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Review

Reviewed Work(s): *Tikopia: The Prehistory and Ecology of a Polynesian Outlier* by Patrick Vinton Kirch and D. E. Yen

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Source: *Asian Perspectives*, Vol. 25, No. 2 (1982-1983), pp. 143-145

Published by: University of Hawai'i Press

Stable URL: <http://www.jstor.org/stable/42928095>

Accessed: 20-02-2018 20:06 UTC

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tools such as scrapers as well as parts of fishing lures. That they were also food seems likely given the quantities in many sites and the breakage patterns, but distinguishing food remains from manufacturing waste is complicated. Perforated *Anadara* spp. valves are common in western Pacific sites, but it is unclear whether the hinge-area perforations represent a breakage pattern resulting from the method of opening the shell (p. 117) or purposeful punching of a hole through the shell from the inside—as the breakage pattern suggests—to provide a net sinker or a cord attachment for a scraping tool (both ethno-

graphically reported). Although the breakage pattern suggests punching from the inside, thus after opening, my replication studies indicate that the fracture pattern also can be produced by percussion from the exterior.

The short conclusion indicates the report's preliminary nature, but the volume provides a good review of pertinent data recovered during fieldwork and documents the initial stages of what has become a multi-year project. Pacific archaeologists can look forward to a complete monograph on the research.

Tikopia: The Prehistory and Ecology of a Polynesian Outlier. Patrick Vinton Kirch and D. E. Yen. Bernice P. Bishop Museum Bulletin 238. Honolulu: Bishop Museum Press, 1982. xviii + 396 pp. \$28.00 (paper).

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The name Tikopia needs no special explanation in anthropology due largely to the successful writing of one social anthropologist, Raymond Firth. Even so, the island's prehistoric settlement and cultural development remained uninvestigated archaeologically prior to the 1977–1978 fieldwork discussed here. The authors appropriately acknowledge their considerable debt to Firth for providing an understanding of the historic culture and society, especially the Tikopian economy, which was a special topic of investigation.

This volume represents some of the best of recent archaeological work done in the Pacific. It very successfully integrates an ecological study of the island setting as an interactive element in culture change with evidence from remote prehistoric periods accessible only through archaeology, and it interrelates the copious ethnographic documentation for Tikopia with archaeological data from recent periods.

After setting forth the general research plan and reviewing the historical, ethnographic, and physical settings, the authors examine agricultural methods. Additional sections of the book describe the actual archaeological fieldwork and analysis performed, and the volume then concludes with a synthesis of ecology, culture history, production systems, and demography

interpreted in light of long-term Tikopian cultural change.

The Polynesian "outliers," of which Tikopia is a classic example, have long been of anthropological interest, and recent archaeological work—starting with Davidson's pioneering work on Nukuoro—is beginning to provide answers to a number of questions about their origins and cultural relationships. Tikopia provides a significant contrast in Polynesian adaptation when compared to nearby Anuta, which Kirch and Yen studied prior to Tikopia. This contrast, however, seems to reflect the late Polynesian adaptation to the distinctive island habitats and not necessarily separate origins or early divergence. The significance of Tikopia and Anuta is heightened by their representing "rare Polynesian examples of contemporary production systems that are essentially 'closed' or self sustaining"; that is, there are no cash crops or major imported foods. Kirch and Yen characterize these as "endpoint" systems, but with each representing alternative courses of development (p. 26). The systematic description of the salient features of the food production system is a valuable complement to Firth's classic 1939 study. The present system is seen by Kirch and Yen to represent one disintensified from that described in the early 1900s.

Archaeological studies consisted of surface survey (correlated with a "geomorphological model," p. 86), testing, and areal excavation. A total of 23 localities were excavated; these included architectural sites, open middens, and agricultural features. Four major occupation phases—Kiki (900–100 B.C.), Sinapupu (100 B.C.–A.D. 1200), Tuakamali (A.D. 1200–1800), and Historic (1800)—were defined. The Tuakamali Phase marks the beginning of the first Polynesian and "modern" Tikopian traits (p. 331).

Pottery forms a major component of the archaeological evidence and its earliest expression is clearly a locally made Lapitoid one—as indicated by the recovery of over 3500 sherds—and the later appearance of an imported ceramic, Sinapupu, a Mangaasi-related type represented by only 152 sherds. Kirch and Yen provide a new shell adze classification that is based on a 23-attribute set with 12 factors distinguished in a varimax rotation. This classification is stated to be Tikopia specific, but comparisons with adze assemblages from other western Pacific Islands should be enlightening. Of interest is the association of several shell adze types (Nos. 6–8) with the Lapitoid occupation. Also, the shift in stone adze characteristics from Lapitoid to later assemblages is marked.

Pat McCoy's analysis of the Tikopian lithic technology is a valuable addition to the discussion of stone artifacts. Of interest is his conclusion that some obsidian—characteristic of the Lapitoid or Kiki Phase—was brought to the island as decorticated cobbles or flakes.

An impressive collection of faunal material (35,000 bones and more than a ton of shell) was analyzed. The main conclusion, now familiar from a number of island habitats, stresses the impact of initial human predation on biotic communities exploited for food. In the Tikopian data this predation shows up in the turtle and probably avifauna, but is most clear in molluscan remains. The fish remains show this impact less clearly, which suggests to the authors that a diversified fishing strategy existed throughout the entire sequence. They conclude that there is a marked shift from wild to domesticated forms and a reduction in the total intake of animal protein over time (Table 48). The latter conclusion is not as well supported as the former by the analysis. The increasing reliance on plant,

particularly starch, foods in the diet is evident from other Pacific island contexts as well, but the significance of increased domesticated animal production is difficult to calculate, despite the efforts to estimate meat food values (p. 303).

Evidence offered for significant environmental change accompanying human activity on the island comes from a variety of sources, including nonmarine mollusc studies—published elsewhere in 1981 (p. 308)—soil analysis, and faunal and floral remains (some of the latter showed exceptionally good preservation). A conclusion based on the well-integrated geomorphological and archaeological evidence is that the Ravenga tombolo and Te Roto freshwater lake are late formations; the present lake was a saltwater bay until c. 400 years ago. Shoreline reconstructions also show that the very limited inhabitable land on Tikopia, c. 2.5 sq. km in recent times, was only about .4 sq. km during the earliest settlement phase.

Kirch and Yen believe that most of the island's stone architecture is late (and associated with the Polynesian occupation, for example, *marae*, house foundations). It is unfortunate that more detail is not available about the distribution of the later settlement. This is understandable as much of the field effort went into excavation of the Kiki and Sinapupu Phase sites; also, excavations and, it seems, intensive survey were not possible in the Uta lakeshore settlement area, one of the major traditional settlements. However, for comparisons with other later Melanesian and Polynesian island settlements, such information about the archaeologically most visible occupation, that of the Tuakamali-early historic period, would be useful to provide a more direct link between the oral history of traditional Tikopian culture and archaeological remains. For example, general settlement areas are noted for the Tuakamali Phase, but little site distribution information is provided that would help explain some of the shifts in subsistence and religious practices ascribed to the historic Polynesian population.

At the beginning of the cultural sequence, the authors note (p. 329) that the question of cultural replacement of Kiki by Sinapupu people remains unanswered for Tikopia as it does for other Southwest Melanesian islands where similar changes are reported. While the cultural change from Kiki to Sinapupu seems to be most

dramatic, the Sinapupu–Tuakamali change is also marked, for example, in fishing gear, ornaments, architecture, and agricultural practices dated to after A.D. 1200 (pp. 333, 350). Thus the question of when and how Tikopia came to be a Polynesian settlement, an “outlier,” is not entirely clear from the archaeological evidence.

The authors make the point that the Polynesian settlements in Melanesia, like Tikopia, were not peripheral to mainstream Polynesia; in contrast, they see these islands as representing a fusion of elements reflecting several major eras of Southwest Pacific prehistory. The true “outliers” of Polynesian culture are New Zealand, Easter Island, and Hawaii. However, I think much of what is discernible as Polynesian in the Tikopian case may very well be derived from

a West Polynesian “homeland,” for example, Tongan people (see p. 343), and may not be the result of an interactive system that places the tiny Tikopian population in the center rather than the periphery of cultural changes leading to an identifiable prehistoric Polynesian culture. The question posed is the continuing problem of archaeologically defining the first “Polynesian” culture.

In sum, the authors of this volume offer an insightful synthesis of a considerable body of evidence that helps place the Polynesian outlier “problem” in proper temporal perspective. This monograph is a major addition to the literature on Polynesian archaeology and will serve as a model for archaeological reporting for years to come.