

Risk and economic reciprocity: An analysis of three regional Aboriginal food-sharing systems in late Holocene Australia

Kevin Tibbett

Abstract

This paper is a theoretical examination of food-sharing systems and archaeological theory. The specific aim is to assess the archaeological indicators of three different food-sharing systems, with the variable relationships between risk-management, social regionalisation, economic reciprocity and exchange. It is suggested that the Bogong moth (*Agrotis infusa*) festivities in the southern highlands of New South Wales, the Bunya nut (*Araucaria bidwillii*) gatherings in southeast Queensland and the seasonal food-sharing along the riverine corridors of the Lake Eyre Basin form a continuum between positive and negative reciprocity.

Introduction

Three Aboriginal food-sharing systems are discussed in this paper: the Bogong moth (*Agrotis infusa*) festivities in the southern highlands of New South Wales, the Bunya nut (*Araucaria bidwillii*) gatherings at southeast Queensland and the seasonal congregations along the riverine corridors of the Lake Eyre Basin. The Lake Eyre Basin is a case study that identifies archaeological correlates of economic reciprocity through exchange. It is suggested that in the Lake Eyre Basin gatherings increasing population levels during the mid- to late Holocene have transformed reciprocity into a form of competition or trade within the alliance system. Increasing population, promoted by an alliance system that reduces the impact of drought, might have placed stress on available resources and transformed exchange into competition for privileged access to resources and the control of desired goods. This situation is compared to the social conditions governing the operation of Bogong moth and Bunya nut food-sharing systems. A hypothesis is advanced that reciprocal exchange within an alliance system can be placed under internal pressure to move along the continuum between reciprocity and trade.

Three regional food-sharing systems

The similarities between the Bogong moth and Bunya nut festivities have been described by Flood (1976:43) as both involving long distance travel, their seasonal structure, and the abundance and high energy value of the moths and nuts. The summer abundance of the Bunya nut is hypothesised by Morwood (1987) to be in a direct relationship to the winter fish runs on Stradbroke Island. He postulated that the Aboriginal groups who controlled the seasonally abundant Bunya nut festival in the Blackall Ranges gained economic reciprocity when they gathered outside their estates for the winter fish runs at Moreton Bay. This requirement to supplement relatively scarce food resources is supported by Petrie (1904), but a social rather than an immediately economic reason for the gatherings is argued by Hall (1982:85) and Sullivan (1997:60). A social rather than technical solution to supporting a higher

demographic density is also suggested by Morwood (1987:339). He viewed the problem of resource 'patchiness' as requiring a regional network of alliances and a process of economic reciprocity. The resource-sharing strategy for Bunya nut in southeast Queensland is estimated by Morwood (1987:348) to have commenced in the mid- Holocene. According to Flood (1999:240), archaeological evidence for moth hunting is limited.

In the three alliance networks being examined, the priority of social factors and economic reciprocity appear to be different. Bogong moth is abundant over a wide region of the Snowy Mountains. Bogong moths were available for four months and could be consumed by the visiting tribes (Flood 1976:44). The summer Bogong moth Highland feasts cemented alliances among the 'confederacy' (Lourandos 1997:61). The earliest migration of the moths to the Highlands is estimated to be at about 7000 BP (Flood 1999:20), but she advanced that human exploitation possibly commenced at about 1,000 BP. It was suggested by Flood (1976:46) that perishable goods such as rugs, belts, wooden implements, and non-perishable items such as stone and ochre might have been exchanged, although there is no ethnographic or archaeological evidence for this exchange in the Highlands. Evidence for the extensive trading networks nominally associated with the Lake Eyre Basin (McCarthy 1939; McConnell 1976; Mulvaney 1976; McBryde 1987; 1989; 1997) is absent in the case of the Bogong moth festival.

In comparison, Bunya nuts were in quantities that could be readily consumed in the few weeks the season lasted. It was suggested by Flood (1976), and Morwood (1987) that the Bunya nut festivals occurred every three years. The bimodal distribution of summer Bunya nut and winter fish runs as described by Morwood (1987) would help alleviate the 'patchiness' of resources. In this bimodal system, reciprocity and economic equilibrium are occurring by some groups of people sharing their surpluses with each other. The necessity to maintain economic reciprocity by the exchange of goods in the Bogong moth summer feasts is thought to be reduced. All the Highland tribes (not the lowland visitors) had access to Bogong moths in their own territories (Flood 1999:240), but tribes gathered outside their estates rather than exploiting their own resources. Therefore, Bogong moth gatherings do not seem to serve as a system of risk-management for a significant proportion of the population. The non-predation of moths in the home range of some tribes suggests that risk, and economic reciprocity are low priorities with social aspects being the central issues.

In the Lake Eyre Basin the exchange of goods might have provided a mechanism for competition within the alliance system. The owners of the 'channel country' do not seem to have been obtaining regular reciprocal rights to food resources. Social networks may have been complemented by the exchange of goods to maintain rights to surplus resources. Ultimately, access to the seasonally resource rich interior of the Lake Eyre Basin may not depend on annual exchange but the social relations attained through exchange. These interactions

School of Anthropology, Archaeology and Sociology, James Cook University, Townsville, QLD 4811, Australia.
Email: kevin.tibbett@jcu.edu.au

may result in close kinships developed by intermarriage. It is hypothesised that the essential differences between the three food-sharing systems are:

risk-management, and therefore economic reciprocity is not a significant factor in the Bogong moth feasts, but is integral to the other two alliances;

economic reciprocity in the Bunya nut festival (after Morwood 1987) can be achieved through the reciprocal use of food resources and exchange; and

in the Lake Eyre Basin economic reciprocity is achieved through exchange of material goods for food resources. It is suggested that the initial requirement for exchange in an open alliance system is to maintain social equilibrium between consumer and provider, which were then developed into masked attempts towards inequality between competitors for the same resources.

Risk-minimisation and social regionalisation

The development of trade in the Lake Eyre Basin may have been a risk-minimisation strategy. Trade may be an economic response to competition for finite resources in an open alliance system. If alliance systems have an economic and survival value by increasing the availability of resources (Morwood 1987:33), then populations would be expected to increase. Any increase in population levels would necessitate the introduction of additional risk minimisation strategies to ensure continued access to resources. The risk-management strategy is examined here in the context of climatological and hydrological variability in the Lake Eyre Basin, not long-term climatic change.

I hypothesise that food-sharing in the Lake Eyre Basin was not an annual survival necessity but was partly dependent on annual exchange and social obligations to promote and maintain existing reciprocal rights to the food surplus. This network maintained social relations by providing a risk-minimisation strategy for the drought years. When adequate precipitation fell on portions of the catchment area, risk-minimising migration from these regions would not be necessary.

The economic domain of the social network in an open society may not have been secondary to the social obligations, but of equal importance in a highly variable environment such as the Lake Eyre Basin. Nevertheless, the emerging complexities in Aboriginal economics and exchange as hypothesised by Lourandos (1983, 1985, 1997) and Lourandos and Ross (1994) seem to be supported by the interpretations presented in this paper.

According to Morwood (1987:33), the alliance system in harsh environments had both an economic and survival value. Morwood (1987) viewed the alliance network in southeast Queensland as a social strategy for increasing the availability of regional resources. I argue that the Rungarungawa, Wongkadjera and Julaolinja controlled the supply of narcotics and stone axes to achieve a similar result, by helping to ameliorate the effects of rainfall variability in their semi-arid environment. By reducing the impact of drought and variation in food availability, higher population levels could be maintained. A general interpretation of Liebig's ecological law by White (1992:9) states: "biological populations are limited, not by the minimum amount found at the scarcest time of a typical year, but by the minimum amount found at the scarcest time of a bad year". Risk-minimisation in the Lake Eyre Basin is necessary due to the very high variability of rainfall and the patchiness of resources. The 'channel country' is unique in that

climatic drought does not necessarily result in hydrological drought. Floodwaters can increase the biotic carrying capacity in the riverine corridors when drought prevails outside the floodplains.

Risk-minimisation is viewed by David and Cole (1990) as a buffer against resource shortages. David and Cole (1990:801) and David (1991) compared rock art from northern and western Queensland. Their research suggested that the dominant stylistic conventions were a duality with two relatively distinct trading networks in western Queensland and Cape York Peninsula. In arid western Queensland where natural resources were unreliable, an extensive system of social relations existed which minimised the effects of resource shortages (David and Cole 1990:801).

It is hypothesised that group competition still prevailed in an open alliance network. Control of a utilitarian commodity (stone axes) and excess social goods (narcotics) could result in a privileged status when competition occurs for limited resources during extreme drought conditions. This approach seems to be supported by Fisher (1997:17), who hypothesised some of the advantages of specialisation "the logic underlying the division of labour lies in the mutual gain inherent in specialisation, whether on the basis of absolute or comparative advantage". In arid regions where resources are uncertain, the social networks are 'open' in the interest of risk-minimisation (Fisher 1997:20). Conversely, in resource rich regions, which are more fertile rock art reflects 'closeness' (David and Cole 1990; Fisher 1997:20).

Morwood (1987:348) viewed the significant demographic and social changes that occurred in southern Queensland during the mid-Holocene as evidence of demographic flexibility that required a reciprocal network. Emerging complexity in economic and exchange systems are central issues in intensification (Lourandos 1983, 1985, 1997; Lourandos and Ross 1994).

Lourandos (1983:81) argued that there are two main methods that hunter-gatherers might use to efficiently control an environment: by stabilizing or regulating resource yields, and by managing or controlling the regeneration of resources. Another economic perception of intensification was advanced by Bender (1978:205) who suggested that "intensification may be simply about improving accessibility, reducing travel time, or making returns more predictable". The economic growth during the Holocene in southwestern Victoria was inferred by Lourandos (1983:81) to be detectable archaeologically. He argued that these changes were due to the restructuring of social relations that placed demands upon the economy and thus production. The basic model that Lourandos (1983:90) proposed is:

that social relations make demands upon: economy, which I define here as the resource management strategy; and distribution of people (via marriage), resources, services, goods and knowledge. Productivity and production are in this way affected for incentives to exist (due to the dynamic of the social relations) for their manipulation.

In a critique of Lourandos (1983), Beaton (1983) and Bird and Frankel (1991) questioned the evidence for intensification in Australian prehistory. Beaton (1983:95) doubted that archaeological evidence for increased site occupation or broadening of the diet range during the Holocene meant economic growth. According to Beaton (1983:95) economic growth implies some re-organisation of the exploitation strategy or the enrichment of the environment such that resources captured per capita increase. According to Beaton

(1983:95) intensification suggests an increase in energy cost for the hunter-gatherer. The lack of evidence for these points was viewed by Beaton (1983:95) as reason to refute models based on economic growth. Increased productivity based primarily on the Late Holocene development of fish traps was questioned by Bird and Frankel (1991:9) as an indicator of trade. They argued that fish trap technology might have developed earlier.

The arguments presented here regarding specialisation through accumulation are not based on site occupation, increased number of sites, diet breadth or increased production. Re-organisation of the cultural strategy is implied by a trading strategy that accumulates goods. Specialisation in stone axes, pituri production and trade increases resource availability. The groups with more valued material goods can out-compete other groups in the alliance network. Once the valued resources are exclusively controlled then reciprocal distribution inferred by the down-the line-exchange networks such as between Glenormiston and Pandie Pandie is sufficient to maintain social relations (Tibbett 2002). The seasonal timing of the sharing of resources in the Lake Eyre Basin is a relevant factor in examining risk-minimisation strategies. The timing for 'walkabout' at Boulia according to Roth (1897: Sect 224) commenced when pituri is seen 'knocking about' for sale.

Population increases within the alliance network would directly lessen the benefit of food-sharing. Either consciously or unconsciously risk-minimisation might have developed into competition for resources instead of economic equilibrium. Accumulation of valued resources, places other groups at a disadvantage even if the goods are exchanged reciprocally within the social sphere. The model for the trading relationship between Glenormiston and Kopperamanna (Tibbett 2002), suggested by the archaeological and ethno-historical evidence seems to be based on different social and economic foundations from the aggregation and exchange cycles in southeast Queensland and the southern Highlands of New South Wales.

Evidence for hypothesis

While Glenormiston and Kopperamanna are in the same cultural alliance (Peterson 1976), the archaeological data and ethnographies suggests that they were not in direct social competition. Situated at opposite ends of the alliance network they were probably not competing for access to the same resources. Sahlins (1972:196) suggested that types of reciprocity form a continuum, which correlate to kinship and distance (Sahlins 1972:196). Reciprocity tends to be generalised where kinship is close, and to decline in proportion to distance. Trade or negative reciprocity between the Rungarungawa, Wongkadjera and Julaolinja people at Glenormiston with the Dieri groups from near Kopperamanna and Lake Eyre is consistent with Sahlins' (1972) reciprocal continuum proposition.

The archaeological record suggests that Pandie Pandie or Gason were the southern limits of the reciprocal network from Glenormiston. This seems to accord well with the ethnographic record. Aiston (1936:374) noted that up to 500 people waited at Goyder's Lagoon for the arrival of the traders. Trade with the Dieri people from near Kopperamanna was probably mutually beneficial to both parties involved but, importantly for the Rungarungawa, Wongkadjera and Julaolinja Aboriginal groups (Tindale 1974), the Dieri traders from the south of the Lake Eyre Basin used the goods for home consumption (Howitt 1891:77; Howitt 1904:11; Horne and Aiston 1924;

Aiston 1936:373). These transactions kept the valued goods from the social sphere of the Rungarungawa, Wongkadjera and Julaolinja people until they participated in exchange.

Exchange in the Lake Eyre alliance might be more closely related to competition and promoting the exchange of partners, than achieving economic reciprocity. The evidence for regionalisation seems to be closely related with the exchange of stone axes in the Lake Eyre Basin. The estimated timings for regionalisation; 4000 BP in southeast Queensland (Morwood 1987), 2500 BP in Cape York Peninsula (David 1991) and 1000 BP for the Bogong moth feasts (Flood 1999), might suggest a late Holocene rather than a mid Holocene beginning for the extensive exchange networks in the Lake Eyre Basin. The earliest confirmed date for stone axes (river pebbles not quarried) in the Mt Isa district at 1200 (Hiscock pers. comm.) does not contradict this assumption, although the evidence is not conclusive.

Summary

The development of a survival strategy in the form of trade seems to be founded on a system of economic reciprocity, which under competitive pressure has changed into negative reciprocity or trade. Increased population within the alliance may have increased competition for scarce resources. This competition is argued to have switched emphasis from economic equilibrium, between owners of the surplus and consuming groups, to competition between consuming groups for access to finite resources. In the Bunya nut festival, as described by Morwood (1987), economic reciprocity operates between seasonally abundant food resources from the Blackall Ranges and Moreton Bay. The Bogong moth gathering in the Southern Highlands of New South Wales appears to be an essentially social rather than risk-minimisation strategy for some of the participants.

In the Lake Eyre Basin the providers of the surplus food are not obtaining reciprocity by the sharing of food. In this circumstance forms of exchange are hypothesised to have developed, not in order to achieve economic equilibrium, but to establish inequality between competitors. Risk-management in the competitive environment of the open alliance system may have been about out-competing rivals for finite resources. In times of severe drought when food resources are limited, but required by all groups in the alliance network, then privileged access might be given to some groups. Differential access might not depend on the commodities available for exchange in the stressful period, but by the close kinship developed by intermarriage.

The accumulation and distribution of stone axes and the control of pituri possibly developed to maintain close kinship resulting in economic competition. The ultimate commodity may not be the materials exchanged, but the related partner exchange between groups. Access to resources may be denied to alliance groups with distant kinships. Although risk-management may not be an annual requirement it becomes a permanent economic obligation to preserve the rights and privileges to access surplus food in times of drought. Competition within an open alliance system may be greater than competition between alliances.

It is assumed that successful risk-minimisation strategies raised the minimum availability of foodstuffs, increased population levels and therefore reduced the effectiveness of the original risk-minimisation strategy. Economic equilibrium might have transformed into unequal competition (trade) between groups in the alliance system through efforts to

maintain or increase the effectiveness of risk-minimisation strategies.

In the Lake Eyre Basin the emergence of increasing social complexity in economy and exchange systems is argued to be a result of successful risk-minimisation strategies operating in the mid- to late Holocene. Intra-alliance competition, resulting in inequality between competing groups and not economic equilibrium, is hypothesised to be the key factor that introduced trade into the Lake Eyre Basin. The balance between the social aspects of aggregations and economic equilibrium is hypothesised to change depending on the food-sharing interactions between groups in the alliance relationships. In the arid zone of Lake Eyre where the riverine corridor groups share food resources, but do not receive regular reciprocity in kind, exchange aspects of the social system gain importance. Successful risk-minimisation strategies serve to increase populations. Either consciously or unconsciously new risk-minimisation strategies must be implemented to maintain or improve population levels.

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