Outriggers lost in the sea of time:
An overlooked aspect of cultural change and conditions for sustainable development in Oceania

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Abstract

A series of comparative studies is suggested, focused on perceptions of outrigger canoes, and aimed at an increased understanding of the relationship between social relations, biodiversity, and sustainable development in Oceanic societies on small islands and in coastal areas undergoing rapid cultural change. After a critique of the recent notion that canoe-building in Polynesia developed as a result of natural selection, and after discussing the declining local interest in outrigger canoes, it is argued that these canoes can be regarded as a "total social phenomenon" or "fact", in Marcel Mauss' sense of the term. By focusing on such a phenomenon/fact, it is possible to understand many other societal aspects to which it is connected, including gender relations, social structure, religion, perceptions of nature, economy, relationships between centre and periphery, and cultural change. With a focus on outrigger canoes, analyses should take into consideration the processes of imperialism, colonialism, acculturation, and modernisation.

Introduction

Canoes are often featured as icons of Oceania, from pre-historic voyages (Davis 1992; Howe 2007) to contemporary travel posters, hotel displays (Fig. 1) or even logotypes for universities and governments. As an example, Hviding (1996:174–176) notes that in New Georgia, in the Solomon Islands the plank-built war canoe survives only as a few museum specimens, it is still "an icon of ethnic pride". He writes that "the transmission of the skills of war-canoe building has become a powerful symbol of renewed ties with a maritime-based tradition that for seventy years has been suppressed by the steadily more indigenized missions, ostensibly because of its violent and 'heathen' aspects."

Figure 1.
A double canoe built for display at a hotel on Bora Bora, French Polynesia. (Photo by the author, 1983)

The large double-hulled and most of the single hulled canoes used for warfare or long-distance voyaging (Figs. 2 and 3) had already disappeared in the 19th century, together with almost all of the maritime knowledge associated with them (Dodd 1972). In recent decades they have experienced a renaissance, with experiments on traditional navigation, as manifestations of ethnic or national pride, and the recording of wisdom of the last remaining navigators (Finney 1979, 1991; Finney and Among 1994; Gladwin 1970; Lewis 1978; Thomas 1988). However, the same can hardly be said about the smaller and much simpler dugout or plank canoes to which a balancing outrigger float is attached (Fig. 4). To build such a canoe and make it seaworthy certainly requires expertise (cf. Dierking 2007). Nevertheless, in most contemporary Pacific Island societies these canoes are held in very low esteem. In fact, on many islands they are no longer used.

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Figure 2.
Polynesian voyaging canoe. Drawing by Sverre Holmsen. (Author's collection)

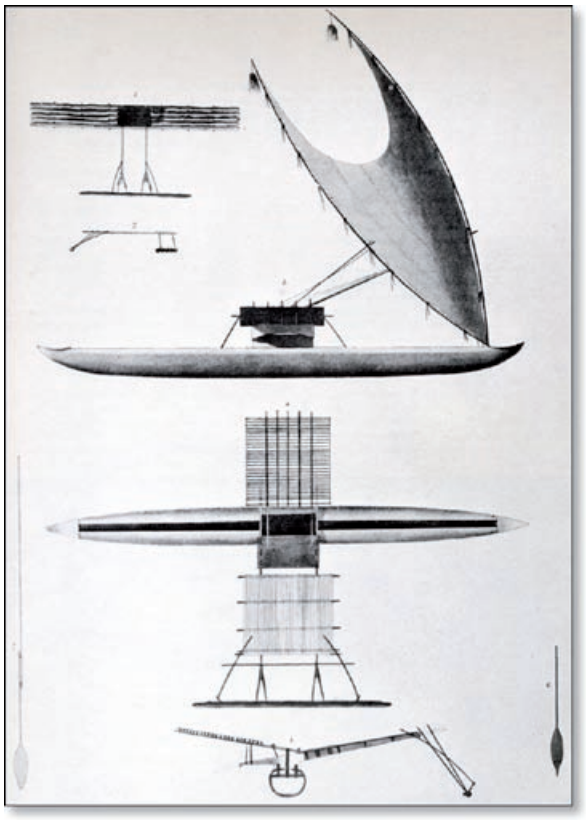

Figure 3.
Micronesian outrigger canoe with sail. (From J.S.C. Dumont d'Urville, *Voyage de L'Astrolabe*, 1830–1833)

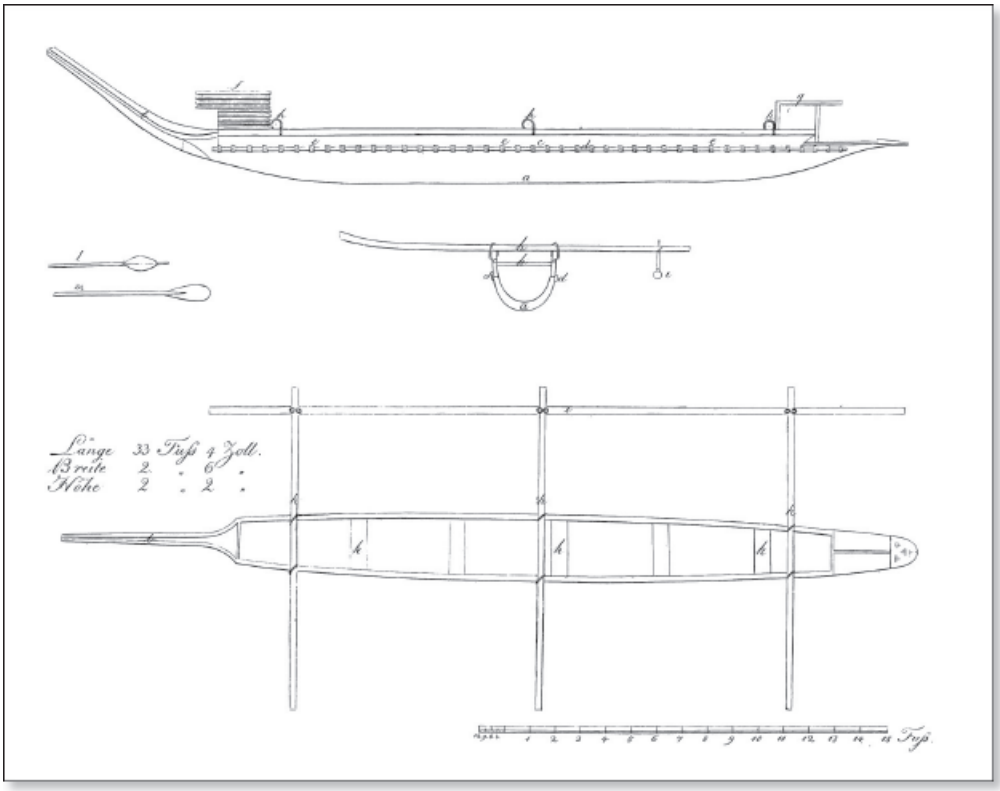

Figure 4.
Drawing of a Marquesan outrigger canoe from the beginning of the 19th century. (From G.H. Langsdorff, *Voyages and Travels*, 1813)

Figure 5.
Fishermen in the Society Islands, ca. 1935.
(Photo from Sverre Holmsen's collection,
reproduced by courtesy of Lena Reri Holmsen.)

Figure 6.
Traditional outrigger canoe on the beach at Vao, Vanuatu, with a prow decoration in the shape of a stylized frigate bird. This decoration was already documented by participants in Cook's second voyage (1774). The island in the background is Malekula.
(Photo by the author, 1990)

Figure 7.
Model of a *tafa'anga* canoe, made in 1891, partly by King George Tupou I of Tonga and partly under his direct supervision. It was brought by Sir Basil Thomson to England (where it was re-assembled erroneously so that the U-shaped connectives crossed under the boom instead of over it). The row of knobs where egg shells (*Ovula ovum*) were attached on a canoe of full size is seen on the decking. (Photo by Anita Herle, University of Cambridge Museum of Archaeology & Anthropology; courtesy of the museum; CUMAA Z32.319)

The literature on traditional use of outrigger canoes consists mainly of older studies (e.g. Buck 1930; Grimble 1924; Haddon and Hornell 1975 [1936–38]; Hornell 1930), some newer monographs (Dodd 1972; Neyret 1976; Smaalders and Kinch 2003), and usually brief articles (e.g. Brosi et al. 2007; Cole 1985; Geraghty 1994), or occasional data in works that emphasise other or more general matters (e.g. Oliver 2002; Whistler 2000). For example, in a 373-page anthology about Polynesian ethnology (Howard and Borofsky 1989), in which the chapters represent a blend of modernity, tradition, continuity, and change, canoes are mentioned only in a single sentence (stating, that a work on the subject was published in 1936 [p. 216]). Thus, until recently, life in Oceania has always been dependent on fishing (Fig. 5), and since the 1930s, one of the most well-known representations of material culture has become among the *least* documented and discussed. During the same period, Oceanic societies have undergone rapid and often destructive changes regarding health and relationships with nature (Bogadóttir 2008; Crocombe 2001; Danielsson 1965; Finau et al. 1987; Malm 2001, 2003, 2007a; Thaman 1982).

My purpose in this article is to explain why studies that have focused on outrigger canoes may provide clues to a better understanding of those processes and the conditions for sustainable development on islands and coastal zones of Oceania and, possibly for other tropical regions.

Canoes and survival of the fittest

Somewhat surprisingly, double- as well as single-hulled canoes have recently become a focus for studies on the processes of natural selection. Rogers and Ehrlich (2008) argue that functional aspects of Polynesian canoe construction can be seen as a result of selection mechanisms connected to survival. According to these authors, both of whom are biologists, unlike details in the construction that may be of practical consequence for canoe users, and which therefore tend to change slowly in design after having reached a level near perfection, decorations (Figs. 6 and 7) tend to change more slowly. Only those "memes", cultural equivalents to

genes (Dawkins 1976), that were of any positive consequence to adaptation with respect to paddling and voyaging would survive as "the fittest". Thus, natural selection would be possible to explain not only in organic evolution, but also cultural change. Implicit in this argument — especially considering what Ehrlich warned about decades ago in his book, The Population Bomb — is that a culture that develops according to ecologically bad decisions will risk becoming extinct.

Now, it is quite obvious why designs that appeared to be directly unsuitable did not evolve into traditions that survived. The most basic requirement for any canoe is, of course, that it be seaworthy; in other words, the sea filtered out un-seaworthy canoes, by causing them to sink, for example! What must be realized, however, is that the characteristics of the canoes did not vary randomly.

Every canoe builder, a master of his trade, must have striven to make canoes of a standard that would give him and his apprentices prestige by being manoeuvrable in the marine environment, admired for their beauty, having decorations that were believed to attract the benevolence of the gods and spirits, or in other ways that lived up to popular expectations. Would this be a parallel example to, say, why all species of small forest birds have the same basic construction but different patterns on their feathers? As I see it, the difference is that birds cannot choose their shape or pattern, whereas the mother-of-pearl ornamentation on a canoe is an entirely deliberate design that, in theory, can be changed as soon as someone gets a new idea about how canoes ought to be decorated. No embryo has ever been able to select its genes, but is simply hatched or born into this world with characteristics that will give the animal an advantage or disadvantage in survival and reproduction. A canoe builder, on the other hand, can make a selection at any time — at least, were it not for the power of local conventions — because of either a flash of genius or pure stupidity can make a successful or unsuccessful invention, and decide to pass on or not the knowledge, the "memes", and thereby intentionally influence the tradition. With respect to details of canoe construction, survival depends on a very deliberate striving for perfection — a *cultural* and not a natural selection.

Even if cultural change and genetic evolution follow parallel patterns and perhaps are possible to predict with a certain accuracy, because characteristics must function in relationship to environmental factors that Rogers and Ehrlich see as natural selection in canoe building, is nothing but yet another example of Lamarck's vision from the early-19th century of how acquired characteristics could be inherited. Most well-known is probably the case of giraffes that, for centuries, had been trying to reach high tree branches and therefore stretched out their necks — a classic textbook case of how natural selection does *not* work (see e.g. Solomon et al. 2005:334).

A major reason why on many islands outrigger canoes have become extinct or are very near that point is probably that they are no longer needed for survival. But that is not the whole story. As a matter of fact, on most islands it is not the fittest canoes that have survived — which is what would be expected from the processes of natural selection — but those that are easiest to make and by no means the best for maritime activities.

Contemporary interest in outrigger canoes

Now and then, during fieldwork in Polynesia, Melanesia and Micronesia over the past 25 years, I have suggested to fisheries experts, indigenous scholars and other local people that it would be a good idea to study perceptions about outrigger canoes and the art of building them. Mostly, I have then been told in response that this has either been documented a long time ago, or that no one is interested these days.

While talking to people in the islands I have expressed the opinion that these canoes are environmentally friendly — because they are entirely made of local materials and, because they are paddled or sailed, do not require any kind of fuel — and that they also are excellent for physical exercise and are connected to both knowledge and rituals that have changed considerably in recent times without having been fully documented. I also know from conversations with many tourists that they would enjoy renting an outrigger canoe for paddling on the lagoon — and these days tourism is a most important source of income in the islands — but that this is seldom possible. Instead, imported plastic kayaks are available for rent within the framework of "eco-tourism". Interestingly enough, the sporting aspect has made outrigger canoes, even if they are made of fibreglass or aluminium, popular for canoe racing in Hawai'i and Tahiti, the most modernised of all the islands (Figs. 8, 9 and 10), and where there are several clubs for this activity (see, for example, Caldwell 2006). (As a matter of fact, the first canoe club in Hawai'i was formed a century ago, in 1908.)

Outrigger canoes for fishing have disappeared entirely, or almost entirely, on a number of islands that, until recently, were known as "very traditional". In both contemporary Tonga and Samoa, for instance, it is doubtful if one could find an outrigger canoe built according to a standard that would have been regarded as high by an expert of the 19th century. Many or most of them are of a rather poor quality, even by contemporary standards, and many are already rotting. In both Samoa and Tonga,

Figure 8.
The author with modern outriggers, Kahului, Maui, Hawai'i. (Photo by the author, 2006)

Figure 9.
Modern outrigger canoe used for racing and for taking out tourists. Waikiki, Hawai'i. (Photo by the author, 1984)

Figure 10.
A Tahitian paddling his canoe. Mo'orea, French Polynesia. (Photo by the author, 2000)

Figure 11.
Dugout canoe, Sa'anapu, Samoa. (Photo by Ragnheiður Bogadóttir, 2007)

Figure 12.
An outrigger canoe with a flat stern to which an outboard motor can be attached. Mo'orea, French Polynesia. (Photo by the author, 1983)

skilled canoe builders were formerly members of a guild. Nowadays, however, it is common for household members to build their own simple dugout canoes (Fig. 11a-b), none of which is formed from wooden planks that would make them light and fast (Whistler 2000:95–97).

Of course, it is easy to understand why many islanders would prefer an outboard motor boat — in French Polynesia, outboard motors are often attached to the canoes (Fig. 12) — but, on the other hand, relatively few can afford such a boat. Thus, most people have no boat at all.

Those remaining in the islands largely use remittances to buy imported food, including canned fish, which according to several studies is of much lower value to health than locally produced food (e.g. Bogadóttir 2008; Finau et al. 1987; Thaman 1982). Cardiovascular diseases and obesity-related diabetes — caused by genetic disposition combined with new food habits and lack of physical exercise — have increased alarmingly, and become a tremendous problem in most of the island nations, particularly in Polynesia and Micronesia. People in the best health are often, if not mostly, found on the least modernised islands, simply because they have no choice but to eat locally available fish, shellfish, fruit, vegetables and root staples. And those food items are nutritionally superior to the imported food that they otherwise could afford. In order to go fishing, or to transport people, crops or other things, outrigger canoes are still used on some of those outer islands (Figs. 13 and 14), but even there they are now beginning to disappear. The physical exercise demanded by traditional food production and paddling canoes also undoubtedly contributes to the better health conditions on the more traditional islands.

Figure 13.
Children in a village on Malekula, Vanuatu, with the canoe that they use daily for getting to school. (Photo by the author, 1990)

Figure 14.
Women in an outrigger canoe. Paama, Vanuatu. (Photo by the author, 1990)

There is a risk that the knowledge about how these canoes are built and used, as well as rituals to which they are connected, will disappear before a thorough documentation has been made. There might also be a risk that certain indigenous trees — including endemic species — which have provided construction materials, will not be re-planted and, thus, become extinct. In fact, several species are already rare or acutely threatened (Whistler 2000:94–95). As noted recently for Pohnpei, in Micronesia, a heightened awareness of the value of local biodiversity is linked to traditional knowledge, including canoe-making, and could help support conservation measures (Brosi et al. 2007). It is also quite possible that islanders will not develop any strong attachment to the marine environment, its biodiversity and its need for protection simply because they rarely, if ever, have a chance to get out on the lagoons and barrier reefs where they can experience the wonders of nature first hand. For example, during my own work in Tonga on the documentation of vernacular names for plants and animals (Malm 1999, 2007b), including many marine taxa, it was quite obvious that much knowledge had become lost within just a couple of generations. There, as in so many other Pacific Islands where I have been, outrigger canoes were usually regarded as old-fashioned and more or less worthless.

Analytical perspectives

Especially in older studies, studies in material culture were important for reconstructing life in Oceania before or at the time of early European contact (Figs. 15, 16 and 17). There is also a rich literature about material culture in general from recent years (e.g. Buchli 2002; Glassie 1999; Schlereth 1999). However, although within my field of human ecology, material culture is something that appears to interest few researchers working in Oceania, a focus on material culture makes it possible to achieve a better understanding of several sociocultural aspects.

When I studied women's marine gathering of invertebrates and algae on coral reefs and in lagoons, especially in Tonga (Malm 1999, 2007c), I regarded this traditional chore as what sociologist Marcel Mauss (1968) called a "total social phenomenon" or "-fact". By focussing on such a seemingly simple activity, I argued that at the same time it was possible to understand many other aspects of society, in that gathering was connected to gender roles, social structures, religion, perceptions of nature, economy, the relationship between centre and periphery, and cultural change, among other things.

Outrigger canoes could also definitely be studied from such a perspective. Studies made on a number of islands across the Pacific might yield valuable

Figure 15.
A picture from Olivier van Noort's expedition to Guam in 1600. This is one of the first pictorial records of oceanic outrigger canoes. (From J. van Spilbergen, *Speculum orientalis occidentalisque Indiae navigationum*, 1619)

Figure 16.
Houses on stilts and canoes in a lagoon of New Guinea. (From W. Sievers, *Australien und Ozeanien*, 1895)

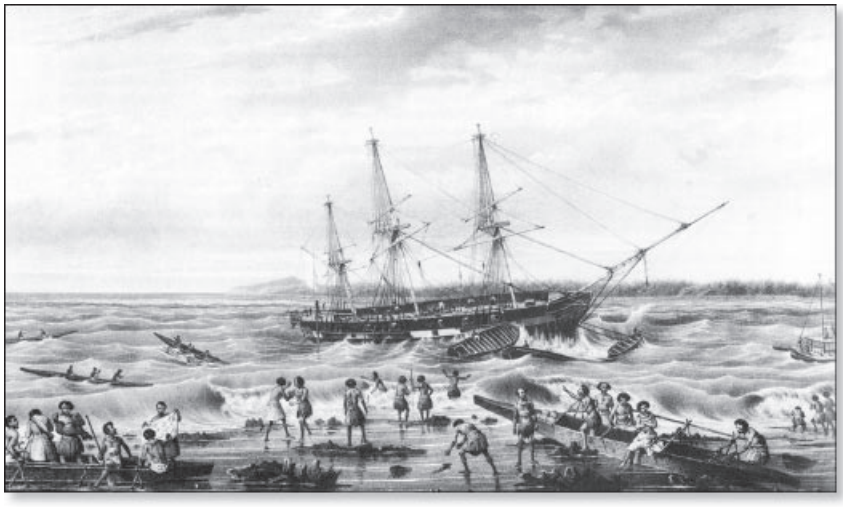

Figure 17.
Tongan outrigger canoes on a picture which shows Dumont d'Urville's ship L'Astrolabe on the reef at Tongatapu. (From J.S.C. Dumont d'Urville, *Voyage de…L'Astrolabe*, 1830–1833)

data for making comparisons, and offer a better understanding of processes of change and the conditions for sustainability in islands and coastal zone societies.

It is important to conduct these studies within a global framework. What has been regarded as original or traditional is often a result of global processes, and can be understood only in relation to the larger world with which island societies are connected (Friedman 1994). For studies of outrigger canoes, I suggest that a global systemic analysis be made within a framework whose four corners represent aspects of a historical process. (I have applied such an analytical approach in my work on centralisation in French Polynesia; Malm 2003.) These are: 1) *imperialism* and *colonialism,* which result in the islands becoming integrated into the modern world system; 2) *acculturation*, which means that Western (or Oriental) ideas are integrated into, changing or replacing local cultural aspects; 3) *modernisation,* which includes such structural changes as a successive transition from subsistence to a monetary economy and wage labour; and 4) *migration*, which leads to depopulation of outer islands as well as to aggregated populations on main islands, and to emigration to metropoles outside island nations (Fig. 18).

Research questions that I suggest are important to pose include:

- How are outrigger canoes perceived by older and younger people on modernised and more traditional islands, and what difference might there be with respect to gender?
- Which rituals are still connected to outrigger canoes, and which ones seem to have disappeared or been changed?
- How did the situation emerge that resulted in outrigger canoes becoming such a low status that they have become extinct or are close to that point?
- What are the consequences of their demise for environment, lifestyle and social relationships?
- What are the reasons for canoes still being used on certain islands?
- What possibilities are there for canoes still to be constructed and used in years to come, and how can they be expected to be used?

In order to obtain answers to these questions, it is important not only to interview experts on canoe building and document their skills, but also to communicate with other people in local societies, including fisheries experts as well as people who, for some reason, do not perceive canoes as interesting at all.

Concluding remarks

It is important to make studies according to what has been suggested here in Oceanic societies that are experiencing rapid cultural change. They would provide a valuable understanding of the relationship between social relations, biological diversity and sustainable development on islands and in coastal zones. Such projects would, for instance, be excellent for undergraduate students at universities in the region. Documenting and publishing on this subject could involve researchers from abroad as

Figure 18.
Outrigger canoes in the harbour of Apia, Samoa.
(Photo by Ragnheiður Bogadóttir, 2007)

well as local people interested in recording their cultural heritage.

A comparative perspective with a focus on outrigger canoes as a total social phenomenon could be interesting not only for analysing what has happened in the past, but also for providing new and important insights for sustainable living on islands where lifestyle has always been closely connected to the marine environment. After all, there would not have been a single human being in those islands at Captain Cook's arrival were it not for the canoes that carried people there across the world's largest ocean.

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