

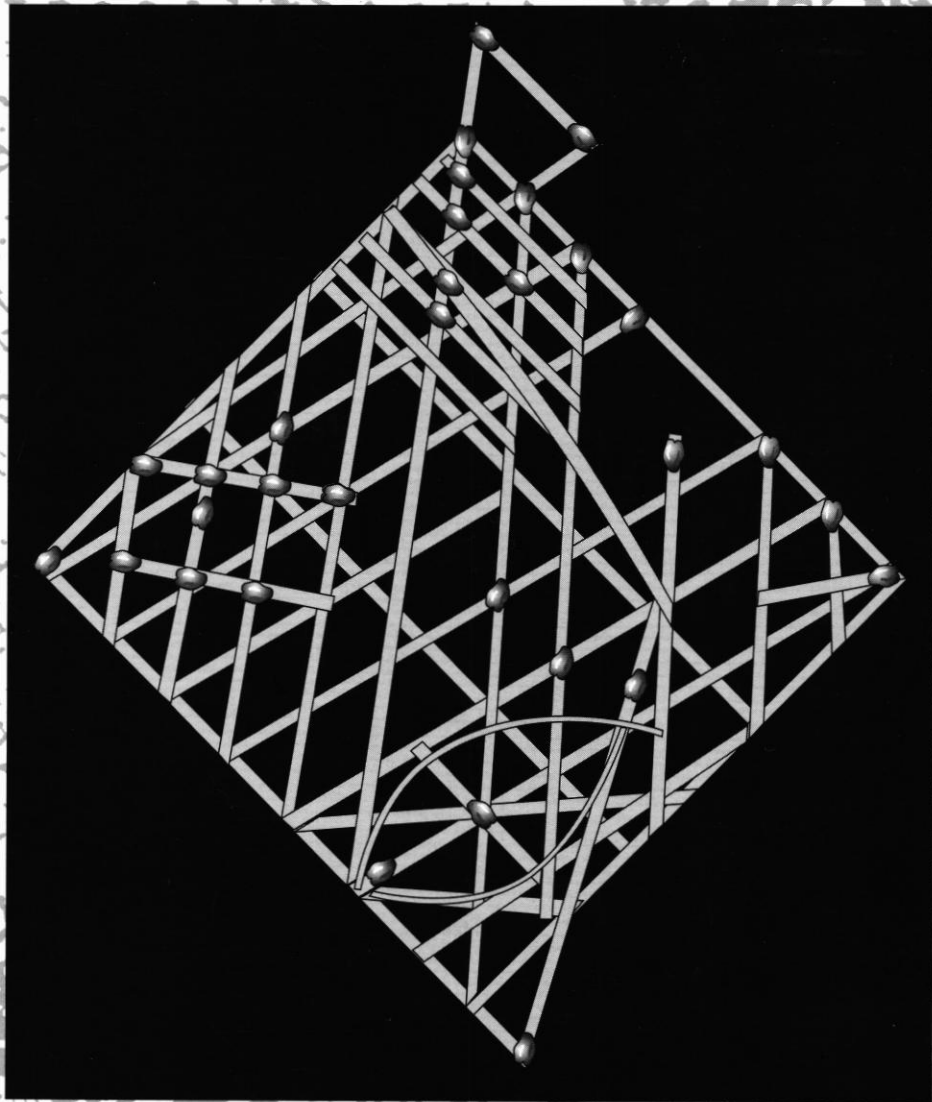


**NEW ZEALAND ARCHAEOLOGICAL ASSOCIATION MONOGRAPH 21:
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Oceania: An Interdisciplinary Approach***



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PREHISTORIC LONG-DISTANCE
INTERACTION IN OCEANIA:
AN INTERDISCIPLINARY APPROACH

Edited by Marshall J. Weisler

21

NEW ZEALAND ARCHAEOLOGICAL ASSOCIATION
MONOGRAPH

EXCHANGE IN OCEANIA: SEARCH FOR EVOLUTIONARY EXPLANATIONS

Timothy Earle

Let us begin with Karl Polanyi's (1957) famous title: "The economy as instituted process". A human economy has two fused properties. Firstly, an economy is a material process through which goods and services are produced, exchanged and consumed. Daily food and drink sustain humans as they work, pray and play with cultural things that range from tools to clothing to sacred objects. The production and distribution of all these items constitute the economy. Secondly, the economy has form; it is organised by social and political relationships that order interpersonal interactions across space and through time. The constant giving and receiving of gifts and other economic transactions take place between individuals who recognise histories of relationships, and these social histories map how individuals should act towards each other. Institutionalising exchange gives stability and predicability of access to important things.

From its conception in the 19th century, a principal goal of anthropology has been to document and explain the evolution of human societies. Stripped of any supposition of development, studies of social evolution remain pivotal to our discipline. Anthropological archaeologists in particular document and explain change and variability in human societies. Although initial formulations of evolutionary typologies (as, for example, Fried 1967 or Service 1962) have proven to be overly simplified, that challenges us to seek more sophisticated understandings of the processes that cause societal change. What we should focus on, I believe, is the institutional nature, the organisational forms, of human societies. The problem is to delimit how and why humans built and maintained specific institutions. Of course, any approach to such a daunting task requires a very complicated model of agency and action, but I suggest that institutions have organisational properties that limit what is possible and determine to some measure how and when different institutional forms will arise.

Following on Polanyi's original insight, a basic dimension of human institutions is economic. Goods and

services are produced, distributed and consumed within specific social contexts. Individuals materialise social and institutional relationships through such events and objects as gift exchanges, ceremonies, symbolic objects, and built landscapes of walls, pathways, houses and monuments (DeMarrais *et al.* 1996). These manifestations, produced and distributed within the social economy, become the physical form for institutional order.

When the contributors to this volume speak of interaction, they focus our attention on the nature of emergent human institutions, their dispersal and evolution in prehistoric Oceania. Researchers in the Pacific have long recognised the importance of exchange for social institutions. Ethnographies that concentrate on the economy and exchange include writings about the Kula of the Trobriands and other Melanesian islanders (Leach and Leach 1983; Malinowski 1922; Weiner 1976), about intensive exchange of food, pottery and other crafts between the peoples of the Papuan coast and neighbouring islands (Harding 1967; Irwin 1985), about the ceremonial exchange cycles of the Moka and Te in Highland New Guinea (Meggitt 1972; Strathern 1971), about the Santa Cruz exchange involving red-feather money (Davenport 1962, 1964), about the extensive exchange among the high islands and atolls of Micronesia (Alkire 1965; Hunter-Anderson and Zan 1996), and about the spousal and prestige goods exchanges between the chiefs of Tonga, Samoa and Fiji (Davidson 1978; Kaeppler 1978). At the other extreme, ethnohistorical accounts of several regions in eastern Polynesia especially, i.e., the Society Islands (Oliver 1974:194), the Marquesas (Handy 1923) and the Hawaiian Islands (Earle 1978), de-emphasise the importance of exchange. What would explain variability in the significance of exchange, and how it related to the historical chiefdoms of the Pacific? This is a classic anthropological question, and one towards which archaeology can contribute substantially.

To explain this variability in exchange through time and space, we turn to the archaeological records

documenting exchange in Pacific societies. Beginning in the 1960s, a technological revolution in archaeology made systematic research on exchange possible (Ericson and Earle 1982). A whole suite of analytical methods allowed archaeologists to identify the place of origin for materials used to make artefacts. The materials most commonly analysed are obsidian and ceramics, but a wealth of other materials have proven possible to source.

Sourcing of basalts, so important in the Pacific, has been relatively difficult, and until recently the lack of reliable methods has limited exchange studies in Remote Oceania where ceramics and obsidian are comparatively rare. The present volume is thus an important advance. A major goal is to produce a reliable database of basaltic geochemical analyses, by which sourcing of adzes and other artefacts can be accomplished. With this database, it will be possible to document the changing patterns of exchange through both time and space. Although movement towards this goal is preliminary, some notion of what we can accomplish is emerging.

Documenting exchange and interaction itself can be sterile, and I want to suggest research directions to imbed exchange within the social institutions and their evolutionary dynamics. To begin, researchers concerned with prehistoric economies can agree on a number of key points: Exchange is widespread, if not universal, in human societies. But how did evolving institutional forms interact with new systems of exchange? Do we observe in the archaeological record systematic relationships between economic and institutional change? Early adaptationist theories (Service 1962; Steward 1955) stressed that exchange expanded through time concomitant with the formulation of regional organisations. The adoption of agriculture, population growth and sedentism were seen as requiring social technologies that permitted risk management, specialisation and exchange between local populations.

As the archaeological evidence for exchange has accumulated from such diverse regions as North America (Baugh and Ericson 1994), highland Peru (Earle n.d.), and the Pacific, any simple model of population growth, social evolution and exchange now appears suspect. The nature of the exchange (the types, ranges and volume of goods) proves to be highly variable, almost chaotic in patterns of rapid expansions and collapses. While some quite simple societies had extensive exchange, as for example in western Melanesia (Allen 1985; Irwin 1985), very complex societies like the Hawaiian chiefdoms (Earle 1978) or the Inka empire (Earle 1985) had quite modest exchange. The variation in the nature and extent of exchange challenges us to develop sophisticated processual models that bring together the organisation of social, political and economic dynamics.

I begin by laying out two analytical distinctions that help clarify how exchange studies in Oceania may be placed within models of social evolution. The first distinction is between the subsistence and the political spheres of dual human economies (Johnson and Earle 1987). In the subsistence economy, household members seek to satisfy family needs for food and other items. In most traditional societies, households were quite self-sufficient, engaging in exchange only selectively. In the political economy, in contrast, leaders seek to mobilise resources to finance political institutions (Earle and D'Altroy 1989). Because of the inherent competitive nature of politics, leaders try to maximise the flow of goods through the political economy in order to gain power through allocation.

A second distinction is between staple goods and wealth (D'Altroy and Earle 1985). Staples include food and everyday technologies used to meet household subsistence needs. Wealth (valuables or prestige goods), in contrast, are symbolic objects used to distinguish an individual, event or social setting; individuals derive 'prestige' from holding and transferring wealth.

Using these heuristic distinctions, I look at the nature of exchange in Oceania. I do this from a comparative perspective. To the degree that we are investigating processes that have some general applicability, it is important to identify which elements are common to many human societies and which are distinctive to individual cases. My feeling is that work in the Pacific has often been hampered by assuming that it is a laboratory for studying general social evolution. Although this may be true up to a point, I want to emphasise that the patterns observed are not necessarily typical of other regions and that we should understand the rather distinctive pattern of exchange and interaction found here.

The subsequent sections develop expectations for the evolutionary dynamics between political institutions and systems of exchange. I rely heavily on the rich record from North American prehistory (Baugh and Ericson 1994; Earle 1994) and from the Andes (Earle 1985, n.d.) that highlight two apparent anomalies in the prehistoric economies of Oceanic societies.

1. In the subsistence economy, exchanges of staple foods and everyday technology were exceptionally widespread in the simple chiefdoms and 'big-man' societies of western Melanesia. In contrast to North American and Andean prehistory, many food and craft objects were traded, and communities were often specialised in producing particular crafts or in trading. Despite the extensive exchange that existed in the coastal and island world around New Guinea, the system there was made up of small-scale polities, and

the flow of staple goods did not create an opportunity for political control.

2. In the political economy, exchange in wealth (prestige objects) was extensive in western and eastern Melanesia and became an important part of the political economy of the complex chiefdoms of Tonga, linked by exchange and conquest with Samoa and Fiji. Such a pattern of prestige goods exchange is quite common in many prehistoric regions including northern Europe (Friedman and Rowlands 1977), North America (Braun 1986) and western Oceania (Friedman 1981). But prestige goods exchange was of little importance to the political economy of the complex chiefdoms of eastern Polynesia.

THE SUBSISTENCE ECONOMY

The subsistence economy involves the ways that food and everyday tools and utensils are obtained through hunting, gathering, fishing and agriculture. An elemental model for the subsistence economy is the Domestic Mode of Production (DMP; Sahlin 1972). Household units are organised to encapsulate the basic division of labour within the society, and so the domestic unit becomes quite self-sufficient. The ideal is that each household is an economic microcosm of the social economy; local production for consumption of both food and crafts is typical of many agricultural societies. Within the subsistence economy, I would expect typically that the archaeological evidence for exchange would be quite limited.

Exchange in foods

The DMP predicts little inter-household exchange in food. The expectation is that diet will vary locally according to the resources available to the individual households, so that although dietary variation exists, specialisation does not. Local exchange exists primarily for foods like game and pelagic fish, the procurement strategies for which are either unpredictable or require organised group efforts. In these situations, family members establish networks of sharing and cooperation that solve the specific procurement problems. More importantly, however, households establish extensive networks of exchange to obtain spouses, to offer help in times of unexpected difficulties and to defend each other from attack (Dalton 1977). These social relationships both within and between local communities are materialised in ceremonial events involving feasting that often takes on a competitive dimension (Hayden 1995).

In the prehistory of North America, virtually no documentation exists for exchange of foods (Baugh and

Ericson 1994). The growing population during the Archaic, Woodland and Mississippian periods and the evolution of chiefdoms apparently did *not* result in increased food exchange. Rather than increasing exchange in foods, with restricted mobility, local populations intensified the exploitation of locally available foods. A similar pattern may have existed for highland Peru, where the emergence of chiefdoms and then empires did not result in the development of extensive regional exchange in food (Earle n.d.; contra Murra 1980). Even the radical imposition of the Inka empire did not significantly alter local food production and exchange, except to mobilise staples locally to support state activities (Earle 1985, n.d.). In agricultural-based societies of all political forms, the development of extensive exchange in foods simply did not take place commonly.

Exceptions, however, did exist. Where transportation costs for moving foods were significantly lessened by canoe transport, food exchange could become more common. Ethnohistorically, the Northwest coast fishers produced surpluses of some foods, such as the oil-rich candle fish, that were traded to interior groups (Johnson and Earle 1987). Archaeologically, imbalances between population and available food resources on the Channel Islands of southern California was tied to the development of regional exchange. In their famous plank-sided canoes, the island Chumash imported substantial amounts of acorns and seeds from the mainland. Arnold (1992) argues that the intensification of this exchange was a response to a crisis in food availability resulting from severe El Niño conditions.

Food exchange appears to have been particularly important for the settlement and survival of island populations. Cherry (1981, 1985) provides a detailed analysis of island settlement in the Mediterranean. Island use of sources of obsidian began in the Pleistocene and later settlement began in the Neolithic, as groups successfully colonised the larger islands, close to the mainland. The real spurt in island colonisation, however, took place relatively late during the Early Bronze Age, when islands of all sizes were extensively occupied. Cherry believes that general island colonisation was problematic because of inherent instabilities of small populations in isolated environments. Driven by growing population, the broad-scale colonisation of the Mediterranean island world became practical only with the emergence of interlocking exchange networks, advanced maritime technology, and specialisations in crafts and trading that created a region of interaction and interdependence.

Exchange in technology

Within the subsistence economy, exchange in technology and raw materials appears to have been more widespread than food exchanges. The ideal DMP model predicts that the members of each household procure the raw materials and produce the tools that they use in everyday activities. Certain conditions (absence of high quality materials, economies of scale and local knowledge), however, encouraged households to exchange for raw materials or finished goods. Two causes of inter-household exchange in technology appear to be the specific kinds of technology used and the distribution of raw materials that they required.

Andrefsky (1994; see Chapter 8, this volume), for example, develops a model for exchange in stone tools. To minimise exchange, people tend to use raw materials that are immediately available to each household. Where high quality stone is rare and localised (and so not immediately accessible), people exchange for it to make formal tools. Formal tools have specific types with defined uses; obtaining better materials is justified because of the additional labour investment in the tools' manufacture and because their defined functions are better served by particular stone properties. Such properties include potential control in flaking needed to produce a specific form, edge sharpness and general resistance to shock.

For ceramics, the complicated technology of synthetic manufacture makes it economically sensible to develop some level of specialisation that increases the scale of production and makes routine tasks more time efficient. Depending on geological conditions, the distribution of good clay sources may channel the rise of community specialisation, especially when types require specific clay or temper properties. Some exchange in ceramics is characteristic within and between most agricultural communities.

Within North American prehistory (Baugh and Ericson 1994), the exchange of utilitarian tools and raw material has been documented well. Most important through prehistory was exchange of high quality cherts and obsidian used for formal tools. For example, multiple and overlapping obsidian exchange systems developed through California, the Great Basin and north into Alaska. Close to the sources, obsidian was used for all stone tools, but at greater distances it was used primarily for formal tools such as bifaces.

But the amount of exchange in North America did not increase progressively; rather it seemed to vary rather chaotically. Hughes (1994) notes the inadequacy of the 'traditional' evolutionary models in which trade increased

steadily and incrementally; rather he suggests that we develop more complex, embedded models. Exchange in utilitarian objects was not tied to increasing political complexity. The complex regional cultural systems, including Adena, Hopewell and Mississippian, operated with quite modest amounts of exchange in tools.

The primary exception appears to be during the Mississippian period, a period of regional, interlocking chiefdoms when a broad exchange of large hoe blades of Mill Creek and other cherts existed (Cobb 1989). With the intensification of agriculture, the use of the hoe (a specific formal tool) became widespread, from Oklahoma to Ohio and all along the Mississippi. Certain cherts apparently provided desirable properties such as controlled flaking and durability in use, and since these rocks were naturally localised, exchange developed. At present, however, there is no evidence that the chiefs managed or controlled the exchange of the hoes. Apparently the linkage to social complexity was indirect, involving the intensification of agriculture for growing populations and/or staple finance and perhaps the maintenance of a regional peace.

In the Andes, exchange in stone tools and ceramics was quite limited and local. In the Mantaro Valley, for example, some local exchange evidently took place (Earle 1985, n.d.). A local chert source was exploited and neighbouring communities specialised in the manufacture of blades that were traded to settlements ten or more kilometres away. Similarly ceramics were produced at a few settlements and traded to neighbouring communities within the same chiefdom; at least one type of large storage jar was traded for up to 50 km. Surprisingly, when the conquest of the Mantaro by the Inka empire imposed a regional peace, *no* increase in utilitarian exchange took place. Although the Inka empire pushed local agricultural intensification that required the widespread use of stone hoes, for example, the abundance of suitable basaltic stone made specialisation and exchange unnecessary. The conclusion is that exchange in utilitarian technology was fairly limited and responsive to specific technological conditions not highly institutionalised within political frameworks.

Exchange in the prehistoric subsistence economy of Oceania

Although work on the prehistoric subsistence economy within Oceania needs further research, the pattern may be quite different from what has been described in continental sequences in North America and the Andes. Most dramatic is the archaeological evidence for the early emergence of exchange concomitant with island settlement. Terrell *et al.*

(1997) argue for broad-scale interactions through the Pacific that were responsible for regional dynamics significant for social evolution. Exchange in obsidian and other stone has been documented from the early Pleistocene colonisation of Near Oceania, and this exchange was expanded by peoples participating in the Lapita cultural complex, dating roughly 1600-500 B.C., that rapidly developed in Near Oceania and colonised the more solitary islands of Remote Oceania (Irwin 1992). It is unnecessary to summarise the ample evidence for Lapita exchange, which is well reviewed in recent publications (Allen and White 1989; Kirch 1990, 1991; Chapter 2).

From the outside, the pattern of colonisation of the Pacific compares well to that already described by Cherry (1981, 1985) for the Mediterranean. Although original use of islands began in the Pleistocene and settlement continued through the expansion of agricultural populations, the rapid and broad colonisation of Oceania was associated with the regionally integrated complex known as Lapita. "Radiocarbon dates indicate a rapid dispersal of Lapita pottery makers and users; in the Fiji-Tonga-Samoa region (if not also Vanuatu and New Caledonia), these people were the first human colonists" (Kirch 1991:147).

Lapita was evidently associated with a reliable boat technology that supported both rapid and successful colonisation of the remote Pacific (with 800 km voyages) and routine two-way trade. Although early conceptions of Lapita discussed trade as a justification for population expansion, most now see the regional interaction spheres created through the developed maritime technology, a ranked social and broad patterns of marriage and exchange as the conditions necessary to support colonisation by small populations of remote and small islands.

The exchange that characterised the Lapita cultural complex carried a range of technologies including obsidian, chert, pottery, metavolcanic adzes and cooking stones (Chapter 2). By and large, however, the volume of exchanged goods does not seem to be particularly large and the exchange seems dispersed and 'thin'. There was "no single, integrated 'Lapita exchange network'" (Chapter 2:19) and several regional exchange provinces with distinct and dynamic characteristics developed. It appears to many researchers that the extensive exchange was more a social network that connected a far-flung, low density colonising population. The social connections appear to have been essential for the dispersed island habitation and the economic relationships would simply have manifested these social bonds.

As I discuss in the next section, Friedman (1981) emphasises how the Lapita cultural complex entailed

prestige goods exchange networks that involved status rivalry, marriage exchange and the exchange of valuables through linked ceremonial occasions. Like island settlements of the Mediterranean, the broad-scale networks of relationships at all levels (as seen in the mundane nature of the goods) underscore how essential these relationships were to individual households as a way to provide island colonisers with networks for marriage partners and refuges from unsustainable local conditions.

Following island colonisation, however, the amount of exchange in the Lapita complex declined markedly (see, for example, Hunt 1989); some island populations increased and developed successful local adaptations; and others died out. Human adaptation began to approximate more what we have come to expect in agrarian societies - the development of local resources that could support viable populations, with quite limited and specific exchanges. But out of this common background, contrasting patterns emerged for systems as articulated with patterns of exchange in Near Oceania vs. Remote Oceania.

In Near Oceania, there developed intensive systems of inter-island exchange with distinct specialisations in craft food production (Kirch 1991). Kirch succinctly summarises the long-term evolution of numerous high-density exchange networks along coastal Papua, the Massim, the Vitiaz Straits and the Solomons to Vanuatu. For example along coastal Papua, described ethnographically, large canoes plied the waters loaded with thousands of ceramic pots or sago palm flower. Irwin (1985) describes how the ceramic producing community of Mailu depended on foods obtained through exchange with the islands. Ethnographically Harding (1967) described the intensive exchange in food, obsidian and pottery across the Vitiaz Straits north of Papua where specialised trader and ceramic producing communities served more generalised agricultural groups. The development of this exchange has been documented by Lilley (1988): an early Lapita settlement on the barren Siassi islands was abandoned and the islands were unoccupied for a thousand years; then a renewed colonisation was linked to a fairly broad pattern of exchange, but it was not until just prior to the historic period that the full-scale specialisation and economic interdependence between many local groups developed. In Near Oceania, exchange was always important, but the full settlement of the many small islands appears to have resulted from the growth of population and the development of well integrated, virtual market-like systems, of specialisation and exchange that buffered local populations and supplied food to populations that could not have supported themselves locally.

In Remote Oceania, the focus of the present volume, I want to emphasise that the pattern of exchange, especially

as observed historically apparently was quite different from that of Near Oceania. As described by Terrell *et al.* (1997), island cultures of the Pacific generally and Remote Oceania more specifically were once seen by anthropologists as developing in virtual isolation. Terrell *et al.* expose the intellectual weakness of this position and demand a thorough re-evaluation, and the present volume continues to amass the evidence needed to consider the significance of broad-scale interaction among island societies through Polynesian history. What can we say about the patterns of interaction within Polynesia, starting with the subsistence economy?

First off Polynesians evidently had the technology and knowledge for long-distance voyaging. Although seemingly evident by the pattern of systematic colonisation, the experimental work by Finney and his crews (Chapter 3) demonstrate that Polynesian maritime technology and navigational skills could sustain regular two-way, long-distance voyaging that Polynesian oral histories repeatedly describe.

Working with the models developed for Near Oceania, especially for the rapid Lapita expansion, island colonisation should have required some long-distance and regional social relationships as a lifeline for spouses and subsistence. The colonisation of western Polynesia by Lapita appears to have been associated with just such intra-archipelago exchanges in ceramics, basaltic glass and chert (Chapters 2 and 5). Although one might have expected considerable inter-archipelago exchanges, the evidence appears quite scant: a few sherds and chert flakes. The primary regional (archipelago) exchange would have materialised networks of social relationships among the early low-density population. As in Near Oceania, the amount of intra-archipelago exchange appears then to have declined through time, as for example the use of basaltic glass became less important in Samoa (Chapter 5).

Based on the Lapita precedent, I would expect evidence for considerable interaction to have been associated with the further colonisation into eastern Polynesia. These expectations seem to be met but only in part. A primary medium for exchange would seem to have been ceramics, material objects typically produced by specialists and carrying cultural information ideal for materialising social networks of relationships. The chapters here mention only a handful of sherds. In the Marquesas, 14 sherds are noted from five islands, with the sherds from the Nuka Hiva site of Ha'atuatua Dune apparently date after A.D. 1400 (Chapter 8); in the Cooks, two Tonga sherds (14th century) and one 'Melanesia' sherd (undated) are mentioned (Chapter 7). If regional and interregional interaction was important to sustain colonisation, it seems anomalous that ceramics were all but abandoned from the eastern Polynesian

assemblage. The best evidence for broad patterns of social interaction that would have supported colonisation into eastern Polynesia was the exchange in fine-grained basalt adzes, and evidence for this exchange will be described later.

The chapters in the present volume provide valuable information for understanding the history of exchange in the subsistence economy of Polynesia. First off, in direct contrast to Near Oceania, there is little evidence for exchange in foods. The food available through Polynesia was not highly variable, and although specialised foods like sea mammals, birds, shellfish and turtles exist on small islands, it seems that in most instances these resources did not provide adequate basis for specialised production and dependent populations. Ethnohistorically such resources were typically reported as being procured by special trips from the main islands. For some small islands, populations provide special resources in exchange for food and other needed resources. Weisler (Chapter 9) describes how ecologically marginalised human populations on Pitcairn provided fine-grained basalt for adzes and on Henderson Island the population provided turtles and red feathers to Mangareva for food and other materials needed to augment and stabilise their subsistence. Some shellfish and perhaps other foods have been mentioned as exchanged among the Cook Islands that varied considerably in size and population sustainability (Chapter 7). For Henderson, Weisler (1995) documents an expansion of population associated with more trade and the collapse of the island's population as trade largely ceased.

In eastern Polynesia, however, the growth of human populations was *not* ultimately supported by settlement on highly varied islands with smaller island populations maintained by specialisation and intensive exchange. Why? After some initial developments in this direction, population growth appears to have been supported instead by intensification of staple production involving irrigation, mulched dryland fields and breadfruit plantations. This pattern of localised intensification without much exchange contrasts to the late history of Near Oceania and of Micronesia (Alkire 1965), and perhaps eastern Polynesia. The anomalous pattern of development observed in eastern Polynesia may reflect the specific geology of the islands and the political economy described later.

In comparison to food, the exchange of technological items through Remote Oceania appears to have been more common, but still to have been quite limited involving primarily formal tools, especially the basaltic adzes. In the different island groups, high quality, fine-grained basalts were available from limited sources that were extensively quarried and distributed broadly. Some of the main adze quarries included Mauna Kea, Hawai'i (Cleghorn 1986),

Tutuila, Samoa (Chapter 5), Ra'iatea, Society Islands, Eiao island, Marquesas (Chapter 8), and Pitcairn, southeast Polynesia (Chapter 9). Other sources were important within specific island groups, and many less high quality sources were utilised locally on individual islands.

Production at a few sources appears to have been geared at least in part to inter-archipelago exchange. The extensive fine-grained basalt from Tutuila, Samoa appears to have been used for nearly 2000 years, right up to the introduction of iron tools. The primary production appears to have taken place during the 14-16th centuries when adzes were probably distributed broadly through the Samoa-Fiji-Tonga inter-archipelago region and beyond (Best *et al.* 1992; Chapter 5).

The best documentation for fairly broad-scale exchange of basalt comes from the Cooks. In Chapter 7, Allen and Johnson describe the analysis of 333 flakes from the Ureia site on the small island of Aitutaki; here 99 flakes (29.7%) have been tentatively assigned to a source from Mangaia. Although local stone sources were always in the majority, the amount of imported stone was substantial early on, but diminishing through time after A.D. 1300. "[T]he abundance of imports through the sequence is small, [suggesting] that although Aitutaki was in contact with other groups, both within the Cooks and more far afield, the interaction was infrequent..." (Chapter 7:130). Sheppard *et al.* (Chapter 6:Table 6.5) records source locations for 53 adzes from six islands. Many were local (43.4% from sources on the islands where the adzes were found); an equivalent number were from neighbouring Cook Island sources (43.4%); and a still sizeable number from high grade sources outside of the Cooks (9.4%, Tutuila; 3.8%, Ra'iatea?, Society Islands). The Cook Islands appeared to have been involved in exchange from early in their occupation, but like southeastern Polynesia the amount of exchange decreased through time.

Among the Marquesas, the amount of archipelago exchange appears to have been somewhat less than for the Cooks. An analysis of the flakes from the site of Ha'atuatua on Nuka Hiva demonstrates that most materials by count (64-92%) were local, and that the fine-grained basalt and phonolite that were imported were only small flakes (Chapter 8). Primarily finished fine-grained basalt adzes were obtained from the island of Eiao, a half day sail away. Rolett *et al.* emphasise that exchange was limited to the formal tools in the assemblage, and no evidence for intensive exchange was noted. On the Hawaiian Islands (see, for example, Lass 1994) the pattern seems to be broadly similar to that described for the Marquesas. Although exchange took place in volcanic glass (Weisler 1990), the volume was low. The primary prehistoric exchange documented

through the islands was in formal tools, especially the adzes as produced at Mauna Kea and other smaller sources. Much of the basalt even for formal tools was procured from local sources. The apparent pattern in eastern Polynesia is that exchange was quite limited and specific, and such exchange did not support the development of locally specialised economies.

Exchange in other utilitarian tools is not well documented in the present volume, but some is discussed. Exchange took place in pearl-shell used to produce fishhooks. For the Cooks, pearl-shell was abundant on only two islands but it was found broadly at early sites on many of the islands (Chapter 7). On Mangaia where the shell does not naturally occur, it was reported as common in the earliest levels of the Tangatatau site (Kirch *et al.* 1991). But by western contact trade in pearl-shell used for hooks had ceased. While occupied, pearl-shell was also imported from Mangareva to Henderson where it was locally manufactured into fishhooks (Weisler 1995).

The use of imported utilitarian objects on Henderson is particularly well documented (Chapter 9). Fine-grain basalt adzes, volcanic glass and cooking stones were all imported from Pitcairn. Late in the sequence, however, local materials were also used as low grade replacements: *Tridacna* shell for adzes, beachrock or limestone for cooking stones and even limestone for flakes.

Particularly telling in eastern Polynesia was the abandonment of ceramics in the local assemblages. Without pottery, one of the most obvious objects of exchange ceased to be of relevance, and local economies could develop with a fairly high degree of economic self-sufficiency. This pattern is unusual for prehistoric economies elsewhere and is part of the progressive decreasing amounts of exchange in eastern Polynesia.

The pattern of exchange in utilitarian objects seems quite clear for eastern Polynesia. Initially some exchange both within and between the archipelagos seems to have been an important part of settlement and expansion of population even to quite marginal island environments. Unlike Near Oceania, however, where exchange expanded with local specialisation in both manufacturing and trading, the amount of trade was quite limited and restricted to formal objects, especially later in the sequences of much of Remote Oceania. Weisler suggests that the exchange from Mangareva to Henderson and Pitcairn may have been cut off by deforestation which made wood for canoes unavailable. But then why was exchange in Hawaii, where wood continued to be abundant, also limited? In eastern Polynesia broadly, available archaeological and historical evidence suggest that exchange and interaction was a

relatively early phenomenon, decreasing significantly through time.

Questions for future research

1) Did substantial local specialisations develop within the subsistence economy of Remote Oceania? Critically important here is to evaluate the interrelationships between relatively close-lying islands with different subsistence potential. The best model for research is the Mangareva-Henderson-Pitcairn group (Chapter 9). Other possible regions for investigation include the island economies of Fiji-Samoa-Tonga, of the Cooks, and of the Society Islands-Tuamotus. Island abandonment is a critical problem for future research.

2) Why was exchange comparatively limited in scale through eastern Polynesia? On a comparative basis, exchange in food and technology was apparently modest in eastern Polynesia. Given a suitable maritime technology that would have lowered transport costs and given the regional organisation of the chiefdoms, I would expect many more items to be exchanged. Partly this may be an outcome of the specific nature of Polynesian technology for which exchange was not necessarily needed; partly this may be an outcome of deforestation that limited the availability of materials for marine technology; but I suspect that the primary cause lies in the nature of the power and control of the political economy. The Hawaiian Islands is an ideal location to investigate further the extent of local specialisation and exchange responding to resource heterogeneity (cf. Weisler 1990).

POLITICAL ECONOMY

The political economy involves production of goods and their distribution outside of the household. In the political economy, individuals manage the production of a surplus (beyond the needs of the producer) and direct the movement of goods to support the political activities of an elite segment. The ability to do this rests on practical control over the economy, and this control derives from selective command over the means of production and circulation. The political economy is a system of mobilisation used to finance the activities of the elites and their institutions of leadership and domination (D'Altroy and Earle 1985; Johnson and Earle 1987).

The dynamics of the political economy are fundamentally different from the conservative, satisfying logic of the subsistence economy (Earle 1978). Its form is determined by the maximising logic inherent in a highly charged political arena. Exchanged goods are used to create

broad social networks, and a leader's ability to centralise the flow of goods through his or her hands translates directly into political power. The political economy of chiefdoms is organised inherently to expand, but that expanding structure is unstable, and cycles of rapid expansion and collapse characterise many chiefdoms (see Anderson 1994).

The political economy is a mechanism of finance to support the institutionalisation of chiefly power. As I have developed elsewhere (Earle 1997), variation in chiefdoms can be understood partly by the nature of central power, its stability and potential for central control. To understand the dynamics of the political economy of chiefdoms, I summarise briefly the distinction between wealth and staple finance, evidence for the political economy in comparative archaeological cases and a consideration of how to explain the contrasting patterns of exchange observed throughout Polynesia.

Wealth finance

The history of wealth in ancient societies is long and complicated. All human societies described ethnographically had different forms of personal and group wealth used varyingly for decoration and display, for status rivalry and distinction, and for stores of value and media of exchange. Dalton (1977) describes the multi-layered significance of exchange in traditional societies. Involving both subsistence goods but especially primitive valuables, individuals and groups fashion social networks of relationships across the landscape to interconnect people. Through these networks, individuals reach out for spouses, for foreign goods, for fun times, for allies in war and for refuges from disasters. Individuals in all societies fashion such networks and materialise them by the give and take of goods, especially at the ceremonial events that gather people together. But the importance of these exchanges are not unvaried, and especially with the emergence of ranking they become a central arena for status rivalry.

In many chiefdoms, a prestige goods economy was established (Friedman and Rowlands 1977) that served as a system of wealth finance in the political economy (D'Altroy and Earle 1985). In ranked societies, social relationships determine that some goods are given over to a chief who can then manipulate their allocation. At special moments, chiefs host feasts where wealth is accumulated and displayed. The successful chief uses these occasions to attract and negotiate marriages that increase the chief's social network regionally and labour pool locally. Success in status display results in increased prestige, an ability to attract additional spouses and other political alliances, and further accumulate prestige and social standing. Although

conceived as a social (kinship) system, these chiefdoms are materialised through the extensive exchange of wealth objects and creating paths for the flow of wealth is the substance of political manoeuvring.

Helms (1979) describes how chiefdoms in Panama and elsewhere were tied to the exchanges of wealth (special foreign objects) that were distributed over very broad regions. These objects contained or materialised foreign esoteric knowledge with special powers. By competing for control of foreign exchange, chiefs strove to obtain and hold magical and ritual powers that were foreign to the local population and thus accessible only to the chiefs who could participate in the external exchange. The exchange relationships among local chiefs created the movement of wealth objects across broad regions; this phenomenon is what Renfrew and Cherry (1986) have called 'peer polity interaction'. The networks of chiefs can create an international style of wealth objects that binds chiefs as a class distinguished from local commoners (Earle 1990). Chiefly control over wealth and the status/knowledge system that it materialised, rested on control over either the exchange process itself or the manufacture of the wealth by specialists attached to the chiefs (Brumfiel and Earle 1987).

In North American prehistory, extensive evidence exists for the broad scale circulation of wealth objects in what must have been changing prestige goods economies (Baugh and Ericson 1994; Earle 1994). Long-distance movements of special stone, shell, native copper, galena, mica and other esoteric items such as grizzly bear and fossil sharks' teeth characterise the archaeological record. Already by the Late Archaic, long-distance exchange of wealth included projectile points of special materials, unusual ground stone objects, and small amounts of shell and copper, and during the Early Woodland period, a widespread distribution of special items was associated with the Adena complex that involved broadly traded (and locally copied) objects such as soft stone used for carving pipes and other objects. The style of the Adena complex was centred in Ohio and represented irregularly in burials from the Northeast and the St. Lawrence to the Middle Atlantic and the Indian Knoll complex from the Southeast. During the Middle Woodland, local groups were interconnected through the famous Hopewellian exchange systems that moved wealth including copper, mica and galena, throughout much of the East, Southeast and Midwest. Then, following a period of reduced wealth exchange in the Late Woodland, the remarkable Mississippian systems flourished in much the same region. In his synthesis for the Midwest, Brose (1994) emphasises that throughout the sequence participation in the long-distance exchanges was highly localised, developing and languishing sporadically.

For North America prestige goods exchange systems developed and declined across the eastern United States. These far-flung networks of relationships would appear to have been linked to the ranking and display that characterised political manoeuvring of status rivalries. The important points would be how such systems rapidly expand and collapse, develop locally and then shift episodically without strong institutionalisation. These highly dynamic organisations were comparatively unstable, characterising a fairly simple form of ranking or chiefdoms. Except of course for the Mississippian polities.

Documented in other archaeological regions, prestige goods exchange has been well studied especially in Europe (Friedman and Rowlands 1978; Kristiansen 1987, 1991; Renfrew and Cherry 1986). For the Bell-Beaker complex, as an example, wealth objects included metal and stone daggers, special arrowpoints, amber and drinking vessels. Some objects (like the amber) were exchanged broadly, but many were locally produced copies that created the wide-ranging international style. Shennan (1986) interprets the Bell Beaker complex as involving intense status rivalry among individuals who developed wide-ranging networks that stretched across western Europe from Denmark to Spain. As Friedman (1981) has argued, this model may help us understand the broad-ranging exchange that has been recorded for Near Oceania.

Staple finance

Staple finance mobilises food surpluses from a commoner population and allocates the food to people working for the financing institutions. It is a means to support directly a whole sector of the population involving chiefs, crafts people, warriors, priests and managers. Mobilisation is based on control over food production, characteristically through some form of land ownership (D'Altroy and Earle 1985). Land ownership is identified archaeologically by walls and other markers constructed in the landscape. Control over the utilitarian tools of staple production may, at least theoretically, offer an alternative means by which staple production might be controlled and directed for finance (Earle 1987).

A particularly well documented example of staple finance can be found in the prehistory of the Andes (D'Altroy and Earle 1985). Chiefdoms and states arose early within the coastal valleys where rich irrigated valley flood plains were surrounded by sterile deserts. Carneiro (1970) has argued that the local development of productive irrigation within the deserts effectively circumscribed the population and placed them under the direct control of overlords. From the Initial Period, the landscape was

transformed by impressive monumental construction that materialised the social order of emergent chiefdoms. At these sites was also storage facilities for staples evidently used to support the emergent ruling institutions (Pozorski and Pozorski 1986). Over the next three thousand years, states like Moche and Chimu dominated the coastal valleys, and at contact, the impressive Inka empire had conquered and ruled the lands from modern day Colombia to Argentina and Chile. Associated with Inka facilities were massive warehouse complexes for the storage of maize and other staples that supported administrators, elaborate religious ceremonies and military adventures (Murra 1980; LeVine 1992).

At present the possibility of staple finance in North American chiefdoms has not been seriously investigated, although Mississippian chiefdoms seem the most likely cases. Mississippian sites were constructed with large, central plazas and earthen mounds that supported buildings. Immediately associated with the Mississippian centres were rich alluvial bottom lands that could have been developed and farmed under chiefly supervision. It seems likely that the bottoms were 'owned' as a means to control staple production used in finance. It is also possible that control over staple production may have been exerted by commanding specialised manufacture and broad-scale distribution of the chert hoes, although evidence for this is not strong.

Archaeological evidence for staple finance, especially in terms of central storage facilities, is clearest in cases where the development of productive irrigation systems allowed unambiguous demarcation of an owned landscape and control over food production (Earle 1997). In addition to the Andean states, other examples include the chiefdoms and archaic states of Egypt and Mesopotamia (Schwartz 1994; Stein 1994). The chiefdoms of eastern Polynesia offer additional well documented ethnohistorical cases. In the Hawaiian Islands, for example, chiefs controlled the mobilisation of food by owning the irrigation facilities that were made available to commoners in exchange for their work on *koale* plots to support the chiefs and their many retainer (Earle 1977, 1978). The intensive irrigated agriculture supported the mobilisation of staples through the system of redistribution, through which chiefs financed their political manoeuvring by the allocation of staple goods.

Exchange in the prehistoric political economy of Oceania

Archaeological and historical evidence from Oceania contrasts the nature of finance and the corresponding patterns of exchange and interaction in different cases. Apparently mixed strategies for institutional finance

followed two distinct paths of elaboration. Although the strategies of wealth and staple finance are always intertwined, the emphasis on one rather than the other may be tied to different ways to fabricate complex political institutions. This is the distinction, recently drawn by Blanton *et al.* (1996), between networks and corporate groups that may be illustrated by the contrasting Near Oceania (out into the Fijian-Samoan-Tongan interaction sphere) with the more remote island groups of Remote Oceania.

In Near Oceania, the primary form of institutionalisation appears to have been broad networks of interaction through exchange in primitive valuables. The early Lapita complex illustrates how this was formulated. In addition to the exchange in utilitarian tools, the Lapita complex was involved in a prestige goods economy that involved the production and exchange of wealth (Friedman 1981; Kirch 1988). My argument is that the wealth was a medium both to fashion external networks of kinship and allies forming interaction spheres and to compete locally for status in political hierarchies.

Probably the pottery served, rather like in the Bell-Beaker complex of Europe, as a means to construct broad social relationships among leaders who emphasised external networks (rather than internal corporate entities). The association between emergent political differentiation and the distribution of the pottery in Lapita tends to support this interpretation. Also important was the manufacture and distribution of shell valuables. At certain locations, such as Mussau (Kirch 1990), the specialised manufacture of the shell valuables was part of the interaction spheres of the Lapita complex.

Of course extensive ethnographic documentation exists for Near Oceania for the circulation of valuables through political interaction spheres. The most famous is the Kula exchange system (Leach and Leach 1983; Malinowski 1922) through which valuables circulated as part of a separate sphere of exchange, tied closely to status rivalry within local polities (Earle 1982). Political status within an island was partly determined by the renown that an individual gained through maintaining and constructing personal networks of exchange partners. These partnerships, the hands through which the valuables flowed, passed down across the generations.

Other examples document the breadth of the distribution of prestige good economies through Near Oceania. The exchange system of the Vitiaz Straits involved exchange of wealth (especially boars tusks and pigs) and spouses (Harding 1967). The development of these spheres of wealth exchange corresponded with the substantial

exchange of utilitarian objects (Harding 1967; Uberoi 1962), so that personal status derived from an ability to maintain the economic ties that the small-scale and vulnerable economies of the region depended.

Into remote Polynesia, an elaboration of a prestige goods economy was quite different and highly variable. The best documented case was the spousal and wealth exchanges between the chiefdoms of Tonga, Fiji and Samoa. Fiji was a male-spouse giving society to Tonga along with male related goods such as canoes, slit gongs, headrests and wooden bowls; while Samoa was a female-spouse giving society to Tonga along with female related goods such as special woven mats (Kaepler 1978). Kaepler emphasises that the extensive system of inter-archipelago exchange was driven by the internal politics of Tonga - chiefly requirements for spouses that maintained or built power relationships. On an equal with protohistoric Hawaii, the Tongan chiefdoms were among the most complex polities in Oceania. From their Tongan base, paramount chiefs mounted extensive campaigns of conquest that united all of the Tongan islands and extended to annex parts of Samoa and Fiji. Tonga was a complex chiefdom that maintained power through network of kinship and economic exchange. The extensive political economy developed by Tonga may have created the institutional context for the broad exchange of utilitarian adzes from Samoa (Chapter 5); Davidson referred to the Tongans as 'active traders' (1978:385).

In contrast, the Hawaiian chiefdoms illustrates an institutional order based on staple finance. Fairly late in prehistory, the economy was radically transformed with the local intensification of agricultural production and the construction of irrigation and dryland facilities. The cultural landscape, subdivided by walls and trails, was allocated to commoners in return for their corvée labour contribution to the chiefs. The chiefs managed the mobilisation of staples by limiting rights of access to productive facilities and then allocated staples to support diverse retainers. This corporate form of redistribution supported the activities of the chiefly institutions (Earle 1977).

In Hawaii the amount of exchange, although certainly present, was quite limited. It involved primarily the distribution of the fine-grained basalt stone adzes, volcanic glass used for simple flakes and other special materials. For the fine-grained basalt, the amount of stone used was not large and diverse sources were used through the sequence (Lass 1994). A debate continues as to whether the manufacture of adzes at the major Mauna Kea source was specialised, although the consensus favours some level of craft specialisation (McCoy 1990; contra Lass 1994). No convincing evidence exists that manufacture and distribution was coordinated by the chiefly hierarchy. Exchange was

limited indeed, especially when contrasted with the Tonga cases or other exchange systems of Near Oceania.

In the Hawaiian chiefdoms, wealth served to identify the chiefs as divine personages (Earle 1990). For example, feathered cloaks and helmets were worn by chiefs in battle and at ceremonial events. These objects were manufactured from rare feathers, collected as part of the annual labour tax from communities, by attached specialists. The important point is, however, that the manufacture and distribution of wealth was not extensive and appears not to have involved extensive spheres of exchange between the islands.

The evidence of exchange present in the present volume and in other work shows little support for its dominant position in the political economy of eastern Polynesia. Although the lack of pottery might make such exchange difficult to document, it is significant that pottery (an ideal medium through which to express external ties) was abandoned. Was it simply not important to define external networks of political relationships? The evidence of wealth exchange may be lost or not yet recovered, but we must investigate the real possibility that external interaction may simply have been of comparatively little significance in eastern Polynesia.

I draw attention here to Kirch's (1994) useful distinction between 'the wet and the dry'. The wet irrigated agricultural economies were relatively easy to intensify locally. Local corporate polities relied on their surplus production. In contrast, dry farming economies could be degraded by intensification, so that political development reached outwards through conquest and alliance. It may thus be that the development of the staple based chiefdoms on the major islands of eastern Polynesia emphasised staple based intensification, as opposed to expansion. The smaller islands, like Pitcairn, would ultimately have been of little strategic importance to the staple-based polities, and, without wood to build canoes to support trading, the smaller islands would have been cut out and abandoned.

Questions for future research

I suggest that the nature of the political economy is essential for understanding the different lines of interaction that developed in Oceania. By seeing how specialised production and exchange established (or failed to establish) sources of political power, we should be able to understand some of the variability observed. Specific questions to investigate include:

- 1) Did political economies of Near and Remote Oceania follow different lines of development? The

fundamental question is how interaction was (or was not) a source of power to the chiefly hierarchy. Chiefdoms vary fundamentally in both their institutional nature and internal development based on the different sources of power used and how they were linked together (Earle 1997).

2) Was the production and distribution of wealth or tools used in wealth production controlled through attached specialisation? In the next stage of research it is essential to establish what the items of exchange were used for and what were the contexts of their production. Wealth can be controlled by production close to chiefly establishments; alternatively, wealth production might be controlled through control over the tools, like the adzes (Lass 1994) used in wealth production.

CONCLUSIONS

To understand the institutional character of ranking and stratification throughout Oceania is a major challenge for archaeologists. The economic base of these complex societies will undeniably be shown to be significant, and the present volume is an important step for documenting the variations through time and space in the patterns of interaction reflected through exchange. In Near Oceania, intense interaction with exchange in subsistence and wealth characterised the successful colonisation and later elaboration of political interaction spheres. In Remote Oceania, exchange was initially important, but appears to have decreased in significance through prehistory. At contact, long-distance voyaging was still possible but not practiced; it was part of the social memory and not the immediate political action. I believe that this apparent anomaly may be explained by extending Kirch's (1994) distinction between the wet and the dry as distinct dynamics of the subsistence economy that created fundamentally different means of finance and political control. It may be the variation through which some patterns of prehistory will be explained.

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