Major works on warfare in noncentralized societies have suggested that warfare is spurred by imbalances of power. Intergroup aggression is seen as predatory and aimed at dominance and acquisition (Chagnon 1988; Manson andWrangham 1991; Meggitt 1977), that is, total warfare conducted with limited means (Keeley 1996). Here it is argued that the imbalance of power hypothesis overlooks the importance of intergroup ties for human production, reproduction, and exchange. An alternate “balance of power” hypothesis is presented: that warfare in simple societies is largely about retaliation to establish a balance of power with allies and enemies so that intergroup social and economic exchange can flow. Data from the Enga of Papua New Guinea are used to examine both hypotheses, concentrating on the motives behind warfare, male coalitionary dynamics, and the outcomes of warfare among the Enga during a 300-year period of rapid change from the introduction of the sweet potato until the adoption of modern high-powered weapons.

KEY WORDS: Balance of power hypothesis; Exchange; Male coalitions; Enga; Intergroup aggression; Papua New Guinea; Reciprocity; Warfare

When J. L. Taylor entered the Lai Valley of Enga Province in 1939, he wrote:

We were now in the heart of the Lai Valley, one of the most beautiful in New Guinea, if not in the world. Everywhere were fine well-laid out garden plots, mostly of sweet potato and groves of casuarinas. Well-cut and graded roads traversed the countryside and small parks . . . dotted the landscape, which resembled a huge botanical garden. It may well be called the garden valley of the Lai (Taylor 1939 [1971]:29–30).

I wrote in my diary of July 2004:

The Lai Valley is a virtual wasteland—as the Enga say, “cared for by the birds, snakes, and rats.” Houses are burned to ash, sweet potato gardens overgrown with weeds, and trees razed to jagged stumps. In the high forest, warfare rages on, fought by “Rambos” with shotguns and high-powered weapons taking the lives of many. By the roadside where markets bustled just a few years before, there is an eerie emptiness. In these wars of today, almost everybody loses. Why is this happening? Where will it end?

Why people form military coalitions and go to war is an age-old question. In Western thought, war took on a central position in discussions of human nature when Thomas Hobbes published Leviathan in 1651. Since that time, many disciplines have become involved in the debate over whether war or peace is the natural state of humanity.

Studies in evolutionary biology and ecology have proposed that lethal coalitionary aggression is acquisitory—that it was selected for because it allowed males to further their fitness by acquiring material resources and females (Manson and Wrangham 1991; Tooby and Cosmides 1988). The strong appetites that men have for dominance competition is seen as the hard-wired
result of powerful males having achieved extraordinary reproductive success over evolutionary history. Wrangham and Peterson (1996:199) write of chimpanzee males: “The problem is that males are demonic at unconscious and irrational levels. . . . The temperamental goal is to intimidate the opposition, to beat them to a pulp, to erode their ability to challenge. Winning has become an end in itself. It looks the same with men.”

Within this framework, Manson and Wrangham (1991) have formulated the “imbalance of power” hypothesis on the basis of comparisons of intergroup aggression in humans and chimpanzees: that male coalitionary aggression can be attributed to imbalances in group size, which greatly reduce the costs for seizing resources and mates. Intergroup aggression is opportunistic and predatory, spurred by an imbalance in numbers and force. For human foragers, they hypothesize that where crucial resources are alienable, intergroup aggression will occur largely over resources, and where inalienable, they will occur over females. According to the imbalance of power hypothesis, primitive warfare is total war conducted with very limited means (Keeley 1996). Two classic studies of warfare in anthropology have been used to support the model that warfare is aimed at dominance and acquisition. One is Chagnon’s (1988) work arguing that the Yanomami fight over women. The other is Meggitt’s (1977) study of Enga warfare, which suggests that larger groups are poised to attack weaker ones in order to gain land.

The chimpanzee-human comparison is valuable in that it identifies possible roots of male coalitionary aggression. But important differences between humans and nonhuman primates that alter the costs and benefits central to the imbalance of power hypothesis are not considered, particularly for noncentralized societies:

1. Rodseth and colleagues (1991) have shown that humans differ from other primates in that they maintain lifelong relationships with dispersing offspring so that both sexes remain embedded in networks of consanguineal kin. The result is intergroup affinities and the uncoupling of relationships from spatial proximity. Dispersed kin form far-flung social security networks involving exchanges of services and goods with kin in other groups. These provide alternative residences in times of social and environmental failure, access to goods from afar, connections for arranging marriages, labor, and finance for wealth distributions (Cashdan 1985; Lemonnier 1990; Mauss 1930; Sahlins 1972; Wiessner 1982, 1986; Yengoyan 1968). There is evidence that intergroup exchange has existed for 50,000 to 100,000 years or longer (Ambrose 1998; McBrearty and Brooks 2000). Acquisitive aggression disrupts essential ties: to hurt one’s neighbors is to hurt oneself.

2. Humans develop long-term pair bonds with mates that link both spouses and affinal kin in relations of reciprocity (Fox 1967, 1975; Levi-Strauss 1969). In most human societies, people reject marriage by abduction so as not to forgo valuable social ties generated by marriage.

3. Chimpanzee males are strongly xenophobic toward males in other groups (Goodall 1986). In humans, xenophobia can be and is aroused under certain circumstances (Eibl-Eibesfeldt 1979, 1989) but is much less pronounced owing to hyper social attributes among humans, such as cognitive empathy, compassion, and willingness to participate in collaborative activities with shared goals and intentions (Tomasello 1999). That xenophobia is less frequently “in the driver’s seat” for humans is indicated by the experiences of travelers, explorers, and the thriving tourist industry of today.

4. Both chimpanzees and humans have predispositions to seek rank or status, but there are important differences. First, chimpanzee males form coalitions to rise in rank; in noncentralized human societies, those lower down in the hierarchy band together to level those on top via verbal punishment (Wiessner 2005), witchcraft (Kelly 1993), and ostracism or violence, creating “egalitarian” societies (Boehm 1999). We know little about the evolution of egalitarian societies; what is clear, however, is that once established, egalitarian relations between individuals and social
groups greatly facilitate sharing, reciprocity, and mobility (Wiessner 2002). Egalitarian relations standardize the costs of social exchange by providing important information about others: namely, that they are equals and must not work out relative social standing with every interaction. This is particularly important for intergroup relations that involve periodic extended visiting, for hierarchies do not mesh easily. Under conditions of equality, individuals can help each other by knowing that, as equals, they can ask and receive when in need. Finally, egalitarian relations alleviate fears that assistance given in the present will be used to dominate at a later date or that the stronger will simply refuse to reciprocate.

Second, rank in chimpanzee societies is based on aggressive dominance; status in egalitarian human societies is largely grounded in prosocial dominance (Eibl-Eibesfeldt 1996): providing defense, skills in mediation, financial contributions for group needs, or organization of ritual and ceremonial exchange (Godelier and Strathern 1991; Roscoe 2000). In egalitarian societies, status is given to individuals who provide benefits for the group; when they cease to do so, their demise is rapid. The fact that humans have several means to achieve status causes fault lines in warring coalitions. For example, young men with little political experience use warfare as a means to display physical prowess and willingness to sacrifice for the group with little regard for other outcomes. Older, skilled leaders try to channel warfare in such a way as to reduce losses and foster conditions conducive to economic, social, and ceremonial enterprises on which, in turn, their successes depend. Consequently, causes that move coalitions are usually ones that can be shared by all: the need to restore honor, to please the ancestors, or to counteract sorcery.

Given the above factors, optimal reproductive strategies differ for humans and chimpanzees. Human male fitness is a matter not only of mating opportunities and access to natural resources, but also of having the wealth and influence to contract polygynous marriages accompanied by long-term ties of mutual support with affines. Female reproduction is furthered by living conditions that allow mothers to obtain security and assistance from their kin and spouse’s kin in child rearing (Hawkes 1997; Hrdy 1999). Here I will propose a “balance of power” hypothesis as an alternate hypothesis for warfare: namely, that in unstratified, small-scale societies, it is balance of power and reciprocity, not imbalance and predation, that allows both men and women to pursue optimal reproductive strategies, and that the roots of many wars lie in exacting revenge to establish such a balance. Balance of power though warfare may be sought vis-à-vis the enemy to restore parity or vis-à-vis allies to establish mutual respect within an alliance against a common enemy. When managed culturally, revenge restores reputation and equality so essential to reciprocity. Only with increasing population pressure, hierarchical organization, or competition over essential resources does the quest for dominance and acquisition of resources play an ever greater role in warfare.

<subhd>REVENGE, REPUTATION, AND WARFARE</subhd>

Revenge is retribution for affronts that violate the possessions of others, whether they be land, natural resources, spouses and offspring, the physical body, reputation, relationships, ideas, group members, or status positions. Revenge is distinct from defense in that it not only drives off aggressors but also inflicts losses on opponents to even the score. It thus has the potential to reestablish a balance of power. Revenge is one motivating factor in virtually all armed conflict; it is the most commonly given reason for warfare in noncentralized societies (Daly and Wilson 1988; Ferguson 1990; Keeley 1996; Kelly 2000; van der Dennen 1995). Revenge may have roots among our closest primate relatives, for whom reprisal plays a role in maintaining one’s position in a dominance hierarchy (Clutton-Brock and Parker 1995; Goodall 1986), though among nonhuman primates, dominance, not parity, appears to be the goal. Humans in all cultures experience a desire for revenge, as Homer wrote in The Iliad, “It [revenge] far sweeter than flowing honey wells up like
smoke in the breasts of men.” And indeed, studies in neuroscience indicate that revenge is sweet in that it activates pleasure centers in the brain (de Quervain et al. 2004; Knutson 2004). The desire for revenge underlies much of the aggression in the world today from homicides to gang wars to cartoon wars to international conflicts. Revenge forms an arena in which biological predispositions and cultural rules are closely intertwined. A deeply rooted desire for revenge appears to have an evolutionary basis, though the emphasis put on revenge, and what constitutes appropriate action to reestablish balance, are often defined by cultural means. On the one hand, revenge can be a relatively low-cost means of defending possessions and position if, as a deterrent, it nips exploratory aggression at the bud. On the other, the deeply rooted psychology of revenge can, at times, lead to runaway aggression that inflicts high costs on both sides—“the war trap” (van der Dennen 1995). If retaliation is measured as “an eye for an eye and a tooth for a tooth,” the threat of retribution can serve to protect a wide range of assets: for example, land, herds, trade routes, political alliances (Boehm 1984; Daly and Wilson 1988; Ferguson 1990; Nisbett and Cohen 1996).

The transaction costs of revenge are greatly reduced by the creation of what might be called “cultures of honor” that define insult or affront and lay down rules to redress wrongs and restore reputation, such as tit-for-tat retaliation, blood revenge, feuding, duels, or compensation payments (Boehm 1984). In societies with no formal legal institutions, revenge may constitute the “law” for protecting rights, relationships, and resources. Cultures of honor may persist and continue to affect rates of violent crime, interpersonal interactions, social attitudes, and political behavior even when the conditions that generated them are long gone (Nisbett and Cohen 1996).

Ferguson (1995:253) has proposed that retaliation involves the conversion of material interests into moral terms. The converse is also true: “revenge is a meal that can be eaten hot or cold.” When emotional inclinations and material interests take different directions, material interests may dampen psychological desires for revenge, postpone action, or allow payments to be accepted as retribution. The relationships between revenge and material interests vary greatly. In its most naked form, revenge may be used to justify the plundering of the opponent’s wealth, capture of women, slaughter of opponents, or occupation of territory. However, more often than not revenge is aimed at deterring future aggressions and/or establishing a reputation associated with resource-holding capacity. Moreover, the balance of power established by measured retaliation—negative reciprocity—can make positive reciprocity possible by reestablishing the social matrix of equality. Equality is essential for reciprocity because people will not invest in those who cannot demonstrate the ability to stand up for their rights, hold assets, and defend spouses given in marriage. Moreover the desired resources of other groups are often ones that cannot be taken or held by force—for example, political support or exchange relationships—and so what restores social equality can be defined culturally despite the persistence of real inequalities of numbers, wealth, or strength.

In this paper I will evaluate the “balance of power” versus “imbalance of power” hypotheses, arguing that primitive warfare is not all-out warfare with limited means (Keeley 1996). I will draw on oral historical traditions, historical records, and interviews and observations conducted between 1985 and 2005. The period covered begins around 1650, when most Enga were horticulturalists or hunter-gatherers, and extends until 2005. My objectives are fourfold: (a) to understand the interaction of institutions, norms, and sentiments governing warfare with changing social and material interests; (b) to examine the complexity of male coalitionary dynamics as individuals of different ages and status pursue different agendas through warfare; (c) to challenge Meggitt’s version of the imbalance of power hypothesis, that the Enga fight to obtain land; and (d) to shed some light on Enga warfare in the age of modern weapons and traditional loyalties.

I have opted to look at one society in a diachronic perspective rather than undertake cross-cultural comparison (see also Ferguson 1995). Cross-cultural comparisons (Keeley 1996; Kelly
2000; Otterbein 1970; Turney-High 1947; van der Dennen 1995) have yielded very important insights, but they rarely place warfare in the context of other cultural institutions. Moreover they contain much noise because they lump societies that were at very different degrees of disruption in their postcontact histories (Ferguson and Whitehead 1992) and groups that were undergoing different demographic processes in part due to warfare: small groups on the decline (Kelly 1977; Robarchek and Robarchek 1992), and groups with rapidly growing populations.

THE ENGA

The Enga of Papua New Guinea (PNG) are a Highland horticultural population well-known in the anthropological literature through the works of Brennan (1977), Feil (1984), Lacey (1975, 1979), Meggitt (1965, 1972, 1977), Talyaga (1982), Waddell (1972), and Wohlt (1978), among many others. Today the Enga number some 350,000 (Figure 1). Their staple crop is the sweet potato, used to feed large human and pig populations, supplemented by taro, sugarcane, yams, bananas, and a variety of greens. The Enga are divided into nine mutually intelligible dialect groups (Brennan 1982) that share a common language as well as important economic, social, political, and religious orientations.

FIGURE 1 GOES HERE

The Enga have a segmentary lineage system of phratries or tribes with 1,000 to 6,000 members. These are divided into constituent exogamous clans, sub-clans, and lineages (Meggitt 1965). The Enga are embedded in two axes of kinship. The first is composed of agnatic kin, fellow clan members who support each other in a wide range of enterprises (for example, building houses and gardens, assisting in bridewealth payments, raising reparation payments after warfare). The second comprises maternal and affinal kin outside the clan who supply crucial wealth for exchanges and support in times of social and political strife. The politics of land, social networks, and above all ceremonial exchange occupy much of men’s time and effort. In ceremonial exchange the emphasis is on the management and distribution of wealth, not accumulation. Women devote themselves primarily to child-rearing, gardening, and pig husbandry, though they are also active in maintaining intergroup ties. The concept of equality of individuals (within the sexes, but not between them) and parallel social groups is fiercely defended in Enga. Men are defined as potential equals and then are challenged to excel and seek the status of “big-man” in return for benefits provided for the group. When big-men cease to provide benefits, their social demise is rapid.

The demographic, social, political, and economic situation found among the Enga at the time of first contact with Europeans in the 1930s–1950s was not a long-established one. The earliest traditions that record historical events begin approximately 350 years before European contact. They describe the population of Enga as diverse, with people practicing subsistence strategies that varied by altitudinal zone from hunting and gathering in the high country to precarious, shifting horticulture in rugged valleys of the west to sedentary taro horticulture in the fertile eastern valleys. A thriving exchange economy uniting groups in all niches revolved around the circulation of stone axes, cosmetic oil, salt, plumes, and shells. Pigs receive little note in early traditions.

With the introduction of the sweet potato along local trade routes some 350 years ago, constraints on production were released, and it became possible to produce a substantial surplus of wealth “on the hoof” in the form of pigs (Watson 1965a, 1965b, 1977). Immediate reactions to the arrival of sweet potato differed by area; however, historical traditions from all areas report shifts in population distribution (Figure 2), population growth of approximately 1.1% per annum, and the expansion of ceremonial exchange and religious ritual in response to mounting social and political
complexities (Wiessner 2002; Wiessner and Tumu 1998). Three large networks arose that can be counted as systems of ceremonial exchange (Figure 3). The first of these was the Kepele Cult, which linked the tribes of western Enga in a ritual network. Kepele ceremonies drew together hundreds to thousands of participants to initiate boys, to express equality of male tribal members, to communicate with the ancestors, and to host guests from other tribes for the massive feasts. The second was the Great Ceremonial Wars of central Enga—tournament fights fought recurrently between entire tribes or pairs of allied tribes to demonstrate strength and brew the grounds and spirit for the feasts and exchanges of enormous proportions that followed. These exchanges forged links among the four major valley systems of eastern and central Enga and outlying areas. The third major exchange network was the Tee Ceremonial Exchange Cycle, a three-phase cycle of exchange festivals that linked many of the clans of eastern and central Enga. As the Great Ceremonial Wars and Tee Cycle expanded in eastern and central Enga, numerous cults were developed and circulated within Enga or imported from neighboring linguistic groups. These cults did much to standardize norms between areas and specify what was valued (Wiessner and Tumu 1999).

FIGURES 2 AND 3 GO HERE

Around the time of the fourth and fifth generations before present, the Great Ceremonial Wars expanded under the forces of dramatic intergroup competition. Leaders of central Enga constructed complex alliances of exchange to tap into the wealth of the Tee Cycle and to reinvest the great quantities of wealth that flowed out of the Great War exchanges. The cost, conflicts, and complexity of organization of the Great Ceremonial Wars and Tee Cycle became formidable. In response, the integrative Kepele Cult was imported from western Enga and used as an occasion to unite tribes and gather people to organize the flow of wealth within and between the Great Ceremonial Wars and Tee Cycle. The three networks became linked. In the late 1930s the Great Wars were discontinued and their networks replaced by the Tee Cycle. The full-blown Tee exchange cycle was vast, involving a population of some 40,000 people or more in eastern and central Enga at first contact (Wiessner and Tumu 1998, 1999).

THE DATA

The data presented here are based on twenty years of research among the Enga carried out with Akii Tumu, Nitze Pupu, Pesone Munini, and Alome Kyakas. They include (a) precontact ethnohistorical traditions from 108 tribes of Enga from approximately 1650 until present; (b) historical records from 1950 on; (c) village court records on warfare in the postcolonial era; and (d) ethnographic studies of warfare carried out by Akii Tumu, Polly Wiessner, and Nitze Pupu between 1985 and 2005. For a thorough discussion of Enga historical traditions and our methods, see Wiessner and Tumu (1998: Chapter 1).

A Brief History of Enga Warfare

For this analysis, 84 Enga wars recalled in some detail in historical traditions were ordered by generation and coded for triggering incidents, size, degree of viciousness, approximate duration, and outcome. This sample represents serious wars that had lasting political impacts; minor wars that ended in standoffs are less likely to be remembered unless they occurred in recent decades. Consequently, figures on the frequency of warfare cannot be derived from these data.

Enga historical traditions do not laud war or war heroes. They tell of successes and of failures to provide cautionary tales; both the winners and losers recount similar events. It is difficult to determine the causes of Enga wars from historical traditions because Enga only give the
triggering incidents, even though most wars are the result of tensions built up over years or decades. There are few “new” wars; most wars are but episodes in a history of conflict (Kelly 2000; Trompf 1994).

According to Enga historical traditions, there never was “a time before warfare.” Wars, both large and small, are reported from the very beginning of Enga historical traditions. The data on 84 wars presented here are divided into three periods. The first period covers events that occurred before the eighth generation before present and is of unknown length. The only fixed date comes in the mid-1600s, when a volcano on Long Island off the northern coast of the main island of PNG erupted and covered the highlands in ash (Blong 1982). The second period (ca. 1795–1855) covers the seventh and sixth generations before present, a time in which events can be sequenced but for which we have no fixed dates. The third period includes wars fought during the fifth and fourth generations before present and can be dated to approximately 1855–1915 from known events (Wiessner and Tumu 1998:33). We did not collect systematic information on wars between ca. 1920 and 1980. Unfortunately it is not possible to use Meggitt’s figures for “causes” of wars between 1900 and 1955. Meggitt did not follow generational dating, and as a result we found that a number of the wars he lists as occurring in 1900–1950 were actually fought in the 1800s.

**Wars Fought Prior to the Eighth Generation BP**

Around the time of the introduction of the sweet potato, historical traditions describe the population as sparse, life as lonely, and spouses as hard to find. New group members were welcomed with enthusiasm. Nonetheless, life was by no means peaceful. Historical traditions report the full range of conflict from skirmishes to full-blown tribal wars. Most wars of this period began with triggering incidents such as theft of game from traps, quarrels over possessions, or work sharing within the group (Table 1). Most, but not all, of the incidents suggest provocation between factions within communities that had grown too large to cooperate. Warfare provided the final impetus to split up large groups as it continued to do throughout Enga history.

**TABLE 1 GOES HERE**

Wars of this period began with affront or injury that incited immediate retaliation in the form of brawls or combat with sticks or clubs, largely in internal disputes. Only clashes that were not solved by restricted combat led to full-blown wars fought with bows, arrows, and spears, as “brothers” with strong loyalties came to each other’s rescue. Of the twelve wars that ended in migration, for six, the defeated party is said to have left voluntarily and the “victors” to have regretted the loss of a “brother” group. Land was plentiful during this time, and the losing party usually settled on vacant land in the neighborhood or was encouraged to join relatives in other areas who continually sought to increase their numbers. If the defeated party did not go far, exchange relations were resumed when tempers cooled. The general impression given by historical traditions is that warfare served to divide groups that had grown too large to cooperate or to space neighbors who could not get along. When this was accomplished, exchange was resumed.

**Wars of the Seventh and Sixth Generations**

The population and subsistence shifts that occurred in the generations following the introduction of the sweet potato had their repercussions in the seventh and sixth generations. Immigrant groups, so eagerly recruited by relatives, often did not provide the supportive neighbors their hosts had hoped for. Before long, the hosts were at war with the hosted. The number of voluntary migrations on the part of those seeking new land decreased. More serious provocations
constituted a good portion of triggering incidents for wars of this period: pig theft, homicide, political disputes, rape, and garden disputes (Table 1). Cases of voluntary departure of an offended party, accompanied by expressions of regret on the part of the offender, declined. Two material agendas became central: for former hunter-gatherers of the high country to establish themselves as horticulturalists in the lower valleys and for those in control of trade routes to maintain their positions in the face of immigration.

Efforts on the part of elder men to manipulate the younger men through the institution of bachelors’ cults (sangai) enter the historical record at this time. Bachelors’ cults arose in the high country of central and western Enga Province and spread into the western valleys. They gave older men control over the younger generation, instilled desired values, and brewed the loyalties that made it possible to form larger, coordinated fighting forces. They did not, however, directly extol the virtues of warfare. In addition to bachelors’ cults, clan rituals for the ancestors were supplemented with larger cults for the ancestors (kepele) that united entire tribes or pairs of brother tribes. For the first time in Enga history, military campaigns involving much larger social units become common.

As a result of these developments, some of the wars of the seventh and sixth generations were larger in scale and led to greater population movements in terms of numbers of clans displaced than at any other time in Enga history. To give an example of scale, two wars of this period led to the replacement of the entire population in the Ambum Valley and the acquisition of some 160 km$^2$ of good agricultural land. Those who were evicted occupied vast areas in northeastern Enga and thrived. Today they are as, or more, numerous than the victors who replaced them.

Examples of the viciousness and futility of wars of this period abound in historical testimonies:

<ex> In those days warfare was prevalent and it was in one of these wars that the sons of Yoponda and Nenaini became involved. The war by which they were forced out of their territory was against the Tendepa people and one other group whose name I cannot recall. The war broke out after a quarrel about a stolen boar and a tussle over a piece of land through which one man was building a garden fence. The war that followed was one of the longest that was ever fought in the area. It went on and on until there was no more food left and all the pig stock was destroyed too. When the war was over, compensation payments (to allies) still had to be made, but Nenaini and Yoponda had no pigs with which to pay and so they were faced with another problem besides war (Lacey 1975:259–60; narrated by Kale of the Yoponda tribe at Walya village in November 1972; translated by Nut Koleala).

The problem was solved by the losers giving their land to their allies as payment, not to the enemy, and migrating out of the area upon the invitation of relatives.

In most large wars, far more land was vacated than the victors could occupy, and so part of the land had to be given to friends or allies from a number of other groups. Often they did not remain friends or allies for long. It was after such vicious wars that the strong association between war and loss of land was established among the Enga—the victors punished the losers by taking their land and driving them into outlying areas, even if the victors could not fill the land they acquired.

Many of the wars of the seventh and sixth generations were not only large in scale, but also extremely destructive. It appears that no holds were barred, and some of the larger conflicts went on for years or even decades. In the Ambum Valley conflict, it is said that until recently one could still find the physical remains of a fleeing party of the defeated, all of whom were mercilessly slaughtered.
The wars of the seventh and sixth generations were attempts to make order out of chaos in a period of shifts in subsistence and residence. However, with few mechanisms to curb violence, they created disorder. To restore the balance of power, secure alliances, and put evicted groups back on the map of trade and exchange, three large ceremonial exchange networks of Enga were formed: the Tee Ceremonial Exchange Cycle of eastern Enga, the Great Ceremonial Wars of central Enga, and the Kepele Cult network of western Enga. All three systems put demands on pig production and external finance; access to the products of labor of people in neighboring groups then became central for financing ceremonial exchange.

War in the Fifth and Fourth Generations (ca. 1855–1925)

By the fifth and fourth generations before present, garden disputes, homicide, pigs, rape, and other political issues made up the predominant triggering incidents for wars (Table 1). Through warfare, ever new balances of power were worked out with regard to social and material agendas: controlling trade routes and exchange networks, adjusting to new neighbors, retaking land overrun in former wars, foiling the exchange plans of others, or establishing new ties through reparation payments to allies. As in previous generations, most wars arose out of individual affronts that people could not or would not solve by compensation payments or other means. Insult or injury against one member was regarded as an offence against the entire clan, inciting strong emotions of brotherhood and desire for group retaliation to reestablish equality.

Now I will talk about warfare. This is what our forefathers said: When a man was killed, the clan of the killers sang songs of bravery and victory. They would shout *Auu!* (“Hurray!” or “Well done!”) to announce the death of an enemy. Then their land would be like a high mountain (*manda singi*). Their hearts would be open (*mona lyangenge*). In other words, when one fights and takes revenge for the death of a fellow clansman, then one gets even and back on equal footing (testimony of Tengene Teyao of the Yakani Kalia clan of Wakumale village, Enga Province, in 1988. Recorded by Polly Wiessner and Nitze Pupu; translated by Nitze Pupu).

Historical narratives from the end of this period bring tactical and emotional aspects of warfare into focus. Before going to war, a clan meeting was held to gain consensus and draw up plans, followed by rallies to dehumanize the enemy with songs and taunting insults. Friends of yesterday were transformed into subhuman foes of today. Virtually all warriors interviewed about precontact warfare mention the exhilaration, sportlike competition, and feelings of brotherhood that warfare evoked—until somebody was killed and anger kicked in. A deeply rooted desire to avenge the death of slain “brothers” was backed by beliefs that an unavenged death would anger the ancestors.

Where the real difference lies between the fifth and fourth generations and preceding ones is in the outcome of wars. For the first time in Enga history, traditions tell of war reparations that were formerly paid to allies only being extended to the enemy in order to restore peace without resorting to spatial separation. As a result, few if any wars of the scale, length, and degree of viciousness comparable to those of the seventh and sixth generations are reported for this period, though there are isolated cases of runaway aggression.

The establishment of peacemaking procedures at the end of wars can be attributed to a change in the costs and benefits of warfare with the growth of the Enga population and the large
exchange networks. As the land filled, relatives were not as eager to recruit new immigrants. Opponents did not want to expel neighboring groups, who proved to be valuable partners in networks of enchained exchange; they only sought to restore reputation and balance of power.

Peacemaking involved elaborate negotiations followed by a three-phase exchange of wealth over a period of two years or longer between the clan of the killer and the clan of the deceased, and in some cases, the exchange of women in marriage. During this time, precautions were taken not to arouse anger and sorrow: for example, the bed and all possessions of the victim were removed from sight. War reparation exchanges curbed the desire for revenge with the promise of economic gain, taking advantage of “the healing hands of time” and eventually restoring the equality and trust so essential to exchange. Some historical narratives describe two- and three-day wars fought to redeem reputation and create exchange ties through subsequent reparations; in a sense, warfare created the social matrix for exchange.

The impact of peacemaking is reflected in figures on migration. In the sixth and seventh generations before present, 71 clans of central and eastern Enga migrated into other areas after warfare, with an average migration distance of 26 km per clan (Table 2). In the fourth and fifth generations there were only 29 migrations of entire clans to other areas, with an average migration distance of 17 km. For the second and third generations, we recorded only five migrations of entire clans out of their homelands to other areas after warfare, with an average distance of 15 km. In all periods, numerous families or lineages left their clans of origin to settle with relatives in other places.

TABLE 2 GOES HERE

Peace proceedings allowed big-men to gain considerable influence for their abilities in negotiation and organization. They also caused rifts between younger and older men. Young men sought to establish fame though success in battle; older men, particularly big-men, pursued goals relevant to the broader political objectives of ceremonial exchange, while avoiding destruction and high reparation debts to allies.

It was in the context of struggles between the generations that the newly established bachelors’ cults were imported from western Enga into central and eastern Enga and attuned to the needs of the time. There, they were further developed to hone young men’s skills for political acuity through the analysis of dreams, to encourage agricultural enterprise, and to put forward success in Tee exchange as the ideal. After a young man attended a series of bachelors’ cult rituals and was deemed to be mature, clan members contributed to his bridewealth payments. Bachelors’ cults thus created an age hierarchy that placed young men firmly in the grips of older men.

To contain warfare, rules of fighting were established and recited in clan meetings before going to war: bodies of victims should not be mutilated; women and children should be immune to violence; big-men, who organize reparations, should be spared; wars should be fought on a single front; and the wounded should not be pursued and killed. Young men were warned that it was valorous to make sacrifices for the clan and to take revenge only while the war was on, but not after a truce had been called. Numerous proverbs urged Enga to restrain violent action—for example: Akali taiyoko ongo kunao napenge (“The blood of a man does not wash off easily”), and Mena lenge ongo katao londenge, endakali yati lenge ongo katao londala naenge (“You live long if you plan the death of a pig, but not if you plan the death of a person”).

During wars of the fifth and fourth generations, as in preceding ones, women and children usually sought refuge with relatives in other clans and were not subject to capture or rape during warfare. In some wars, women without small children remained behind and assisted warriors by
destroying the gardens of the enemy as the front lines of warriors advanced. Because women were generally absent from the battle area and immune to violence, they became important private emissaries in negotiating peace and war reparations.

**Pacification**

With the advent of patrols and the establishment of the Australian administration in the late 1930s and 1940s, Enga warfare declined dramatically for almost two decades. Pax Australiana was initiated in 1939, when Taylor and Black began their exploratory patrols into Enga and established a patrol post at Wabag station. Tribal fighting was banned around the station and in the vicinity of supply routes and patrol posts; the ban was enforced through brutal means and large fines to be paid in pigs. By the end of 1949 the track from Wabag to Mt. Hagen and much of the central valleys had been “pacified”; missions then expanded. Many Enga were pleased to forgo physical violence and turn to litigation, “fighting in courts” to settle affronts and disputes (Gordon and Meggitt 1985). Court battles allowed balance to be restored without squandering resources and energy required for the rapidly expanding Tee Cycle. Goods and services provided by the Australian administration and missions—steel axes, schools, aid posts, stores, cash crops—as well as requirements for labor diverted attention from warfare.

The Australian administration regarded land as the “rational” reason underlying warfare and decided that land boundaries should be fixed. In the 1950s, land issues were dealt with by *kiaps* (government officers), who often failed to register decisions in court (Meggitt 1977). A turnover in kiaps, and inefficient record-keeping, meant that losers had the chance to appeal land-related decisions in court and have them reversed. With the introduction of the Land Titles Commission to Enga in 1965, ad hoc procedures were replaced by more cumbersome and rigid legal machinery that departed substantially from customary law. The result was that some clans felt they could gain land by bribing Enga members of the commission to fix boundaries in their favor (Meggitt 1977; Kambetane of Tetemanda village, recorded in Wabag, Enga Province, in 2004 by Polly Wiessner and Akii Tumu; translated by Akii Tumu). In response, opponents increasingly took matters into their own hands and reverted to warfare to avenge this “legalized” theft of land.

**Warfare after Independence: 1975–1990**

At independence in 1975, Papua New Guinea was not a nation, but a state in the making. The pot of wealth provided by the national and provincial governments (Carrad 1982) rapidly eclipsed the great Tee Ceremonial Exchange Cycle. The goals of election politics were similar to those of the former Tee Cycle: to divert as much wealth as possible into one’s own area (Dinnen 1991; Gordon and Meggitt 1985; Strathern and Stewart 2000a). The questions at hand were not what should be developed but among whose clan or tribe the benefits should be distributed. Once elected, representatives were under great pressure to deliver to those who had voted for them (see Strathern and Stewart 2000b:194–95); public servants were expected to divert as much wealth as possible to their clans. Group members called this loyalty; non-members called this corruption.

New resources and positions of leadership once again upset traditional balances of power. Two coexisting tiers of leadership were formed: (1) traditional leaders, who handled matters in the clans and arranged smaller Tee exchanges, and (2) a small circle of men who had completed secondary or tertiary education and became public servants or elected officials. The latter enjoyed access to vehicles, modern communications, travel, and economic advantages. For youth there was no longer a level playing field or a clear road to success by participating in bachelors’ cults, marrying, working hard, raising pigs, and ultimately winning a name in ceremonial exchange. Schooling prepared Enga for a job market that could absorb only a few graduates. For the rest, the
decline of ceremonial exchange meant fewer opportunities to make a name at home; enticing possibilities introduced by the educational system were beyond their reach. Interest and excitement centered increasingly on gambling, alcohol, drugs, and nightclubs. Some youth went to the city to join the new “tribes” of Raskol (criminal) gangs (Dinnen 2001).

By the late 1970s and early 1980s, warfare was prevalent once again in Enga. The inclination to solve problems through warfare had persisted throughout the colonial period but was constrained by the fear of law and the acceptance of courts as a neutral body for solving disputes. The PNG government could not use the same level of force as was initially used by the Australian colonial regime against its own people, and local officials were not considered neutral. During this time, wars triggered by land disputes declined rapidly, and other factors that caused imbalance became common initiators of disputes: alcohol, motor vehicle accidents and roadblocks, cash, gambling, and election politics.

As in former generations, changes in the material base created a new structure of costs and benefits for warfare. For the clan, warfare was one means to counter unequal development by torching the schools or aid posts of neighbors, destroying coffee gardens and stores, or taking action to spoil the projects of rival politicians. Costs of disrupting exchange ties were of lesser concern once the Tee Cycle was no longer the central economic institution of Enga. For youth who returned to their clans after some years of schooling, warfare provided excitement and a way to receive recognition.

Terminating fights became more difficult in the 1980s. Traditional leaders had lost some of their former influence when matters of war were taken over by the Australian colonial regime. Public servants and politicians rarely stepped in to play a significant role in settling wars other than to provide cash and purchase pigs for the reparations of their clans. After 1982, with the failure of Peace and Good Order Committees, Operation Mekim Save (OMS)—a branch of the village courts—was designed to deal specifically with tribal warfare. Mekim Save favored judicial arbitration backed by punitive police power over traditional mediation. OMS magistrates were chosen for their connections, knowledge, respect, and competence in mediation. Some successful settlements were negotiated by OMS, but the fixed amounts of compensation required to be paid on a specific date undermined the fundamental principles of Enga war reparations—that the process take time and that the amount of compensation be voluntary, so as not to incite new disputes. Moreover, police action that backed OMS orders usually did not result in the arrest of offenders, but rather exacted punitive raids against one side in which houses were burned, pigs slaughtered, and women raped, furthering tension and imbalance (Wormsley and Toke 1985). The length of fights increased, as did the numbers of deaths.

Modern Weapons and the Rise of Mercenaries

Despite these factors, in the late 1970s and 1980s the older generation kept youth in check during wars, and men wielding bows and arrows depended on large numbers of fellow fighters for support. This situation changed dramatically in the late 1980s, first with the adoption of homemade shotguns from the Mt. Hagen area and later with the influx of high-powered weapons. Both were largely adopted by young men with strength, agility, and the ability to master technical skills. Modern weapons had been available to the Enga since early contact with Europeans, but they were not used in warfare because people just wanted to even the score through war, not to inflict more deaths than could be covered by war reparations. It is probably fair to say that no clans welcomed the adoption of guns into tribal fighting, but it happened nonetheless. Clan members were at once displeased by the use of shotguns but pleased when enemies were slain. Opponents had to obtain guns to retaliate effectively, and so an unintended weapons race was launched. From that point on,
the age hierarchy controlling warfare was reversed: As one powerful traditional leader put it, “In the past the kamongos (big-men) spoke; today the guns speak.”

Wealthy businessmen or politicians who live in the cities fuel the arms race of today to a significant extent (see also Strathern 1995). Driven both by traditional loyalties and a desire to enhance their reputations at home, they procure high-powered weapons, such as M-16s and AK 47s, for their clans (see also Strathern 1995). Businessmen from enemy clans are then challenged to outdo their rivals in providing arms. For the first time, the concepts of “winning” or “losing” a war becomes central in narratives, perhaps because so many are killed that it will not be possible to compensate all deaths. Formerly, people had sought to terminate hostilities early on, so as to avoid high reparation payments. Triggering incidents for wars with firearms indicate the new imbalances of modern times—for example, failure to pay court-ordered compensation, and activities that incite conflict among youth: cash, alcohol, and gambling. Land disputes have declined radically after independence, even though the population has more than doubled and pressure on land has been accentuated by an increase in the cultivation of cash crops. Though politics ignite only a small percentage of fights, political alliances are the underlying causes of many wars as indicated by the practice of burning the schools, aid posts, or stores of clans favored by successful opposing political candidates. Finally, a new triggering incident for warfare has appeared: deaths by “friendly fire.”

Modern weapons are largely the domain of youth because their use requires strength, agility, and endurance in battle, as well as technical skills. Wars are steered by a handful of skilled fighters who surgically pick off key enemy leaders or kill important men from allied clans so as to cause fragmentation within the alliance. When the skills of modern weaponry and fight tactics were held by only a few, mercenaries were hired from other clans. Success depended to a large degree on the competence of those skilled fighters; should a key mercenary be killed, warriors would lose confidence. In the past few years, the number of skilled modern fighters has increased and the mercenary profession is on the decline, as “the owners of the fight” find they can simply hold up mercenaries, take their guns, and send them home. Specialists in fight magic, however, still play a considerable role in modern warfare, adapting old rituals to new situations.

Youth in surrounding clans are attracted to fighting by the modern weapons and the new heroes. Of particular appeal are models from Rambo and other Hollywood action films showing what a single individual fighting for his people can accomplish with a gun. In interviews, some young fighters told of how they had replicated tactical moves from specific scenes in Rambo films. Allies are recruited not only through traditional agreements, but also through networks of young men with neither the commitment nor the means to pay compensation for lives lost.

Who are the “Rambos”? In 2004 we interviewed nine—eight males and one female—and found similar trajectories in their lives. They ranged from uneducated men to school dropouts to well-spoken school graduates who began fighting for their clans with bows and arrows, were successful, received acclaim, and so were encouraged to continue, first with shotguns and later with high-powered weapons. Those with reputations as good fighters were hired by clans of relatives and eventually by clans to whom they had only distant ties. When fighting for clans of distant relatives, they were paid in pigs and money and given access to women during their stays in the host clan. Clanswomen were pressured to sleep with fighters from other clans to encourage them to stay and then were praised for their sacrifices. Fighters described working themselves into a frenzy for revenge, driven in part by loyalty and in part by the tension of fighting with modern weapons. Some said that they felt half-human, half-animal during the fighting, living in the forest for days and caring little about food or sleep. When they had killed, they returned home, went through cleansing ceremonies, and resumed daily life. Those who received payment used it to cover needs of fellow clan members: school fees for the children, hospital fees for elderly relatives, or contributions to
bridewealth and child growth payments (periodic payments made to the child’s maternal kin to recognize the mother’s hard work in raising the child). Most of their clan brothers and sisters praised them as generous and kind people.

After only a few years of participating in the wars of others, most fighters realized that they were not immortal, as their compatriots were killed one by one. They tried to return to normal life and learn to replace the desire for revenge with forgiveness by establishing families or joining a church. But craving for the excitement of fighting and retribution persisted. As one man put it: “The desire for revenge is engraved on my heart like the Ten Commandments are engraved in stone.” Ex-Rambos are hunted men who can only travel within a limited range for years after they cease fighting.

Outcomes of Modern Wars

Wars comparable to those of the 1990s and 2000s had not been seen in Enga since the periods of turmoil in the seventh and sixth generations before present. The effects of modern wars are devastating. Death tolls per war have increased from an average of four warriors estimated by Meggitt (1977) for wars of 1900–1950 to forty-one for wars of 2000–2005 listed in village court records. In the more vicious wars of today, up to 30% of the population of young males in single clans or sub-clans are now being lost.

Whereas in precolonial wars the weaker party was allowed to return to their land after some weeks (if they did not migrate elsewhere), refugees from modern wars do not return for months or years. Refugee families suffer from shortage of resources, sexual abuse, kids out of school, anxiety, and low status. As one man put it, “If somebody rapes my wife or daughter, I must just act as if it did not happen.” Assets are lost and aid posts, schools, missions, and houses are burned to the ground. Food and coffee gardens are destroyed and valuable trees razed to the ground: only the firewood industry thrives. Though the prevalence of AIDS is still low (health services estimate only 1–2%), some mercenaries may have sex with 10–20 women during one war, and refugee women may be forced to have sex with several men from the hosting group, furthering the epidemic. There are no perceivable benefits of such wars, other than the satisfaction of destroying enemy assets to balance the effects of perceived unequal development, particularly if the combatants are supporters of different political candidates. Little land is gained or lost once refugees return home.

<subhd>WARFARE: BALANCE VERSUS IMBALANCE OF POWER?

Let us now return to Meggitt’s hypothesis presented in Blood Is Their Argument (1977:182): “Among the Central Enga, in the present as in the past, the desire of local descent groups to gain and hold arable land has been the most powerful motive in impelling them to make war on each other.” If indeed “land was their argument,” then one would expect:

1. That it was land rather than labor that was in short supply in Enga. This proposition is not borne out. Throughout Enga history it was labor, not land, that was in short supply. All households had more than enough land to cultivate, and there was no nutritional stress (Meggitt 1977). The pressure on labor came with the need to augment pig production pursuant to the expansion of ceremonial exchange. Even with steel tools, the largest number of pigs that a woman could feed and raise was about 8–10; at the height of the Tee Ceremonial Exchange Cycle, big-men gave out between 60 and 250 pigs and many valuables at a single Tee exchange festival. Low household productive capacity was offset by wealth received on credit from neighboring groups. Warfare disrupted exchange and suspended critical sources of finance.

2. That the newly acquired land would be occupied by the victors soon after their victory. This has not been the case since the time of the sixth and seventh generations before present.
Territory gained was left as barren, unoccupied land for years or even decades and disputed for generations. Moreover, after most wars the few vacated acres benefitted only a few households on the fringes of clans. There is no indication that big-men urged their clans to go to war because they secured more land through warfare than did others; big-men did not have more land than the average clansperson (Meggitt 1974:191, n. 43).

3. That as the precolonial population grew, there would be more developments in warfare itself than in institutions to contain warfare and reestablish peace without loss of land. This, however, is not what happened. The techniques of warfare and the size of fighting forces changed little throughout the course of precolonial history, whereas there was great innovation in containing warfare and making peace.

4. That conflicts over land would increase through time, particularly since the population more than doubled between ca. 1960 and 2005. But this is not the case (Table 3).\textsuperscript{10} Frequency of wars triggered by land disputes increased from 28% in the precolonial period to 67% at the height of the colonial period and then decreased radically. No new methods of agricultural intensification or crops were introduced after independence. Postcolonial wars led to little land being won or lost, only to much land lying vacant. Meggitt himself (1977) expressed reservations about his thesis in his conclusion, noting that “land was not really short in Enga, but that it was only perceived to be.” With this doubt he went on to entitle his book “Blood Is Their Argument,” not “Land Is Their Argument.”\textsuperscript{11}

TABLE 3 GOES HERE

A historical perspective thus supports a balance of power hypothesis, namely that most Enga wars were fought to restore parity and reputation vis-à-vis either the enemy or allies. Though certainly some wars of the past were fought to gain land and oust undesirable neighbors, most wars drew on sentiments of retaliation following insult or injury to pursue another social goal: to reestablish the balance of power necessary for enchained exchange to flow. This is in keeping with the association between warfare and exchange noted by Keeley, but it does not support his assertion that “primitive warfare is simply total war conducted with very limited means” (Keeley 1996:175).

THE FUTURE

If Enga warfare is understood in the context of attempts to establish a balance of power so that other interactions can proceed, what does this mean for the current situation? Alas, it is probably fair to say that if wars were indeed being fought to acquire land, solutions might be easier to find. It is much more difficult to achieve balance in a time of rapid change, entanglement in the broader world economy, and the turmoil fostered by Enga-style democracy operating within a nation-state than it is to establish laws to regulate ownership of land. But this situation is not a “first” for the Enga, who experienced similar turmoil long ago after the introduction of the sweet potato. Solutions to rampant and destructive warfare at that time were found in cultural measures to limit the scale and viciousness of warfare, contain anger, channel revenge, change values, and institute reparation exchanges that gave economic incentives for cessation of hostilities.

When and how will the current, runaway violence end? It is likely that the Enga will have to find their own solutions, because the PNG state is weak, the police are poorly trained, and the people have weapons that match and outnumber those of the police. The will to put an end to modern warfare is there, particularly in groups that have recently experienced devastation and live the humiliating life of refugees. Drawing on parallels from the past, there are economic incentives to contain warfare today as there were at the end of the sixth generation before present. These
include loss of investments in houses, vehicles, cash crops, and businesses; disruption of crucial exchange ties between clans; and limited mobility for fear of payback murders. Economic development will eventually deter desires for warfare, but only after such development has reached a large proportion of the population, particularly the youth. At the moment, the new wealth is in the hands of a few, the majority of youth are unemployed, economic inequalities are emerging rapidly, and politics and global forces are continually fostering imbalance.

Nonetheless, the Enga have a long history of traditions that foster analysis of current conditions, adaptation to new situations, and the restoration of balance. Although in 2004 I felt that there was no end to the violence in sight, by 2005 important new initiatives to restore peace and balance were already emerging. The impetus for such developments came from the large populations of refugees who had been driven off their land by modern warfare and were living in humiliating circumstances. And so in 2005, the Lai and Ambum valleys were quiet because of initiatives to reestablish peace and a balance of power. Some clans had established peace with an initial payment of wealth, realizing that the large numbers of deaths could never be compensated by traditional payments, and that they must seek other ways to restore intergroup ties. How this will be done remains to be seen. In another case, Par parish, a huge cross was planted in the fighting zone and pledges were made in the name of God to end the fighting and to decide on reparation exchanges later. The peace has held since 2004.

Significant political and economic changes have never occurred in Enga history without accompanying efforts to change ideology. Indigenous church movements, employing Christian symbols and beliefs together with traditional ones, urge Enga to replace revenge with mediation and forgiveness (Young 2004; Gibbs XXXX). Some have had success in bringing wars to an end. The youth of some clans that belong to Seventh Day Adventist churches have also pledged to forgo war. In at least three recent cases in central Enga, strong leaders have convinced their fellow clan members to eschew modern weapons. Leaders of these clans are changing concepts of what is honorable by convincing their people that to turn the other cheek and refrain from fighting is not weakness but rather good judgment by not deigning to senseless violence that destroys all the benefits of the modern world. One, the Timali clan of Lenge, has managed to maintain peace even though they border on a conflict that has engulfed the majority of clans in the Lai Valley. The other two—the Piao Kumbini clan of Tole and the Kalepatae clan of Landemanda, both near the provincial capital of Wabag—were overrun by enemy fighters who ravaged their land and destroyed their houses and other assets. Because they did not fight back, a settlement was subsequently reached with no loss of life and less damage to both sides than would have occurred had they been armed. Alternate models to revenge are emerging.

At the moment, two opposing forces are struggling in Enga. One is composed of families with much to lose who seek new paths to peace. The other is made up largely of youth, who have little to lose, who feel that the future holds little promise, and whose actions have come to be governed by the euphoria of fame from fighting and by the chemistry of revenge. With the destabilizing factors of globalization and the cash economy becoming stronger every day, it is difficult to know how long it will take Enga to establish balance this time around.

<subhd>NOTES</subhd>

The research on precolonial Enga warfare was carried out with Akii Tumu, Alome Kyakas, Pesone Munini, and Nitze Pupu. Research on modern warfare was jointly conducted with staff or associates of the Enga Cultural Centre, Akii Tumu, Woody Tumu, Nitze Pupu, Lelyame Yoane, and the village court magistrates, Bernard Letakali and Anton Yangupini. We are grateful to so many people who helped us in various ways. Hundreds of Enga men and women have given us valuable
time and information over the past 20 years. The Forschungstelle für Humanethologie in the Max Planck Institute, the Department of Enga, and the Enga Provincial Government have provided us with sustained financial support over the years. I thank Jim Roscoe, Chris Boehm, Mike Bourke, and Lawrence Straus for very helpful comments, and Bill Wormsley, who provided figures on tribal fighting in the 1980s.

1. Enga mentioned numerous wars from this period in the course of recounting historical events. However, we avoided systematic questioning to avoid suspicions that we might have goals other than historical documentation—for example, issues of land rights.

2. Since we worked with many of the same Enga elders as Meggitt did, we could estimate the approximate dates of some of the wars in his data set, for instance those that displaced entire clans. Unfortunately, because Meggitt burned all of his field notes after he retired, it is not possible to do a complete reanalysis of his material.

3. It was in these wars (ca. 1830) that the six clans listed by Meggitt as having been totally evicted from their territories were driven out of central Enga, not in wars occurring between 1900 and 1950 as Meggitt claims.

4. We did collect systematic data on migration for all periods.

5. In some if not most cases, guns were brought in by men with some experience in criminal gangs or the PNG defense force.

6. Alcohol has declined as a triggering incident for warfare because of the province-wide ban on alcohol, which began in the late 1980s.

7. The female Rambo participated in both criminal gangs and wars. She thrived on the excitement of fighting and adopted out her two children so they would not interfere with her activities.

8. Three of the men interviewed said they avoided sexual relations with women in clans that hired them because they feared AIDS.

9. It could be argued that the agricultural intensification that occurred in response to increasing demands on pig production—for example, mulch mounding and the planting of casuarina trees—was a response to land shortage (Bourke 2001; Wiessner and Tumu 1998). But this is unlikely, for at the time groups were still welcoming new members to increase their numbers. The Enga are compulsive agricultural experimenters (Waddell 1972), and developments in agricultural techniques are described in Enga oral history from the earliest generations on. Only advances that did not require a substantial increase in labor were adopted; the same holds true today (Michael Bourke, personal communication 2006).

10. These figures come from many sources. The data for 1885–1915 come from our historical records and include only fights that were significant enough to be remembered in historical traditions (Wiessner and Tumu 1998). Figures for 1961–1970 come from the studies of Melvyn Meggitt (1977) and colonial records. Figures for 1971–1980 come from the studies of Meggitt (1977) and from provincial records as reported by Allen and Giddings (1982). The figures from 1981 until 1990 were provided by William Wormsley (personal communication 2005) and village court records. Those from 1990 are taken from village court records. I am grateful to Bernard Letakali and Anton Yangupin for making recent village court records available to us.

11. I propose that the high percentage of wars over land recorded by Meggitt can be attributed to two factors: (a) attempts of the colonial administration to fix land boundaries, which incited conflicts (Gordon and Meggitt 1985; Kambetane Kia of Tetemanda village, recorded at Wabag, Enga Province, by Polly Wiessner and Akii Tumu, 2005), and (b) the fact that Enga framed explanations for warfare in terms of land during the colonial period because that was the only
explanation that Europeans accepted as “rational” (Ambone Mati of Kopena village, recorded at Wabag, Enga Province, by Polly Wiessner and Akii Tumu, 1991).

12. The Enga travel widely from their clan homelands to towns. During warfare, people are afraid to travel owing to roadblocks set up by the enemy. Moreover, payback murders for men killed in warfare are executed against men of enemy clans residing in the cities.

REFERENCES CITED


Gibbs: Donna, leave a line here for reference to be added.
Hobbes, T. 1651. Leviathan; Or, the matter, form and power of a common wealth, ecclesiastical and civil. London.


Figure 1. Location of Enga Province in Papua New Guinea.

Figure 2. Schematic representation of major migrations in Enga after the introduction of the sweet potato. From the earliest generations of historical traditions until approximately the fourth generation before present, we recorded 270 migrations of entire clans or large segments of clans.

Figure 3. The Tee Cycle, the Great Ceremonial Wars, and Kepele Cult networks.
### TABLE 1
Incidents that triggered Enga wars

<table>
<thead>
<tr>
<th>Triggering Incidents</th>
<th>Generation</th>
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<tbody>
<tr>
<td></td>
<td>8+</td>
</tr>
<tr>
<td></td>
<td>N</td>
</tr>
<tr>
<td>Hunting/meat sharing</td>
<td>12</td>
</tr>
<tr>
<td>Possessions or work sharing</td>
<td>14</td>
</tr>
<tr>
<td>Pigs</td>
<td>1</td>
</tr>
<tr>
<td>Pandanus</td>
<td>1</td>
</tr>
<tr>
<td>Political/homicide*</td>
<td>1</td>
</tr>
<tr>
<td>Rape/adultery</td>
<td>2</td>
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<tr>
<td>Garden/land disputes</td>
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<tr>
<td>Total</td>
<td>31</td>
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*This category includes homicide, disrupting a funeral, refusing to help allies, refusing to pay war reparations, hindering exchange, etc.*
<table>
<thead>
<tr>
<th>Number of migrant clans seeking land or joining relatives</th>
<th>8+</th>
<th>7th–6th</th>
<th>5th–4th</th>
<th>3rd–2nd</th>
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</thead>
<tbody>
<tr>
<td>Number of migrant clans after warfare</td>
<td>25</td>
<td>71</td>
<td>29</td>
<td>5*</td>
</tr>
<tr>
<td>Average distance of migration</td>
<td>27 km</td>
<td>26 km</td>
<td>17 km</td>
<td>15 km</td>
</tr>
</tbody>
</table>

Average distance of migration:

- 8+: 29 km
- 7th–6th: 32 km
- 5th–4th: 14 km
- 3rd–2nd: 0 km

*Numerous sub-clans disbanded and joined relatives elsewhere after warfare.
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<tr>
<td>Hunting/meat sharing</td>
<td>13%</td>
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<tr>
<td>Land</td>
<td>28%</td>
<td>67%</td>
<td>30%</td>
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<td>Murder/revenge</td>
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<td>6%</td>
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<td>Theft/property disputes</td>
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<td>10%</td>
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<td>7%</td>
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<td>Exchanges/compensation</td>
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<td>11%</td>
<td>10%</td>
<td>31%</td>
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<tr>
<td>Women/sex</td>
<td>13%</td>
<td>1%</td>
<td>5%</td>
<td>7%</td>
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<tr>
<td>Alcohol/cash/gambling</td>
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<td>4%</td>
<td>8%</td>
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<td>Motor vehicles/roadblock</td>
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<td>0%</td>
<td>3%</td>
<td>1%</td>
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<tr>
<td>Elections</td>
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<td>0%</td>
<td>3%</td>
<td>3%</td>
</tr>
<tr>
<td>Assault/insult</td>
<td>6%</td>
<td>1%</td>
<td>4%</td>
<td>0%</td>
</tr>
<tr>
<td>Total number of causes</td>
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<td>70</td>
<td>272</td>
<td>61</td>
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