

Specialization and Exchange in the Lapita Complex of Oceania (1600–500 B.C.)

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The Kula presents to us a new type of phenomenon, lying on the border between the commercial and the ceremonial.

—B. Malinowski, *Argonauts of the Western Pacific*

The thing exchanged is not arbitrary, and its associations and symbolism play an active part in the construction of social strategies.

—I. Hodder, "Toward a Contextual Approach to Prehistoric Exchange"

THE ISLAND SOCIETIES of Melanesia have inspired a lengthy anthropological discourse on exchange and interaction, in which the classic monographs of Malinowski (1922) and Fortune (1932) on the *kula*, or Harding (1967) on the Siassi, are justly famous. Yet despite this long-standing anthropological interest in Melanesian exchange, until recently the emphasis has been almost exclusively ethnographic, and hence, *synchronic*. Anthropological attempts to explain Melanesian exchange systems are generally couched in functionalist terms. For example, it has been proposed that the *kula* exists in order to "recirculate unevenly distributed material resources," or alternatively, that it functions in a Durkheimian sense of "maintaining a social order" (Leach 1983:5–8). Such explanations are wholly *post hoc* and ahistorical. Recently, archaeologists have begun to take up the problem of exchange in Melanesian prehistory, thus finally opening up the possibilities of a diachronic understanding of these complex networks.

Archaeological work on the *kula* itself, although still preliminary (Irwin 1983), suggests a time depth of perhaps five hundred years, before which somewhat different exchange connections tied many of the Massim islands to communities along the Papuan coast. Allen's studies of the south coastal Papuan *hiri* (1977, 1984a), Irwin's Mailu work (1985), and that of Egloff at Collingwood Bay (1979) have demonstrated that the whole Papuan-Massim region has a complex prehistory of shifting exchange networks that extend back in time at least two thousand years. In the Siassi region, Lilley (1986) has similarly documented a lengthy prehistory of ex-

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change relations linking the Huon Peninsula and New Britain, of which the ethnographically attested Siassi trade network is only the most recent configuration. That long-distance trade or exchange indeed has a long antiquity in Island Melanesia is shown by evidence for the movement of Talasea-source obsidian to New Ireland by about 7000 B.P.

Based on current knowledge of western Melanesian prehistory, the most geographically extensive—and possibly complex—long-distance exchange network ever to have existed in this region appeared rather suddenly at about 3600 B.P. This network links sites of the distinctive Lapita Cultural Complex (Green 1979).

LAPITA AND LONG-DISTANCE EXCHANGE

The Lapita Cultural Complex is an archaeological phenomenon of great significance for Oceanic prehistory. Lapita sites are identified principally by the presence of a highly distinctive, dentate-stamped ceramic complex. They span a large part of the southwestern Pacific, from the Bismarck Archipelago through the Solomons and Vanuatu, as far east as Fiji, Tonga, and Samoa (Kirch and Hunt, Eds. 1988). A large corpus of radiocarbon dates indicates that Lapita sites range in date from about 1600 to 500 B.C. (Kirch and Hunt 1988a, 1988b). Although there has been considerable debate recently about the immediate origins of the Lapita Complex, many prehistorians believe that the rapid appearance of Lapita sites throughout this extensive region is associated with the dispersal of Austronesian-language speakers (e.g., Pawley and Green 1984; Bellwood 1989; Spriggs 1989). In the more easterly islands (Fiji, Tonga, Samoa), Lapita people were the first human colonists, and their descendants were the immediate ancestors of the Polynesians (Kirch and Green 1987).

The involvement of Lapita communities in long-distance exchange was first documented archaeologically by Ambrose and Green (1972), who demonstrated the transport of obsidian from New Britain to sites in the eastern Solomon Islands, a distance of more than 2000 km. Over the past two decades, substantial evidence has been adduced to demonstrate the transfer between Lapita communities not only of obsidian, but also of ceramics, stone adzes, oven stones, chert, and other materials. The clearest picture has emerged from Roger Green's extensive work at the Reefs-Santa Cruz Islands Lapita sites in the eastern Solomon Islands, where the importation of exotic materials continued over a period of at least seven hundred years (Green 1974, 1976, 1979, 1982, 1987). Green argues that this importation involved "three distance based modes": (1) *direct access* and *local reciprocity* at distances of less than 30 km; (2) "*one-stop*" *reciprocity* with communities situated about 300–400 km away; and (3) *down-the-line exchange* over distances of up to 2000 km (1987:246). Regarding the New Britain obsidian, which arrived in the Reef-Santa Cruz sites via down-the-line exchange, Green opines that "people used this obsidian because. . . they wished to maintain 'ties' with their relatives [in their Bismarck Archipelago homeland] by importing a luxury and status-maintaining item with social and ideological significance" (1987:246). Following up on the argument first advanced by Ambrose (1976), Green also cautions against "making Lapita an expanded version" of ethnographically documented Melanesian "specialized trading systems," such as the *kula* or *hiri*. Rather, he prefers to see Lapita exchange as "an ethnically rather unspecialized exchange system between culturally related communities" (1987:247).

While Green's work on the importation of various commodities to the Reefs-Santa Cruz Lapita sites has provided the most complete picture so far of Lapita exchange, we must be cautious of generalizing this model to the entire Lapita Complex, over both space and time. The eastern Solomon Islands Lapita populations evidently represent colonizing groups moving for the first time into the previously unoccupied expanses of remote Oceania. Their long-distance exchange relationships with Lapita communities in near Oceania, especially the Bismarck Archipelago, may have been quite different from relationships between communities in the Bismarck Archipelago itself, where genetic, linguistic, and cultural complexity was substantially greater. Also, we must not assume that Lapita exchange was temporally static over the millennium or more that the complex can be distinctively recognized in terms of its persistent ceramic tradition.

Earle (1982:3) identifies three "jobs" of the prehistorian in the archaeological study of exchange: (1) sourcing; (2) describing the spatial patterning of exchange; and (3) reconstructing the organization of exchange. For the Lapita Cultural Complex, we have made relatively good progress with step 1, especially for obsidian (Ambrose and Green 1972; Ambrose 1975, 1976; Ambrose and Duerden 1982; Green 1987; Allen and Bell 1988), and to a lesser extent with ceramics (Dickinson and Shutler 1979; Anson 1983, 1986) and other materials. With regard to step 2, spatial patterning, we have a relatively complete picture only for the eastern Solomon Islands region described by Green, and to some extent for the eastern Lapita region encompassing Fiji, Tonga, and Samoa. The spatial patterning of exchange relations within the Bismarck Archipelago and adjacent areas remains inadequately documented. Finally, for step 3, we are just at the stage of posing some preliminary and highly tentative models.

THE MUSSAU PROJECT

In 1985, the international Lapita Homeland Project (Allen 1984*b*; Gosden et al. 1989) commenced a series of archaeological investigations in various parts of the Bismarck Archipelago. As a part of this endeavor, I initiated work in the Mussau Islands, situated on the northern periphery of the Bismarck Archipelago. Further field seasons were conducted in 1986 and 1988, combined with intensive laboratory investigations by an interdisciplinary team of researchers. Preliminary results of various aspects of the Mussau Archaeological Project have already been published elsewhere, and need not be summarized here (Kirch 1987, 1988*a*, 1988*b*; Kirch and Hunt 1988*a*; Kirch et al., in press). A principal objective of this project has been to determine the extent to which Lapita communities in Mussau were involved in long-distance exchange, and how this involvement changed over the period from 1600 to 500 B.C. We were determined that in this work we would focus not only on the ubiquitous obsidian, but also on ceramics, and other classes of materials not previously subjected to sourcing analysis.

Mussau provides an excellent locality for the study of Lapita exchange for at least two reasons. The first is its situation within the Bismarck Archipelago, regarded by Green (1979) as the immediate "homeland" area for the populations that colonized the Reef-Santa Cruz Islands and sites farther to the east. Second, the Mussau Lapita sites span a thousand-year Lapita sequence, allowing a diachronic study of changes in the exchange network over time. Naturally, we do not expect that the

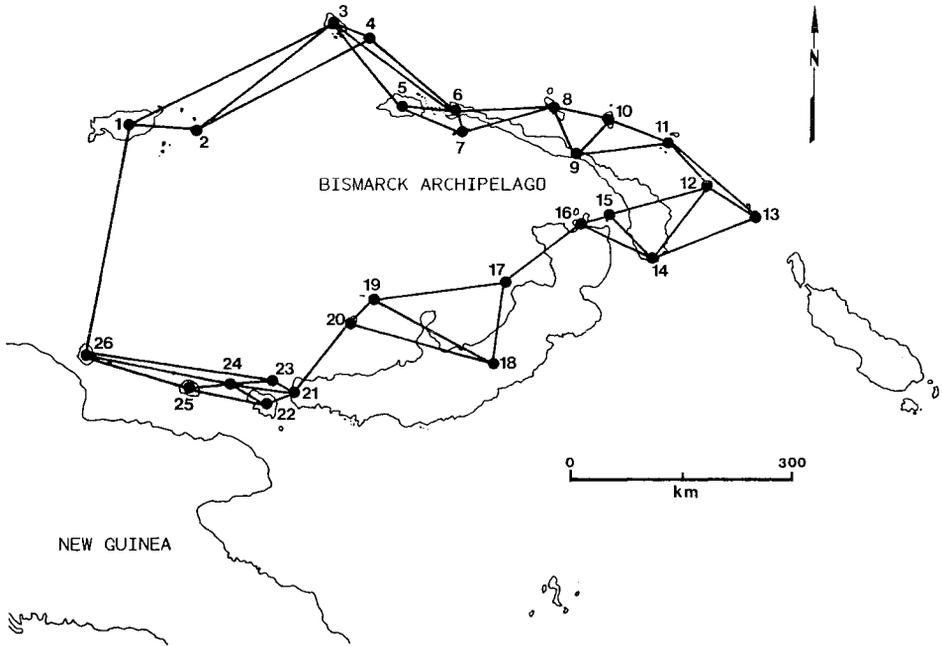


Fig. 1. A geographic/straight-line link network model for the Bismarck Archipelago. The Mussau Islands are node 3. (After Hunt 1988)

Mussau sites will yield a complete understanding of Lapita exchange; what we hope for is an understanding of the system *from the perspective of one of its central nodes*.

Graphic theoretic analyses of the topology of western Melanesia (Hunt 1988) indicate that the Mussau node exhibits high centrality. This is especially evident in a geographic (rather than site-based) straight-line link network model, as displayed in Figure 1. As Hunt observes, this model "best reflects the potential influence of the geographic distribution of the Bismarcks, independent of our unavoidably biased knowledge of Lapita site distribution" (1988: 145). In a 1/0 matrix derived from this model, Mussau occupies the highest ranked node, and in a short-path matrix it ties for the second ranked position. In short, Mussau is centrally situated by virtue of its position in the geographic topology of the Bismarcks. This geographic context alone might lead us to expect that the Mussau Lapita sites may have played an important role in a western Melanesian Lapita exchange network.

During three seasons of archaeological investigations in Mussau, project teams have excavated three open Lapita sites (ECA, ECB, and EHB), four rockshelters or caves with Lapita ceramics (EHM, EHN, EKO, and EKQ), and several other open sites and shelters that postdate the Lapita period (EHK, EKL, EKE, EKP, EKS, and E KU); these sites are listed in Table 1. The largest set of stratified and well-dated materials derives from the extensive Talepakemalai site (ECA) on Eloaua Island. This site is unique in containing a waterlogged deposit representing a former stilt-house village situated over a shallow reef flat. Excavations in this waterlogged deposit have yielded an unprecedented array of well-preserved ceramics as well as

TABLE 1. MUSSAU ARCHAEOLOGICAL SITES EXCAVATED 1985–1988

SITE ISLAND		SITE TYPE	PERIOD	SITE AREA (m ²)	AREA EXC. (m ²)
ECA	Eloaua	Midden	Lapita	72,500	84
ECB	Eloaua	Midden	Lapita	3000	19
EHB	Emananus	Midden	Lapita	1150	9
EHK	Eloaua	Midden	Post-Lapita		3
EHM	Eloaua	Solution Cave	Lapita	152	3
EHN	Eloaua	Rockshelter	Lapita		1
EKL	Enusagila	Midden	Post-Lapita		1
EKO	Eloaua	Rockshelter	Lapita	25	2.5
EKE	Boliu	Midden	Lapita, Post-Lapita		16
EKP	Mussau	Rockshelter	Post-Lapita	66	5
EKQ	Mussau	Rockshelter	Lapita	88	2
EKS	Emussau	Midden	Post-Lapita	74,100	4
EKU	Mussau	Midden	Post-Lapita	21,000	5
TOTAL AREA EXCAVATED					154.5

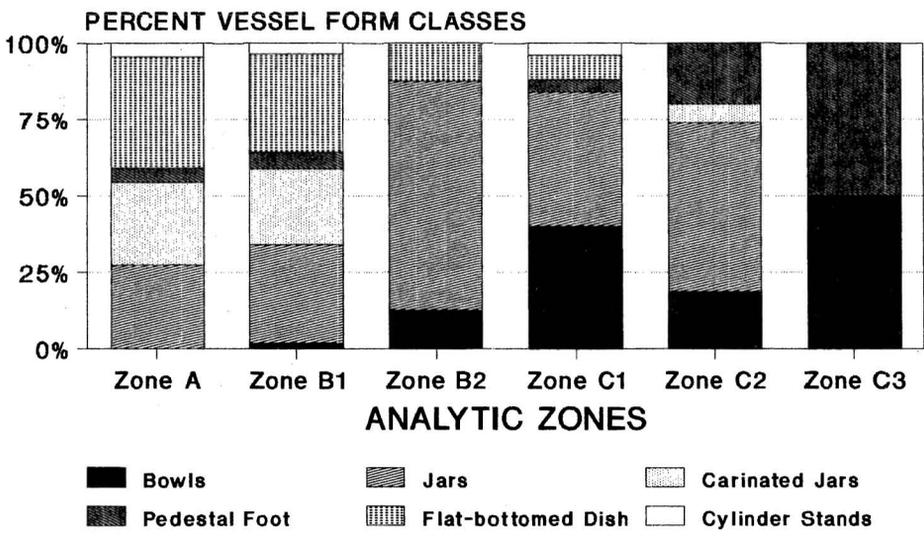
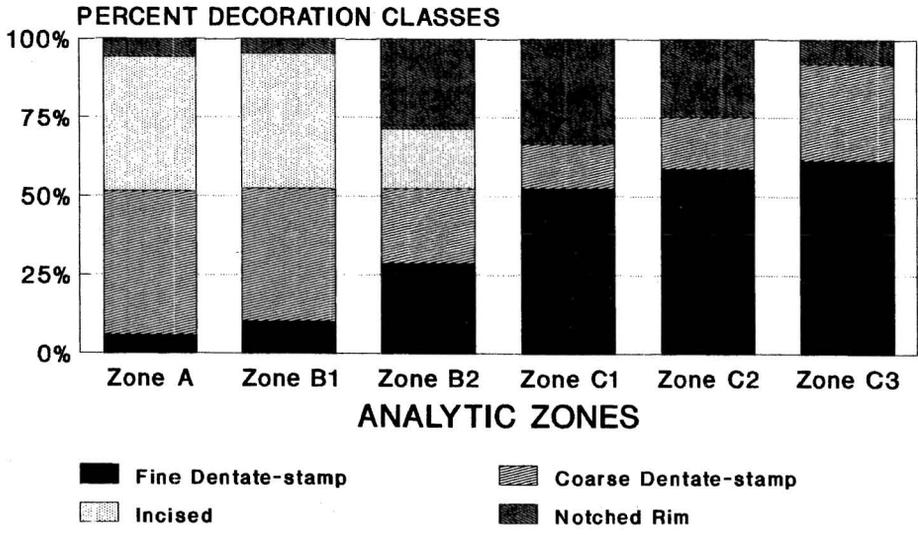
other cultural materials spanning virtually the entire Lapita period (Kirch 1987, 1988a).

Our Mussau Project team has also carried out extensive analyses of several classes of artifacts that were imported to the Lapita sites. As a result of these studies, we can now begin to construct models of the Lapita exchange system in the Bismarck Archipelago, as seen from the perspective of the Mussau node. Such models must account for temporal changes in the system, for our results indicate that Lapita long-distance exchange was dynamic during the millennium-long period represented in our sequences. In the following section, I briefly review our results for three main classes of imported or exported artifacts: ceramics, obsidian, and shell valuables. Next, I turn to a more formal description of changes in this exchange system using several variables. I conclude by considering how changes in Lapita long-distance exchange may reflect more fundamental transformations of Lapita society.

ARCHAEOLOGICAL EVIDENCE FOR EXCHANGE IN MUSSAU

Ceramics

Talepakemalai (ECA) and other Mussau Lapita sites have produced a rich array of both decorated and plainware ceramics, from which a stylistic sequence of changes in vessel form and decoration can be developed. The decorated wares are especially interesting, as they reveal a progression from very elaborate, labor-intensive forms of decoration to simpler, non-labor-intensive decoration. These trends are illustrated by the ceramic sequence from Area B of the ECA site, graphically depicted in Figure 2. In this sequence, an early emphasis on intricate, fine dentate-stamping decreases rapidly in stratigraphic zones B2–B1 in favor of coarse dentate-stamping (with more open, simplified motifs) and incising.



1988 Excavation Season

Fig. 2. Changes in ceramic decoration and vessel forms in Area B of the ECA site, Mussau. Zone C3 is the oldest, Zone A the youngest. Note especially the decline in fine dentate-stamping and increases in coarse dentate-stamping and incising that occur in Zones B2-B1.

The progression in this ceramic sequence from highly labor intensive to relatively nonintensive methods of decoration may signal important changes in the Lapita exchange system, given that pottery was an object of intercommunity exchange. A reduction in labor investment in ceramics could be interpreted as reflecting a declining value in the pots as items of exchange. Whether this might be due to a "proletarianization" of a formerly high-status, "prestige good" utilized by elites, or to some other factors, is not clear at this point.

The extent to which the Mussau site ceramics were indeed objects of exchange is a problem that has been pursued by T. L. Hunt (1989). Using both conventional mineralogical identification of temper and electron microprobe elemental analysis of clay matrix, Hunt convincingly demonstrates that the *majority* (between about 88 and 100 percent) of ceramics in the Mussau Lapita sites are of nonlocal origin. (Because the local Mussau clay is a known control, we are confident of the identification of these as exotic imports.) In the earliest sites (ECB, ECA) as many as 12 different clay compositional groups are represented, indicating that ceramics were being imported from a number of external communities. One of these was evidently located somewhere in the Admiralty Islands, but the others cannot be specifically sourced at this time. In the later EKQ site, the number of compositional groups drops to 8. At site EKU, a post-Lapita village site dating to about A.D. 1250, only 3 compositional groups are represented in the ceramic assemblage (at least one of these is from the Admiralty Islands).

Hunt's research not only demonstrates that ceramics were a major import into the Mussau Lapita communities, but shows that the number of source localities from which these pots were deriving declined over time. Whereas the early assemblages include as many as 12 source groups, the late Lapita assemblages include only 6 groups. Thus, the evidence of ceramic compositional analysis runs parallel to that of the stylistic sequence, suggesting a reduction in the complexity of the ceramic exchange network over time. In short, at the same time that the ceramic assemblage was being stylistically simplified, the number of production centers was declining, and the volume of imported ceramics was decreasing in relation to locally produced ware.

Obsidian

Extensive work on Melanesian obsidians over the past two decades has provided a reasonably clear picture of the prehistoric exploitation and distribution of obsidian in Melanesia. Two main source areas are involved: Talasea on the Willaumez Peninsula of New Britain, and Lou Island in the Admiralty Islands (both of these have various minor subsources). The Mussau Lapita sites yielded large quantities of simple obsidian flake tools, and so far we have subjected 2981 specimens to sourcing analysis, carried out by M. Allen. A control group of 101 specimens has been analyzed by proton-induced X-ray emission (PIXE) and proton-induced gamma-ray emission (PIGME), as a check on our general sorting technique, which uses stratification by density in sodium metatungstate (see Green 1987 for a description of the density sorting method). Since the Talasea and Lou sources are discrete in their specific-gravity ranges, heavy-liquid density sorting is a rapid, cost-effective, and accurate means of sourcing large archaeological assemblages.

The results of this obsidian sourcing also show significant patterns of change over

the period of Lapita occupation in Mussau. The earliest Mussau Lapita assemblages show an approximately equal representation of obsidian from both Talasea and Lou. This rapidly changes, however, to an increasing dominance of the Lou Island source. In the well-stratified EKQ rockshelter, excavated by M. Weisler, which represents the later part of the Mussau Lapita sequence, this pattern of Lou-source dominance is very clear. Post-Lapita sites, dating to the last two thousand years of the Mussau sequence, display almost total dominance of the Lou obsidian source. (Quantitative details of our obsidian sourcing work are summarized in Kirch et al., in press.)

In sum, the obsidian evidence suggests that the earliest Lapita exchange network integrated a large part of the Bismarck Archipelago region, reflected locally in the Mussau assemblages by near equal representation of Admiralty Island and New Britain source materials. After a few hundred years, however, the importation of obsidian from New Britain decreased substantially. Instead, importation became focused on the Admiralty Islands sources (Lou), which lie directly west of Mussau and were within easier voyaging range. Importation of small quantities of Lou Island obsidian continued throughout the Mussau sequence, even after the disappearance of the Lapita ceramic tradition.

Shell "Valuables"

If ceramics, obsidian, and other materials were being imported to the Mussau Lapita communities in large quantities, what local productions may have served as exports to balance the exchange equation? A range of nonutilitarian shell objects, including rings, disks, beads, pendants, and so forth, has been documented from most Lapita sites. Direct morphological equivalents of these objects are well known to Melanesian ethnographers, for they served widely in Melanesian exchange systems as prestige-good valuables. The best-known examples, of course, are the *mwali* armrings and *soulava* necklaces of the *kula* ring (Malinowski 1922). Archaeologists working on Lapita sites, however, have not sought to determine whether there is evidence for the specialized production and inter-community distribution of such shell objects in prehistory.

In Mussau, we now have extensive evidence for high-volume production of several classes of shell "valuables," particularly rings and disks of large *Conus* shell. (We also have evidence for specialized production of fishhooks of *Trochus* shell, which, while evidently exported, obviously cannot be classed as exchange "valuables.") In the case of the cone shell valuables, ratios of chipped and abraded reject detritus to the finished spires indicate the export of a large quantity of finished items. When we contrast the evidence for the local manufacture of shell valuables in Mussau to that from a number of other Lapita sites, it is clear that Mussau is virtually unique (Kirch 1988*b*). At most other Lapita sites, there is little or no evidence for manufacture. Rather, these items appear only in low frequencies as finished, and usually broken, specimens. (Detailed data on the distribution of classes of shell valuables and evidence for their manufacture in Lapita sites are presented in Kirch 1988*b*.) In short, it is possible to argue that the Mussau Lapita communities were specialized in the production of several classes of shell artifact, which they exported into the Lapita exchange system.

In addition to the ceramics, obsidian, and shell objects discussed above, several other categories of material were imported to Mussau, for which we have also acquired quantitative data. Space limitations permit me only to note here that these include chert flake tools; a wide range of oven stones and other manuports in andesite, basalt, and various metavolcanic rocks; finished stone adzes; stone abraders; and possibly other items as well.

MODELING THE DYNAMICS OF LAPITA EXCHANGE

These new data from Mussau permit us to make two important observations about Lapita long-distance exchange within the Bismarck Archipelago region. First, Lapita exchange in the Bismarck Archipelago was dynamic, continually in flux and changing. When we speak of *the* Lapita exchange network, we must realize that it was never a static or stable configuration. Second, there was considerable specialization of production within the network, and the nature of this specialization also changed over time. In the case of Mussau, we have evidence for the intensive production of shell artifacts. On the other hand, Mussau Lapita communities produced little pottery (perhaps no pottery initially), so that specialization in ceramic manufacture must have been the role of several other communities from which Mussau received its pots. This situation contrasts significantly with that described by Green (1987) for the Reefs–Santa Cruz Lapita sites, a point I will return to below.

To begin to model Lapita exchange within the Bismarck Archipelago region, it is useful to work within a framework of formally defined variables that allow us to characterize specific parameters of the network at different points in time. Plog (1977) provides just such a set of variables, derived from a consideration of “network analysis and locational geography,” including: (1) content, (2) magnitude, (3) diversity, (4) size, (5) duration, (6) directionality, (7) symmetry, (8) centralization, and (9) complexity.

Table 2 is a first attempt to characterize the Lapita network of which the Mussau communities were a part, in terms of Plog’s set of variables, at different points in time. The earliest “time slice” incorporates data from the oldest parts of the ECA site (Zone C in Area B), and dates to about 3500–3000 B.P. The second “time slice” uses data from later deposits at ECA (Area C and Zone B of Area B) and from the EKQ rockshelter, and dates to about 3000–2500 B.P. To contrast these two Lapita phases, I have also considered data from several post-Lapita, late prehistoric sites (especially EKU, EHK, and EKE), which date from about 800–150 B.P. Consideration of these later sites allows us to trace changes in long-distance exchange beyond the strict temporal limits of Lapita, as defined by the presence of dentate-stamped pottery.

CONTENT

“The content of a network is the range of materials that are being exchanged” (Plog 1977:129). In the two Lapita phases under consideration, content included ceramics, obsidian, shell artifacts, oven stone, a variety of other stone artifacts (adzes, abraders, etc.), and an unknown variety of perishable materials. In the post-Lapita phase, content was restricted to ceramics and obsidian.

TABLE 2. FORMAL CHARACTERISTICS OF MUSSAU EXCHANGE NETWORKS

VARIABLE	EARLY LAPITA PHASE (1400 B.C.)	LATE LAPITA PHASE (500 B.C.)	POST-LAPITA PHASE (A.D. 1200)
Content	Pottery (12 source groups); obsidian (2 sources); shell valuables; other items	Pottery (6 source groups); obsidian (2 sources with one dominant); shell artifacts, etc.	Pottery in low frequency (3 source groups); obsidian (1 source only)
Magnitude	High volume of pottery and obsidian imported; high volume of shell artifacts exported	Reduced volume of both imports and exports	Very small quantities of imported pottery and obsidian; exports uncertain
Diversity	Great	Reduced	Least
Duration	ca. 1600–800 B.C.	ca. 800–300 B.C.	? A.D. 1200–contact
Size	Incorporated greatest number of nodes (Admiralties, New Britain, New Ireland, New Hanover, others?)	Reduced number of nodes (primarily Admiralties, New Ireland, New Hanover?)	Restricted largely to Admiralty Islands (possibly some exchange with New Ireland?); largely internally focused
Directionality and symmetry	Multiple flows in and out of Mussau	Reduced directionality; symmetry unknown	Restricted flow from Admiralties to Mussau; most flow internal
Centralization	Probably not centralized	Probably not centralized	Highly focused on Mussau
Complexity	Highly complex	Reduced complexity	Relatively simple system

MAGNITUDE

The quantity or volume of goods moving into and out of Mussau was substantial in the earliest Lapita phase, and dropped off only modestly in the later Lapita phase. By the post-Lapita phase, however, the magnitude of long-distance exchange had declined dramatically, so that late prehistoric sites contain only very small quantities of exotic ceramics and obsidian.

DIVERSITY

This variable could be measured in several ways, including richness and evenness (see Jones and Leonard 1989). In either respect, however, diversity was greatest in the earlier Lapita phase, and declined somewhat by the later Lapita phase. Diversity was substantially reduced in the post-Lapita phase.

SIZE

Ascertaining the size of the network into which the Mussau communities were connected is not possible with the data at hand, as we are looking only at a single node in the large reticulate network. However, in the early phase, imports were derived from New Britain, the Admiralty Islands, and almost certainly New Hanover and New Ireland. Given the existence of at least 12 different ceramic source groups, the early network had the greatest number of participating nodes. In the later Lapita phase, there was some size reduction, although it is difficult to be precise about this. In the post-Lapita period, however, network size was restricted largely to the Admiralty Islands, with perhaps very intermittent relationships with New Hanover and New Ireland.

DURATION

Long-distance exchange was a part of Mussau extra-societal relations throughout prehistory, without any breaks; duration is thus not a significant variable for us.

DIRECTIONALITY

As with size, this variable is difficult to characterize in the absence of comparable data from other Lapita communities in the Bismarck Archipelago region. In both of the Lapita phases under review, Mussau was both an importing and exporting node. The primary exports that can be archaeologically identified are worked shell objects, especially exchange "valuables" and fishing gear. In the post-Lapita phase there is no clear evidence for exporting, but this does not preclude the export of perishable items, such as pigs or mats.

SYMMETRY

Plog (1977:129) indicates that symmetry is a quantitative measure of exchange flow. Again, lacking data from other Lapita sites with which Mussau was in contact, we are not able to estimate this variable at present.

CENTRALIZATION

Graph-theoretic models of the Bismarck Archipelago region (Hunt 1988) suggest that certain nodes occupy positions that would lend them opportunities for centralization, where "substantially greater quantities of the resources in question occur at some few loci" (Plog 1977:129). Mussau may well have been such a centralized

node, given the vast quantities of imported ceramics and the evidence for high volume production of shell artifacts. However, until comparable quantitative data are available for other Lapita sites in the Bismarck Archipelago, we cannot test this proposition. In the post-Lapita phase, Mussau had clearly lost any centrality that it may have enjoyed in the Lapita period.

COMPLEXITY

This last variable may be thought of as a composite of the foregoing variables as measured over the entire network. The Mussau data strongly suggest a decline in complexity from earlier to later Lapita phases. Again, however, comparative data are required before generalizations about the entire Bismarck Archipelago region can be made.

EXCHANGE AND THE "LONGUE DURÉE"

As I observed earlier, most anthropological work on Melanesian exchange has been ethnographic. It not only views complex networks as synchronic, but favors ahistorical, functionalist explanations for such systems. Archaeology allows us to begin to situate the ethnographically attested networks as "endpoints" of millennia-long trajectories of change. In the case of Mussau, the relatively minor long-distance relationships with Manus known ethnographically (Parkinson 1907; Nevermann 1933) can only be understood as the last stage over some thirty-five hundred years of dynamic long-distance exchange relationships. To borrow a felicitous phrase from Braudel, archaeology provides the opportunity to trace these changing relationships over "the dark, untended byways of the extreme *longue durée*" (1980:41), and to understand them as structures of the long run.

What is the "long run" of exchange as seen from the Mussau perspective? The most obvious trend within the thousand years that Lapita existed as a stylistically recognizable entity was the reduction or retraction of an originally wide-ranging, long-distance network to a more regionalized system. Thus whereas the early network certainly included New Britain and perhaps islands farther away, the later Lapita network into which Mussau was connected was centered primarily on the Admiralty Islands and the north coast of New Ireland. I have elsewhere suggested that the early Lapita long-distance exchange system was a significant aspect of an island colonization strategy (Kirch 1988*b*), in which it was essential for demographically fragile and vulnerable colonizing propagules to maintain ties with established homeland communities. Once such communities had reached demographically more stable levels, the impetus to high-risk, long-distance voyaging might have declined. This is one possible model to account for the retraction and reduction in complexity in Lapita exchange, although alternative models may be equally attractive. The testing of such models, however, requires similar sets of data on long-distance exchange, well controlled over time, from other areas of the Bismarck Archipelago. One such data set is being generated by Gosden (1989) and his colleagues in the Arawe region of New Britain.

Whatever the reasons that underlay changes in the Lapita exchange network, the process of retraction and regionalization seems clear. It is evident not only in the Mussau case, but in the eastern Solomon Islands-Vanuatu region, where the early long-distance connections are replaced by a regional system (characterized in part by

the exchange of Mangaasi-style incised pottery and Banks Islands obsidian). (A parallel process occurs in the Fiji–western Polynesian region; Kirch 1988c.)¹

The long run of long-distance exchange in Mussau does not end, of course, with the cessation of Lapita as a stylistic horizon. Our archaeological excavations indicate a continuity of occupation in the Mussau group, so that the post-Lapita phases develop directly out of Lapita (Kirch et al., in press). The process of retraction and reduction in exchange network complexity was continued in the last two thousand years of the Mussau prehistoric sequence. At the same time, however, we have substantial archaeological evidence that internal exchange relationships between local social groups were greatly intensified during this same period. The faunal evidence for pig production is especially intriguing in this regard, given the classic ethnographic pattern of pigs as one of the most prestigious commodities of inter-lineage exchange in Melanesia. Although pigs were present in Mussau during the Lapita period, they are a minor component of the Lapita faunal assemblages. In the later, post-Lapita sites, however, pig bone is ubiquitous. These data might suggest that as external, long-distance exchange relationships declined, there was an increasing emphasis on the local, internally focused exchange of pigs.

As I have suggested at various points in this paper, the changing configurations of long-distance exchange over thirty-five hundred years in Mussau encode changes in the social networks that were responsible for this exchange. The greatest promise, and greatest challenge, of archaeological studies of exchange in Melanesia is to move from the empirical documentation and modeling of exchange to the generation and testing of models of social formation. As Earle (1982:2) opined—following the substantivist position in economic anthropology—“exchange is embedded in broader social and political institutions” (see also Renfrew 1984:87–88). Sahlins put the matter more eloquently: “Every transaction, as we already know, is necessarily a social strategy” (1972:303). The particular objects that are the focus of long-distance exchange are not arbitrary, as Hodder has argued: “They are appropriate within a cultural, ideological, and historical context. Objects come to have meanings as members of categories opposed to other categories, and as nodes in networks of associations and evocations” (1982:207).

Friedman (1982:182–191) offers some hypotheses regarding exchange and social formations in Oceania that are worth considering in the light of our increasing archaeological evidence for long-distance exchange in the Bismarck Archipelago. He suggests, based on archaeological and linguistic evidence, that “proto-Malayo-Polynesian society was based on some form of generalized exchange (MBD marriage) and some form of asymmetric dualism,” which was associated with “prestige-good exchange” (1982:183). He further proposes that “Melanesia was characterized earlier by long-distance trade similar to the more recent trade of West Polynesia and Micronesia.” This would in turn imply considerable hierarchization within these societies, with a monopoly by ranked lineages over “prestige-good imports that are necessary for marriage and other crucial payments, i.e., for the social reproduction of local kin groups” (1982:184). Indeed, the Talepakemalai site has yielded considerable evidence for internal differentiation, and for discrete distribution of the more elaborately decorated ceramics, which might be taken as support for hierarchization within this Lapita community.

Friedman further argues that “when trade thins out or when individual societies are cut off, there is a corresponding intensification of the feasting side of the local

system in order to build or maintain status" (1982:184). This may be precisely what we see in Mussau in the post-Lapita era, with the disengagement of Mussau communities from long-distance exchange with other parts of the Bismarck Archipelago, and a dramatic increase in pig husbandry as a form of local intensification. Of course, this does not in itself explain why the Lapita long-distance exchange network itself retracted, or why Mussau became disengaged in the first place.

It would be foolish to imply that we are as yet in a position to be able to test definitively such hypotheses regarding the social formations of early Melanesia. Nonetheless, we have made real strides in understanding the changing configurations of exchange in Melanesia, and these hold promise that we will yet have the tools to write a true social prehistory of the region.

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NOTE

1. There is an important culture-historical implication in this sequence, in that the "disappearance" of Lapita after 500 B.C. becomes an archaeological nonproblem. Since Lapita has been defined primarily on the criterion of dentate-stamped ceramics, the change from labor-intensive dentate stamping to incising between 1000 and 500 B.C. means that sites after 500 B.C. are no longer "Lapita" in the strict definitional sense. Of course, they were occupied by identical groups of people, whose styles of pottery decoration had simply been altered in response to changing long-distance exchange relationships.

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