps (n_2)	68
Expected probability of nearest neighbor of hunter-gatherer camp being a large agricultural village (p_1)[a]	.2637
Expected number of hunter-gatherer camps with large agricultural villages as their nearest neighbors	17.93
Actual proportion of nearest neighbors which are large agricultural villages (p_2)	.5735
Actual number of hunter-gatherer camps with large agricultural villages as their nearest neighbors	39
Z-statistic[b]	1.68 * sig. at the .05 level.

Notes: Sites within areas of non-contiguous survey are omitted from this analysis.

[a] This is calculated as $p_1 = n_1/(N - 1)$. $N - 1$ is used as the denominator, since a site cannot be a "nearest neighbor" with itself. Possible "nearest neighbors" are defined as sites within the transect and cannot be external sites or the transect boundaries.

[b] This is calculated as $Z = (x_1 - M)/S$ where $M = (p_1)(n_2)$, $x_1 = (p_2)(n_2)$ and $s = (n_2)(p_1)(1 - p_1)$.

Studies of the size, location, and archaeological content of the large riverbank villages have suggested that they functioned as "secondary" and "tertiary" centers within a dendritic, riverine trade-oriented settlement system (Junker 1994b, 1999). Located strategically along the major coastal–interior riverine transportation routes and in close proximity to the ecological boundary between the forested upland interior and lowland alluvial plain, these settlements would have served as fixed locales for the periodic exchange of upland forest products and lowland agricultural and manufactured goods. Previous locational analyses focused on the regional organization of the Tanjay lowland chiefdom (Junker 1990b, 1994b) have shown that, while these "secondary centers" manifest no discernible regularities of spacing and location in the sixth- to tenth-century Aguilar Phase and eleventh- to fourteenth-century Santiago Phase, there is a marked tendency towards even spacing along the Tanjay River by the fifteenth- to sixteenth-century Osmena Phase (Junker 1994b:246–7).

These fifteenth- to sixteenth-century "secondary centers" within the Tanjay polity are also more numerous and significantly larger in size than in the preceding cultural phases (Junker 1994b:239–40). A large number

of the lowland lithic clusters are concentrated around two particularly extensive fifteenth- to sixteenth-century riverbank settlements: the 7 hectare Mendieta site (located around 5 kilometers upriver from the chiefly center at Tanjay) and the 2 hectare Diaz site (located about 7 kilometers upriver from Tanjay) (Figure 10.4). Both of these sites yielded substantial quantities of foreign trade porcelains and lowland-manufactured status goods, as well as mundane lowland-produced domestic goods, supporting their inferred significance as critical upriver trade nodes in the regional political economy of this period. If, as suggested above, most of the lowland hunter-gatherer "camps" represented by the lithic clusters in this area are dated to the fifteenth- to sixteenth-century Osmena Phase, their close spatial proximity to these large riverbank settlements would suggest that economic interaction with the lowland villagers was one of the magnets drawing upland hunter-gatherers periodically to these particular locales.

Differences in site form and composition suggest that the upland and lowland sites represent different settlement components of a seasonal round of hunter-gatherer activities involving movement along the river between the tropical forests of the mountainous interior and the lower-elevation forests on the margins of the alluvial plain occupied by permanent rice farmers. While the upland sites are more compact than those of the lowlands, the accumulation of artifacts and subsistence remains is significantly denser, suggesting longer-term occupation. Relatively poor preservation of the faunal and shell material from these sites, along with the difficulties of establishing association with the lithic material in surface collections, precludes any direct analysis of "seasonality" in occupation. However, the more permanent nature of the occupations is consistent with ethnographic accounts of "rainy season" camps established near swidden plots or productive forest zones at a time when mobility is impeded by dangerously swelling rivers and constant downpours.

In contrast, the lower-elevation sites in close proximity to lowland agriculturalist villages appear to represent multiple, perhaps overlapping, occupations of relatively brief duration concentrated on exploiting lowland foraging opportunities and interactions with lowland farmers. The following sections more closely examine lithic and ceramic assemblages at these sites, addressing more explicitly the question of specialized production and trade. However, this discussion can be anticipated here in pointing out that these lowland camps yielded more "specialized" tool assemblages and greater quantities of trade-obtained ceramics and metal than upland camps, supporting our interpretation of relatively brief occupation oriented towards a narrow range of targeted activities that might have included the processing of export items for trade. In terms of seasonality,

the portion of the Tanjay River where most of these sites are located would likely have been a dangerous torrent during the height of the rainy season, inhibiting both river travel and riverine subsistence exploitation. The substantial quantities of freshwater shell recovered from these sites and the relatively large number of trade goods argue for dry season occupation when enhanced mobility along the river and its intensive exploitation would have been possible.

The agriculturalist component of exchange: ceramics, marine resources, and foreign trade goods

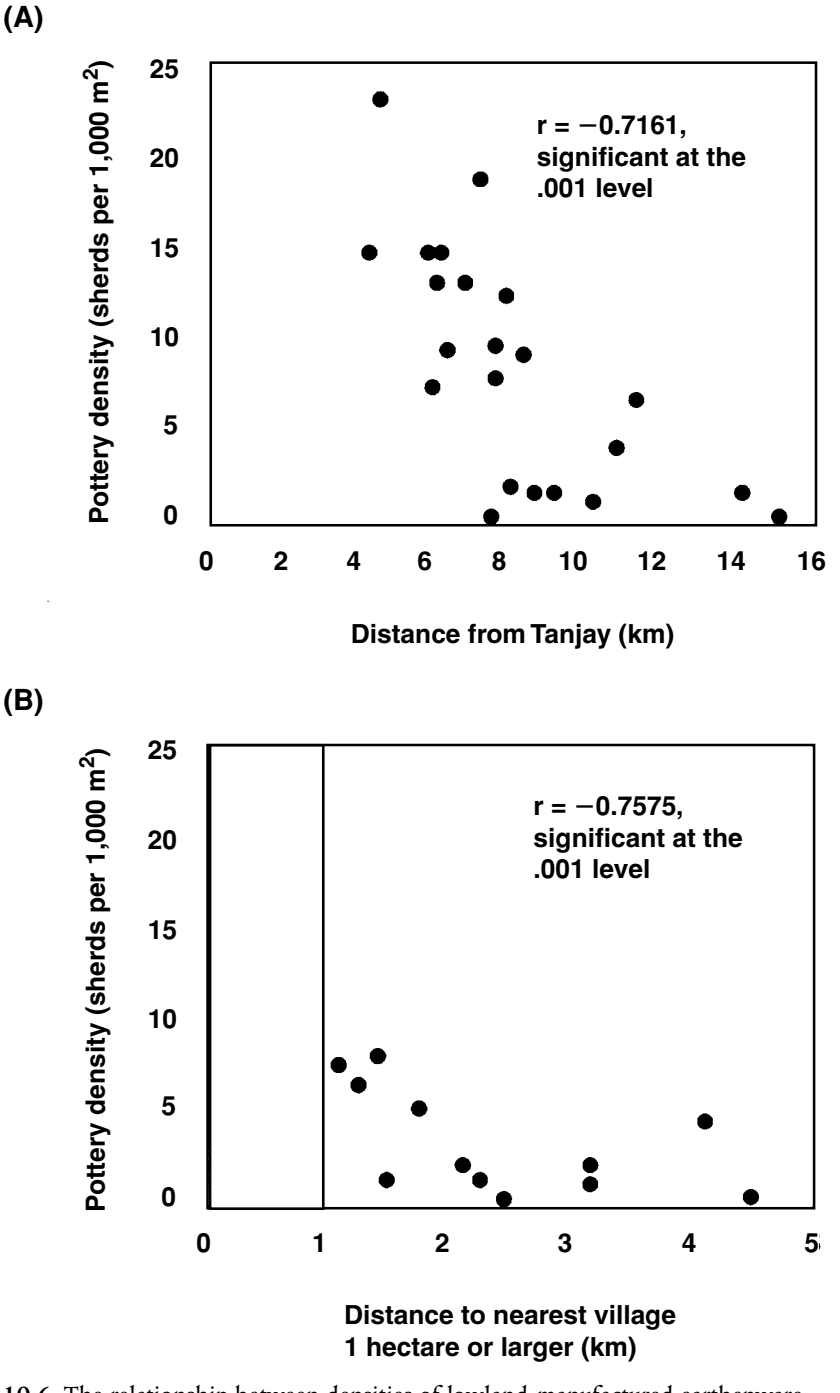
We have made the argument purely on locational terms that the lithics-yielding sites clustered on the Tanjay lowland margins were nodes of interaction between interior foragers and lowland agriculturalists. We now turn to an analysis of artifact assemblage composition to begin to evaluate the content and intensity of this interaction and how it might have changed over time. Archaeological documentation of the diversity and volume of coastal–interior trade goods is considerably biased towards lowland exports by factors of archaeological visibility and preservation. Ethnohistoric accounts suggest that the primary exports of interior populations were perishable forest products (such as animal skins, hard woods, resins, beeswax, and medicinal plants) with an expectedly low visibility in the archaeological record. In contrast, lowland exchange partners offered durable manufactured commodities which are highly visible archaeologically (including lowland-produced domestic goods like earthenware pottery, as well as luxury goods such as metal weaponry, decorated earthenware, and imported Chinese porcelain).

Two of the most significant lowland-manufactured goods traded to interior groups, including Ata exchange partners, were ceramics and metal implements. Previous statistical analyses of regional trade patterns in the Tanjay Region (Junker 1990a, 1994b) have shown that lowland-manufactured, undecorated earthenwares (presumed to have functioned as mundane household goods rather than as status items) flow in a distance-dependent pattern out of coastal manufacturing sites in the vicinity of Tanjay as early as the sixth- to tenth-century Aguilar Phase (Junker 1990b:200). In the Aguilar Phase, the primary lowland-manufactured earthenware (a diverse ware with probable multiple production centers known as "Aguilar Spotted Buff Ware") is recovered at 63 percent of all sites above 100 meters elevation with substantial pottery components (i.e. the presumed settlements of interior swidden farmers), at 21 percent of the lithic clusters recorded along the lowland margins, and at none

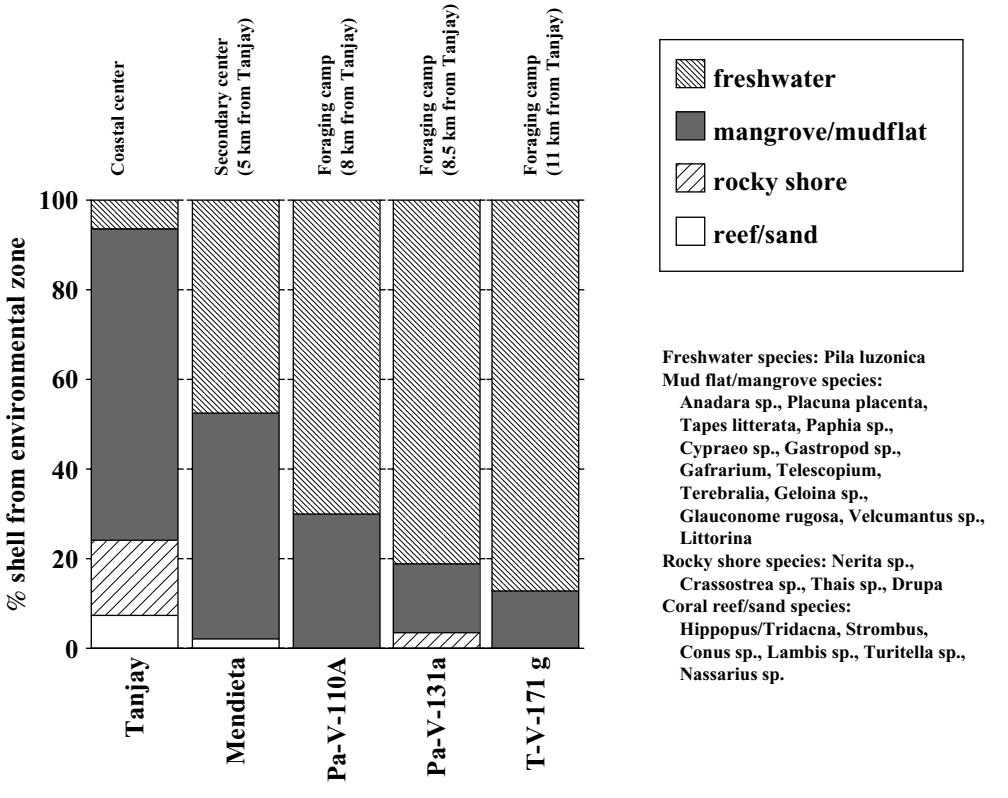
of the upland lithic clusters (i.e. the presumed camps of hunter-gatherers). The intermediate eleventh- to fourteenth-century Santiago Phase trade patterns are too poorly documented for quantitative analysis. However, by the fifteenth- to sixteenth-century Osmena Phase more than 80 percent of the upland farming settlements have pottery assemblages dominated by the highly standardized, Tanjay-produced earthenware ("Tanjay Red Ware"), the incidence of this lowland-manufactured earthenware at lowland foraging camps increases to 58 percent, and it is found at two of the upland foraging camps. It has been suggested (Junker 1993c, 1994a) that the increasing need of the coastal Tanjay chiefs for a stable supply of interior forest products, as their primary export product in foreign trade, may have catalyzed a variety of strategies for increasing both the intensity and volume of coastal–interior trade interactions. One of these strategies may have involved the mass production, and more extensive intra-regional exchange, of certain lowland-manufactured goods such as domestic ceramics.

Detailed quantitative analyses of the relative frequency of coastal-manufactured earthenware at interior lithic cluster sites dated through artifact associations to the fifteenth- to sixteenth-century Osmena Phase show a clear distance-dependent distribution. As shown in Figure 10.6, there are significant correlations between the relative frequency of earthenware at these presumed hunter-gatherer camps and the distance of the camp from both the coastal center of Tanjay and upriver secondary centers. This distance-dependent distribution of lowland trade potteries suggests that the location of lowland hunter-gatherer camps adjacent to sedentary villages along the upper reaches of the Tanjay River was at least partially a function of regular, and perhaps seasonal, trade interactions between the two groups along the lowland–upland boundary.

Another ethnohistorically documented component of exchange between lowland agriculturalists and the hunter-gatherers and swiddening tribal populations of the interior involved trade in foodstuffs. Lowland-produced foods which flowed into the interior included rice, tropical fruits, fish, shellfish, and other marine resources. While the interior movement of lowland rice and other perishable agricultural crops is difficult to document archaeologically, trade in marine products can be traced through an analysis of the content of shell middens at both lowland village sites and the lithic clusters along the lowland margins. Detailed quantitative data on shell species and environmental contexts have been collected for excavated shell assemblages from the coastal center of Tanjay and a secondary center about 5 kilometers upriver (the Mendieta site), as well as for surface-collected shell from three lithic clusters several kilometers upriver from the Mendieta site (Figure 10.7). Since all of the sites, with the



10.6 The relationship between densities of lowland-manufactured earthenware recorded at lithic cluster sites dated to the Osmena Phase (AD 1400–1600) and the distance of these lithic clusters from (a) the coastal center of Tanjay and (b) the nearest upriver "secondary center" greater than 1 hectare in size



10.7 Comparison of Osmena Phase (AD 1400–1600) shell assemblages

exception of Tanjay, yielded sufficient quantitative information on shell frequencies only for the most recent Osmena Phase, the discussion will be limited to this period. Not surprisingly, most of the shell species from the coastal center of Tanjay are marine species, while the majority of shell at inland Tanjay Region sites derives from riverine species. However, marine species represent a significant portion of shell assemblages at both the Mendieta site and interior lithic clusters, despite their considerable distance from the coast. The presence of substantial quantities of marine shell at upriver trading centers and at supposed adjacent hunter-gatherer camps suggests that marine products were traded into the interior as part of these symbiotic exchange relations.

Although lowland–upland trade primarily involved basic foodstuffs and utilitarian manufactured goods, ethnohistoric sources indicate that ongoing trade partnerships were formalized through ceremonialism and gift exchange. This often involved the circulation of "status goods" manufactured by specialists at coastal chiefly centers (decorated earthenware, metal

Table 10.4 Comparison of the percentage of interior agriculturalist farmsteads and hunter-gatherer camps yielding lowland trade goods

	Upland farmsteads/ hamlets above 100 m (%)	Lithics-yielding foraging camps above 100 m (%)	Lithics-yielding foraging camps below 100 m (%)
Aguilar Phase (AD 500–1000)			
Plain lowland-manufactured earthenware	63.3	0.0	21.0
One or more "prestige" goods (decorated earthenware, metal)	9.0	0.0	0.0
Santiago Phase (AD 1000–1400)			
Plain lowland-manufactured earthenware	*	*	*
One or more "prestige" goods (decorated earthenware, metal, Sung/Yuan and early Ming porcelain)	14.8	0.0	0.0
Osmena Phase (AD 1400–1600)			
Plain lowland-manufactured earthenware	83.3	13.5	58.4
One or more "prestige" goods (decorated earthenware, metal, late Ming porcelain)	48.2	9.1	8.3

Note: *Insufficient sample sizes for quantitative comparison.

weaponry, and jewelry) or obtained in foreign maritime trade (Chinese porcelain; Junker 1993c:11–12). Quantitative data on the regional distribution of these lowland "prestige goods" suggest that Tanjay chiefs may have been intensifying their efforts to consolidate trade relations with interior tribal leaders in the fifteenth to sixteenth centuries through more frequent and more voluminous ceremonial gift exchange. As shown in table 10.4, fewer than 15 percent of the upland settlements of swidden agriculturalists and none of the interior hunter-gatherer camps yielded one

or more of these "prestige" commodities in both the sixth- to tenth-century Aguilar Phase and eleventh- to fourteenth-century Santiago Phase. By the fifteenth- to sixteenth-century Osmena Phase, 48 percent of the highland settlements of swidden agriculturalists have archaeological evidence for access to one or more of these lowland status goods, but the association of metals, porcelain, and decorated ceramics with lithic clusters representing hunter-gatherer camps is still rare.

Exchange partnerships of lowlanders with tribal swiddening groups of interior Negros Island, such as the Bukidnon and Magahat, are likely to have involved quite different exchange contexts and trade commodities than exchange relations with mobile Ata hunter-gatherers. Tribally organized agriculturalists on the upland margins of lowland complex societies in the Philippines are frequently characterized by at least incipient social ranking and indigenous concepts of materially symboled social prestige upon which lowland status symbols could be directly grafted. In contrast, the more egalitarian, small-scale, interior hunter-gatherer groups are unlikely to have placed the same "social value" on such goods, and exchanges may have focused almost exclusively on foodstuffs, forest products, and mundane manufactured commodities.

The hunter-gatherer component of exchange: archaeological evidence from faunal and lithic assemblages

It is considerably more difficult to archaeologically assess the range and volume of products amassed by interior hunter-gatherers for export to lowland exchange partners, since many of these exports were perishable forest products (animal skins, hard woods, resins, beeswax, medicinal plants, and possibly basketry or matting). With reference to interior hunted game as a potential hunter-gatherer export to agriculturalist exchange partners, it is relevant to note that most of the lithic clusters concentrated along the upper Tanjay River also yielded significant quantities of animal bone, the bulk of which are assignable to wild species (wild pig, deer, monkey, and a variety of small to medium mammals). Recent studies of the eleventh- to sixteenth-century faunal remains from midden deposits within the coastal chiefly center at Tanjay (Junker et al. 1994) show that more than one-third of the faunal material in both the Santiago and Osmena phases derives from taxonomically wild species. Statistical comparisons of middens from "elite" and "non-elite" residential zones within the chiefly center (Junker et al. 1994:346) indicate that elite house-compounds at Tanjay focused their meat consumption largely on large domesticated animals (primarily pig and

water buffalo), which are known ethnohistorically to have been the major staple of elite-sponsored competitive feasts (Junker et al. 1994:315–24). Despite this emphasis on domesticated animals, both elite and non-elite households in this coastal settlement incorporated a significant volume of hunted resources into their diets. However, Griffin (1984) and others have noted that both "hunter-gatherers" and "agriculturalists" in the Philippines shift situationally between economic modes, engaging at various times in agriculture, hunting, collecting, and fishing. Thus, we cannot assume that most, or even some, of the wild animals consumed by the agriculturalist residents of Tanjay were procured through trade interactions with interior hunter-gatherers.

A more indirect line of evidence for hunter-gatherer activities that might be related to trade is the analysis of variability in stone tool assemblages at Tanjay Region sites. As previously noted, Philippine lithic artifacts of all periods consist primarily of relatively amorphous cores and flakes, with a low percentage of retouching and an even lower proportion of formalized "tools" such as knives and scrapers. This largely expedient industry appears to be primarily geared towards maintenance of perishable tools rather than primary extractive activities. However, in a study of lithic material excavated and surface collected in the Tanjay Region in 1979, W.J. Parry (1982b) has demonstrated that measurement of edge angles, overall tool or flake size and weight, and the incidence of edge damage (i.e. utilization) and retouch (i.e. purposeful modification) can provide insight into the types of activities taking place at lithic-yielding sites. Parry's observation that lowland lithic assemblages tended to contain more formal retouched "tools" and a larger percentage of flakes with evidence for utilization is significant in terms of inferred trade activities with agriculturalists at these lowland camps.

A sample of seven lowland lithic clusters and five upland lithic clusters recorded in the 1982 Tanjay Region survey was selected for detailed analyses of their lithic assemblages (table 10.5), using some of the quantitative measures suggested by W.J. Parry (1982b). Consistent with Parry's study, lowland lithic clusters were more spatially extensive, but yielded significantly lower stone artifact densities (and contrasting higher densities of animal bone and lowland products, such as pottery and marine shell). Differences in stone artifact densities appear to be at least partially a function of lithic assemblage differences. Upland sites primarily yielded cores and small, unretouched, unutilized flakes, while lowland sites contained a significant proportion of utilized flakes, as well as large flakes and pebbles that had been retouched into morphologically distinct "tools" such as scrapers, burins, notched tools, and knives (Figure 10.8). Heavy,

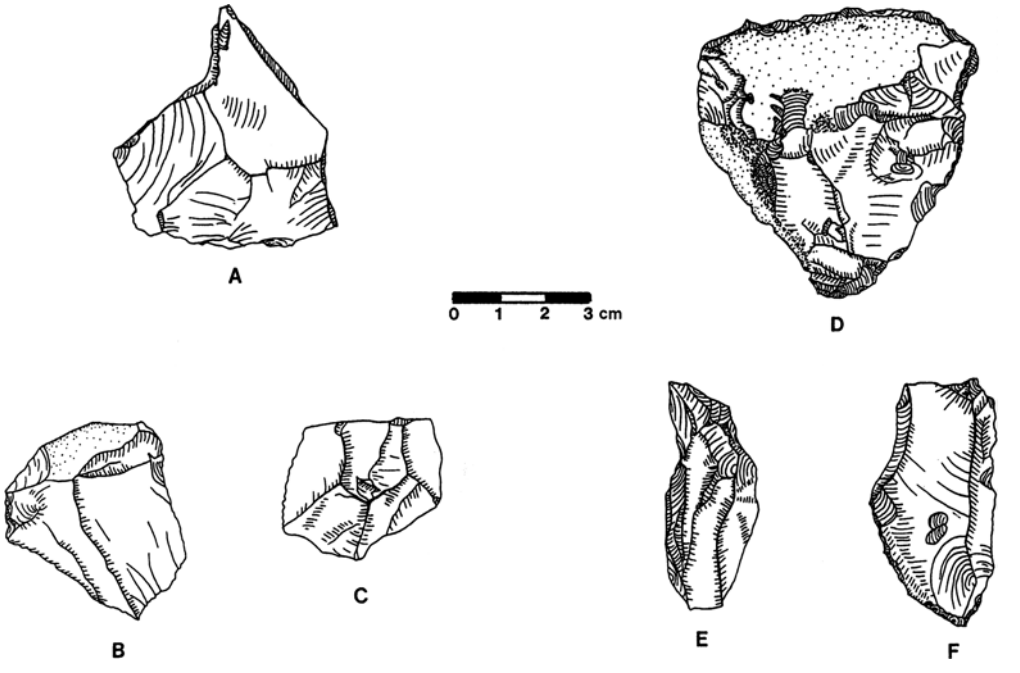
Table 10.5 Comparison of lithic assemblages at lowland and upland sites in the Tanjay Region yielding significant lithic components

	Lowland sites (below 100 m)	Upland sites (above 100 m)
Number of sites analyzed	7	5
Total number of lithic fragments	529	352
Mean lithic densities	17.2 items/1000 m^2	78.9 items/1000 m^2
Mean pottery densities	20.2 sherds/1000 m^2	5.2 sherds/1000 m^2
Mean site sizes[a]	0.85 (0.43) ha	0.15 (0.32) ha
Percentage of artifacts with one or more utilized edges	53%	25%
Percentage of artifacts with retouch	14%	5%
Mean edge angle[b]	57 (18) degrees	48 (12) degrees
Mean tool weight[c]	48 (105) g	20 (32) g

Notes: [a] Standard deviations in parentheses
[b] Utilized edges only
[c] Retouched "tools" only

steep-edged scrapers were unusually prominent in lithic clusters just west of the fifteenth- to sixteenth-century riverbank secondary center known as the Diaz site.

Interpretation of these differences in lithic assemblages is hampered by the lack of ethnographic and historic data on stone tool use amongst recent Philippine hunter-gatherers. Amorphous industries recovered from Philippine sites of various periods (comprising primarily unretouched cores and flakes with little evidence for use-wear) have been interpreted as expediently manufactured and non-functionally-specific tools used for a variety of both maintenance and primary extractive activities (e.g. Bevacqua 1972; Cherry 1978; Coutts 1983, 1984; Fox 1970; Ronquillo 1981). These activities might include butchering animals, processing plant materials, and producing arrowshafts, knives, and other tools out of bamboo and wood. Although ethnographic researches on the supposed Tasaday foragers of Mindanao have in general come under heated debate, Robert Fox's (1973) observation of stone flakes being used to manufacture a bamboo knife are consistent with J. Peter White's ethnoarchaeological work in New Guinea, which showed that both retouched and unretouched flakes are effective tools for manufacturing wooden technologies (White and Thomas 1972). With regard to plant processing, several core and flake assemblages from sites in the Philippines and Indonesia have yielded blades or flakes with



10.8 Stone artifacts collected from upland lithic clusters and lowland lithic clusters

silica gloss or sheen indicative of processing wild grasses, bamboo, domesticated grains, of other plants (Bellwood 1978:263; W. Peterson 1974:27; Thiel 1980:44). The lithic assemblages at the Tanjay Region upland sites, consisting primarily of a "smash-and-grab" industry of unretouched flakes, blades, and cores, are likely to have been expediently utilized for a wide range of animal and plant processing and perishable tool manufacturing activities. The significant number of cores and possible debitage at a number of upland Tanjay Region sites suggests that usable flakes were created, utilized, and discarded as needed for daily activities at these upland settlements.

It is suggested that, while the upland lithic assemblages may reflect the production of perishable extractive tools used in daily hunting and collecting pursuits, the formalized tools and retouched components of the lowland lithic assemblages may represent more specialized emphasis on production activities associated with seasonal exchange relations with lowland agriculturalists. As noted in a previous study of Tanjay Region lithic material by W.J. Parry (1982b), tools with steeply retouched edges are most likely intended as "maintenance tools" to work hard materials

(i.e. to manufacture bone or wood tools) or as primary tools for scraping materials that cannot be processed effectively with softer wood or bamboo (i.e. for scraping large animal hides). Since hunted meat and animal hides were a significant exchange commodity for interior hunter-gatherers, we might speculate that the unusually large number of steep-edged scrapers reflects preparation of animal pelts intended for trade at the adjacent river-bank villages. In addition, intensive hunting and fishing activities along the lower river would have required the manufacture or repair of wooden bows, arrowshafts, and spears, which may have involved the use of the types of steep-edged scrapers, burins, and notched tools found in the lithic assemblages of the lowland camps.

Conclusions

Southeast Asia presents an almost unique opportunity to examine long-term patterns of interaction between tropical forest hunter-gatherers and adjacent agricultural populations by integrating a rich corpus of historic, ethnographic, and linguistic data with archaeological analysis. However, there are numerous methodological problems associated with archaeological reconstructions of hunter-gatherer economies and settlement in tropical forest environments, including limited visibility of ephemeral forager camps, technologies dominated by perishable tools with poor archaeological preservation, and chronologically undiagnostic stone tool assemblages. For this reason, archaeological evidence has rarely contributed meaningfully to debates on the relative antiquity of inter-ethnic exchange and horticulture by hunter-gatherers as alternative strategies for obtaining carbohydrates, and the ultimate implications for initial colonization of the tropical forest environments by these populations. Archaeological evidence is also critical to addressing more interesting processual questions: how transformations in the sociopolitical organization of one or both exchange partners and interlinkage with external trade systems might have changed the content, intensity, and relative economic significance of these regional trade systems.

The archaeological research in the Tanjay Region of the Philippines demonstrates the potential of material evidence for studying the evolutionary dynamics of forager–farmer interactions even in environments with generally poor archaeological visibility and preservation. Seasonal variations in settlement and economic choices amongst ethnohistorically known Philippine foragers were visible in variation in the size, location, and artifact assemblage recorded for Tanjay Region sites. While durable

hunter-gatherer technologies such as stone tools were not directly datable, pottery and other products traded into hunter-gatherer camps allowed us to establish a relative chronological framework for these sites and to suggest a general time depth for forager–farmer interactions in the region. The archaeological evidence from this region indicates that ecological specialization and exchange of foodstuffs and manufactured goods between adjacent hunter-gatherers and agriculturalists are not relatively recent phenomena, as suggested by some ethnographers. Instead, these regional trade systems extend at least a millennium into the prehistoric past in the Tanjay Region and they are likely to have been part of a long-term cultural adaptation among Southeast Asia tropical forest dwellers. However, geological limitations on the visibility of early sites in the Tanjay River alluvial basin and chronologically undiagnostic lithic assemblages have made it difficult to establish "pre-agricultural" (and pre-ceramic) phases of occupation in the Tanjay Region. Thus, the issue of "independent" tropical forest foragers in the Philippine interior prior to the advent of food production remains unresolved.

Archaeological evidence from the Tanjay Region indicates that, whatever their ultimate antiquity, trade interactions between foragers and farmers were not static, responding to both internal and external political, social, and economic dynamics. In particular, the intensified participation of lowland Philippine chiefs in long-distance luxury goods trade in the fifteenth and sixteenth centuries appears to have had significant impact on the intensity and volume of exchange with interior hunter-gatherers. The competitive success of lowland chiefs in gaining access to Chinese porcelains and other foreign status goods was a direct function of their ability to amass interior forest products for export to their foreign trade partners. The emergence of a number of large "secondary centers" at strategic locales upriver from the coastal paramount center at Tanjay, the clustering of seasonal hunter-gatherer camps around these interior trade nodes, the lowland production of highly standardized ceramics in mass volume, and increasing densities of these ceramics and other lowland manufactured goods at the interior hunter-gatherer camps all attest to heightened trade relations in the fifteenth and sixteenth centuries.

An issue that may not be easily addressed with archaeological data is changes in the social asymmetries and political power relations implied by changing economic relations between foragers and farmers that may have ranged from "symbiotic" or "mutualistic" to "exploitative." Amongst contemporary ethnographers of Philippine hunter-gatherers, there is considerable disagreement on whether trade interactions with agriculturalists have

been mutually beneficial and characterized by limited control asymmetries (e.g. Peterson 1978a, 1978b) or whether they have been primarily exploitative and coercive, largely controlled by lowland trade partners who could more easily withhold access to their products, find substitutions for interior goods, and even disrupt hunter-gatherer livelihoods through upland colonization (e.g. Eder 1987; Griffin 1985). The diachronic perspective provided by ethnohistoric and archaeological analysis allows us to make a number of observations relevant to this issue. In some regions of the Philippines, particularly prior to the coastal development of complex societies, hunter-gatherer/agriculturalist exchanges of foodstuffs may have revolved around individually contracted alliances that were mutualistic and independent of any centralized political authority. However, once this exchange became linked to the lowland political economy, it is likely to have involved increasingly "coercive" or asymmetrical relations controlled by lowland elites at lowland chiefly centers. Therefore, by the fifteenth and sixteenth centuries, and possibly earlier, many Philippine hunter-gatherers became enmeshed, at least indirectly, in a larger Southeast Asian "world system" characterized by complex relations of political dominance and economic exploitation. Only careful ethnohistorical analysis of particular foraging groups can determine how these economic and political relations were further shaped by European contact and entrance into the modern market system.

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NOTES

1 Note that the "rainy" and "dry" seasons in the central Philippines fall within different months (in fact, at opposite times in the year) than in northeastern Luzon. This is primarily due to the "southwestern monsoon," an air current originating in the Pacific which drops substantial moisture on the island of Negros and adjacent islands during the months of May through November (see rainfall data in Hutterer 1982a:27). A small peak of rainfall actually occurs during what the Ata call the "dry season," when the "northeastern monsoon" passes over Negros and other central Philippine islands some time between November and January. This air system originates on the Asian mainland and its moisture is generally absorbed as it passes over the coastal waters of East Asia, producing very limited rainfall in the Philippines. For a more detailed discussion of these seasonal fluctuations in weather, see Hutterer (1982a:17).

2 This region was formerly referred to as the "Bais Region" in Hutterer and Macdonald's (1982) research and in early publications by Junker (e.g. 1990b, 1993a, 1993b, 1993c). In fact, most of the Tanjay River drainage and surrounding areas fall within the contemporary municipality of Tanjay, with some of the regional survey units located in the municipalities of Bais and Pamplona. Local officials from Tanjay, understandably proud of the recent archaeological attention to their area, have asked that we refer to the region as the Tanjay Region in future publications that refer to archaeological research falling within their municipal district.

3 In a preliminary study of high-density lithics sites in the Bais/Tanjay Region, Junker (1990a) defined two types of sites based on overall artifact densities (designated as lithic "sites" and lithic "findspots") which were treated separately in locational and assemblage content analyses. The utility of this distinction has been reassessed, and all lithics sites from the 1982 survey are combined in the present analysis.

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