

trogen isotope ratio analysis unless very large samples are used. It is notable that in the Soconusco assemblage nitrogen isotopic analyses were performed only on eight samples with normal C:N ratios. Blake et al. note that insufficient funds were available for nitrogen isotope analysis of all samples. They chose their samples wisely, because few of the remaining ones are likely to have sufficient nitrogen for mass spectrometry.

This dense and technical summary of the criteria for accepting or rejecting the results of isotopic analysis of residues extracted from prehistoric human bone leads to the conclusion that most of the results on Soconusco humans, especially those older than 2,800 B.P. (850 B.C.), cannot be used for dietary reconstruction. The diet reconstructed for the Mazatán region, which contains all of the samples from the Early Formative period, is the most likely to be in error. On the basis of archaeological evidence for subsistence and isotopic analyses from analogous regions of lower Central America (Norr 1991), their reconstructed diet undoubtedly underestimates the consumption of marine resources and/or maize. This discussion also illustrates the need to provide quantitative data on "collagen" composition in order to permit independent assessment of the quality of the data, including "collagen" concentration in bone and carbon and nitrogen concentrations in "collagen," in addition to atomic C:N ratios. Archaeologists submitting bone samples for stable isotopic or radiocarbon analysis should request these data from the analysts and report them for every sample, because collagen preservation can vary widely even within sites (Ambrose and DeNiro 1989, Norr 1991). We recommend data presentation in the format of table 1.

It is very difficult to reject results when so much time, energy, and money has been expended in obtaining isotopic data. In East Africa 35 archaeological samples produced acceptable "collagen," but 41 others were unsuitable for dietary reconstruction (Ambrose 1986, 1990). In Panama and Costa Rica 115 were acceptable and 67 were rejected (Norr 1991). Even a 2,000-year-old Egyptian mummy failed to produce acceptable "collagen" (Proefke et al. 1992). In hot tropical environments, whether humid or hyperarid, more samples may be rejected than accepted, but by consistently adhering to rigorous standards for assessment of "collagen" preservation the validity of dietary interpretations of stable isotopes will be strengthened.

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On Sharing and Work¹

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Bird-David (CA 33:25-47) discusses reasons for the persistent vitality and wide appeal of Sahlins's influential I. I thank N. G. Blurton Jones and J. F. O'Connell for good advice.

characterization of hunter-gatherers as representatives of "original affluence." Her list does not include the compelling thread of cost-benefit logic in Sahlins's arguments, notable in spite of his opposition to the ethnological use of formal economic models. Bird-David does not pursue some of the connections drawn in the classic text between patterns of sharing and patterns of work. My goal here is to draw attention to them and to the explanatory gains which may come from connecting variation in the costs and benefits of sharing to variation in subsistence effort within as well as among hunting and gathering communities. I first review distinctions between "sharing" and "reciprocity," then relate these to characteristics Sahlins labeled "original affluence," and finally consider the implications of sharing for different kinds of benefits to be earned from different foraging incomes.

Bird-David notes that, while Sahlins was wrong about the universality of short work weeks, he was right about other "peculiar" features of hunter-gatherer economies and argues that the things he was right about make sense given a "cosmic economy of sharing." That is, she says (CA 33:30), "hunter-gatherers engage with their natural environments as with sharing partners." Her characterization of sharing economies draws on an earlier paper (CA 31:189–96) in which she distinguished sharing based on current inequities from reciprocity. With the former, those who have less demand shares from others who have more, irrespective of past transfers. This, she said, has received little attention compared with "reciprocity." Sahlins (1965, 1972) pointed out that the pattern ethnographers commonly call reciprocity is rarely literally reciprocal—that the label is misleading. He criticized the "popular tendency to view reciprocity as balance, as unconditional one-for-one exchange. Considered as a material transfer, reciprocity is often not that at all" (1972:190). He then outlined and documented with numerous examples his "spectrum of reciprocities." At one extreme is

generalized reciprocity, . . . transactions which are putatively altruistic. . . . indicative ethnographic formulas are "sharing," "hospitality," "free gift," "help," and "generosity." [pp. 193–94]

The expectation of a direct material return is unseemly . . . the counter is not stipulated by time, quantity, or quality: the expectation of reciprocity is indefinite. . . . the requital thus may be very soon, but then again it may be never. . . . A good pragmatic indication of generalized reciprocity is a sustained one-way flow. [p. 194]

The inclination toward generalized exchange deepens where the economic gap amounts to oversupply and undersupply of customary requirements, and especially, of urgent stuff. [p. 211]

He concluded by noting again (p. 223) that the "received view of reciprocity supposes some fairly direct one-for-one exchange," but

in the main run of primitive societies, taking into account directly utilitarian as well as instrumental

transactions, balanced reciprocity is not the prevalent form of exchange. . . . The societal profile of reciprocity, at any rate, most often inclines toward generalized modes. In the simpler hunting groups the generalized assistance of close kin seems usually dominant.

Bird-David (CA 31:189–96) argues that this pattern of sharing is a distinctive characteristic of foragers. Whether or not it is more generally prevalent in "kinship societies," there are, as she says, important differences between claiming shares in terms of current inequities and claiming shares to repay past debts. Paradoxically, Sahlins may have obscured the very difference he had demonstrated by continuing the ethnological tradition of labeling both "reciprocity." This difference has implications for the frequent application of "risk reduction" or "insurance" models to sharing. Sahlins is one of many to suggest such an application (1972:esp. chap. 3). Bird-David (CA 31:189) objects that variance reduction models fail to capture the sharer's own view. It is at least as important that the insurance motive for sharing disappears where past payments are not required for successful claims. Insurance may be good for the collectivity, but we pay premiums only because we rate our own coverage as a benefit worth the price. If we could claim and receive compensation irrespective of our payment records, then concern about coverage in the future would be no incentive to pay. A firm connection between giving and getting is necessary to maintain the advantages of cooperation based on literal reciprocity if actors are assumed to be self-interested (Trivers 1971, Axelrod and Hamilton 1981). Without checks to penalize any who take but do not give, those who free-ride on the generosity of others do better and displace "cooperators" (Boyd and Lorberbaum 1987, Hirshleifer and Martinez-Coll 1988, Boyd and Richerson 1988).

The *lack* of connection between giving and getting which makes insurance models inapplicable to the sharing patterns described by Bird-David provides a reason for the "peculiar" features of foraging economies Sahlins associated with "limited wants." He picked out three striking features of foraging economies to characterize "original affluence." First, of course, among ethnographically known hunter-gatherers the time spent in food acquisition is often surprisingly modest (1972:14). Second, foragers are reported to be remarkably prodigal with bounty when they have it, feasting now rather than storing for later (p. 29). Third, they seem to be careless about material goods, concerned neither to maintain nor to accumulate possessions (p. 12). Sharing requirements make sense of these patterns. One must refuse to share in order to accumulate; one must be stingy, the opposite of a "good kinsman," and forfeit the esteem of kin-neighbors (p. 32):

The efficient hunter who would accumulate supplies succeeds at the cost of his own esteem, or else he gives them away at the cost of his (superfluous) effort. As it works out, an attempt to stock up food may only reduce the overall output of a hunting

band, for the have-nots will content themselves with staying in camp and living off the wherewithal amassed by the more prudent.

This is a powerful if homely insight about the costs and benefits underlying limited work effort, immediate consumption, and lack of care for possessions. If the cost of refusing to give things up to any who ask for them is high enough, then extra work goes to increase the consumption of others. Dainty appetites leave larger shares for someone else. Careful manufacture or repair makes more eager "borrowers." If people make claims on each other in terms not of past debts but of differences in current holdings (Blurton Jones 1984, 1987), then, paradoxically, having less one can claim more and having more means giving more away. Bird-David (CA 31:191) reports an anecdote to illustrate that among the Nayaka claims are made in just this way. In the same place, she cites other ethnographic illustrations (Meyers 1988, Endicott 1988, Barnard and Woodburn 1988). Wiessner (1982:79) provides an instructive discussion of the considerations facing a !Kung forager in deciding on any given day whether to work and so give up goods to those who do not or to stay in camp and claim from others.

These examples and Sahlins's characterization of generalized reciprocity are consistent with limited work effort, immediate consumption, and lack of careful maintenance of goods. As Bird-David notes, however, the case for low work effort among ethnographically known hunters cannot be sustained. She points out some of the limits of the data used by Sahlins, those collected by McCarthy and McArthur, and the partial picture derived from Lee's groundbreaking work diaries. Subsequent appraisals with larger and better data sets do agree with Sahlins's main conclusion that foragers do not work longer hours than farmers (Hames 1989).

The striking feature which emerges from additional data sets is the *variation* in work effort both among and within communities of foragers. Some people work harder than others, and these differences are not due to differences in the length of time it takes to reach the same nutritional minimum (Hawkes 1987). Lee's (1968) influential report on !Kung foragers showed 12–19 hours out of camp hunting or gathering per adult each week, while the average Ache adult spends more than twice that. Yet Ache adults (about the same stature as the !Kung studied by Lee) weigh on average 10 kg more. Averaging obscures further notable differences. According to Lee's data, !Kung men and women spend similar overall amounts of time out of camp foraging. Among the Ache, men spend about 50 hours a week hunting (Hill et al. 1985), while women spend less than 10 hours a week in food acquisition (Hurtado et al. 1985). The argument that sharing is a strong disincentive to work might suggest the hypothesis that Ache men work harder because they can keep the proceeds of their effort. Quantitative data show just the reverse (Kaplan et al. 1984, Kaplan and Hill 1985); the food that men acquire is widely shared, so widely in fact that their own wives and children receive no advantageous portion

and the hunter himself actually gets less from his own efforts than do other men.

A cost-benefit framework suggests some obvious questions about the variation in work. If extra income nets no direct nutritional benefit for the forager or his family, then are there *other* benefits it might earn, and do these vary in a measurable way by sex or age or among ethnographic cases? These questions seem especially promising in light of two strikingly robust ethnographic generalizations: some kinds of resources are more widely shared than others, and men (as opposed to women) tend to specialize in those most widely shared.

By the argument I have highlighted in Sahlins's classic essay on "original affluence" people should work least hard for resources they expect others to take from them. But this will be so only if the benefit for the work is direct consumption. Sahlins (1972:208) noted that there are other benefits for those who give much away. "The esteem that accrues to the generous man all to one side, generosity is usefully enlisted as a starting mechanism of leadership, *because it creates followership*. 'Wealth in this finds him friends,' Denig writes of the aspiring Assiniboin, 'as it does on other occasions everywhere' (Denig 1928–9, p. 525)." Sahlins is not talking specifically about foragers. In fact, the style of leadership under discussion here (and throughout the related discussion in his chap. 3) is not often reported for hunter-gatherers, and I anticipate an objection to attributing it to them. Lee (1969) has memorably described for the !Kung the importance placed on a self-effacing style, in striking contrast to demonstrative generosity. He and others have interpreted this as part of a pervasive egalitarianism which distinguishes foraging communities from those in which ambitious individuals achieve or maintain higher standing through conspicuous generosity. As among the !Kung, neither Ache nor Hadza hunters flaunt their successes. (Neither do they seek failure [and Lee did not suggest that for the !Kung]). The highly unpredictable character of hunting incomes (Hawkes et al. 1991) may place a special constraint on celebrating accomplishment. Any hunter who crows about his feat today risks raised expectations tomorrow. He can reduce embarrassment and the scorn of competitors by modesty. People are likely to know the story of how and by whom the animal was killed whoever "owns the arrow" that struck first. They will be especially interested in hunters' successes if game animals are large enough to be widely shared.

Better hunters of larger prey more often bring in food that many eat. Hunters who are not so skilled or energetic do so less often, but even they sometimes succeed. By this argument hunters who bring in more than they and their families can refuse to share are desirable neighbors, and better hunters are more so. People may treat them accordingly, and if this means siding with them in disputes or allowing them sexual favors (Siskind 1973, Symons 1979), then these are the benefits the hunter earns from hunting. Some resources come more predictably in smaller packages and so are less likely to present the large immediate disparities which invite wide de-

mand for shares (Blurton Jones 1984, 1987). Foragers know what claims will be made on their products before they acquire them. Anticipating this, they can choose not only how much to work but whether to target resources which will be widely demanded or those which will not. Foragers who specialize in gathered food earn a steady income with no bonanzas to attract many claimants (Hawkes 1990). They keep more of what they acquire and so earn consumption benefits for themselves and their immediate families instead of favorable attention from others. Differences of gender might reasonably be associated with differences in the value of these different kinds of benefit. If the extent and character of the favorable treatment to be earned from widely shared resources varies with income patterns which themselves vary with local resource opportunities, attention to both kinds of benefits may help explain the variation in the kind as well as the amount of work reported within and among ethnographic cases (Hawkes 1990, 1991).

Sahlins argued that formal economic logic cannot explain cultural patterns because preferences vary culturally. Yet one reason for the influence of *Stone Age Economics* may be his compelling use of some general assumptions about preferences cross-culturally: that more food is usually better than less, that less work for the same amount of consumption is better than more, that associates from whom one gets more are preferred to those from whom one gets less. These ideas focus on costs and benefits, not emphasized by Bird-David, that point to a way of investigating and explaining variation in work and sharing. The variation is wide enough that attending to it may offer us a chance not only to guess at causes but to test some hypotheses about them.

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On Palaeolithic Research Traditions: Response to Clark and Lindly

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