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Hierarchies in Action

Cui Bono?

*Edited by
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2. | Some Thoughts on the Study of Hierarchies

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Abstract: The Fourteenth Annual Visiting Scholar Conference asked the question, Who benefits, and how, from the operation of human social hierarchies? This chapter explains the genesis of the thematic question of the conference by reviewing past approaches to the study of hierarchies and, in particular, social and economic inequality. In practice, answering the thematic question requires that one assess the costs and benefits that accrue to persons of varying status in social hierarchies. It is suggested that one way to study the evolution of hierarchies is to examine the degree to which the interests of individuals or groups of individuals (classes or statuses) compete and the ways in which the competition is expressed. The interest arena of behavioral ecology, which in the past has concentrated on food selection, may provide a useful approach for studying the evolution of human social and economic inequality and human social hierarchies.

Why ask the question, Who benefits? The intention, shared by the contributors to this volume, is to work toward a general framework for studying the evolution of inequality in social, political, and economic systems. The words *nomothetic* and *processual* could be applied to the goals, but one wishes to avoid the use of labels and the subsequent unnecessary epistemological fortification, besiegement, and bombardments that inevitably follow.

The goal, only partially achieved by this volume, is to produce a nomothetic framework that avoids some of the pitfalls of earlier processual efforts (see the discussion of the GMM below) and that is responsive to the growing (and in my view, appropriate) emphasis on human "agents" as sources of culture change. The approach I advocate is partly influenced by "political economists," as well as "Marxists" (or Marxist-like archaeologists), those who are concerned with gender, "systems theorists," "complex adaptive systems" theorists, "evolutionary ecologists," and probably others as well. At the same

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time, I reject radical subjectivism (for an example, see Shanks and Tilley 1987), following the arguments laid out by the late eminent scholar Carl Sagan (1996; see also Watson 1990). I also share the suspicion that radical subjectivist approaches “embody what seems patently an ideology of the powerful” (Wylie 1992:21).

The need for a general attention to the costs and benefits of hierarchies and a framework for studying hierarchies are the subjects of this chapter. In the review that follows I make several observations. First, a brief review shows that adaptationist theories of the “origin of complex societies” have proven inadequate in numerous ethnohistoric and archaeological case studies. Second, it is suggested that adaptationist explanations are inadequate because they embrace a suite of erroneous assumptions about the nature of culture and social organization. Finally, it is suggested that evolutionary ecology provides one approach by which the question, Who benefits? may be used to study social change in ways that recognize human agency as well as systemic relationships.

The Critique of Managerial Models

There exists a class of explanations that has been described as “managerial,” “functionalist,” or “adaptational” (Earle 1987:292–293; Hayden and Gargett 1990) and that I call, collectively, the General Managerial Model (GMM). The explanations hold in common the assumption that social and political inequality develops as an organizational solution to problems caused by varieties of stress. Within this framework, some societies are described as egalitarian, “simple,” “acephalous,” or “not complex.” In contrast, others are described as “complex,” using terms that imply a less-than-egalitarian social structure. In the GMM, “simple” societies evolve into “complex” societies when a population faces some crisis that threatens the existence of the society. Leaders “emerge” to whom the general populace yields control over various social, economic, or ideological institutions. Centralized control allows elites to effectively mitigate the crises, presumably to the benefit of all.

There are many comprehensive reviews of studies of the emergence and subsequent evolution of complex societies (Arnold 1996; Brumfiel and Earle 1987; Flannery 1972; Hayden and Gargett 1990; McGuire 1983; Peebles and Kus 1977; Wright 1986), and there is neither the space nor the need for a comprehensive review of the literature in this volume. However, there is a need to demonstrate how thoroughly the GMM has been tested and how grandly it has failed to account for the emergence or subsequent evolution of hierarchies.

Poor Explanatory Concordance Between the GMM and Case Studies

One compelling challenge to the GMM is the observation that the association of managerial crises with the development of organizations that most have traditionally called “complex” (including chiefdoms, states,

middle-range societies, ranked or stratified societies, big-man organizations, and similar taxa) is dubious. The GMM does not accord well with archaeological or ethnographic cases. As a consequence, variants of the GMM have had short life spans and have inevitably been limited to the local geographic region of interest to their proponents.

Leaving aside nineteenth-century notions that equated “civilization” with “progress” and “the greater good,” the first popular explanation for the origins of social hierarchies stipulated that elites generally manage water-control features to the benefit of the agricultural systems that they service (Wittfogel 1957). Service (1962) observed that, contra Wittfogel, Hawaiian chiefs did little to manage irrigation systems but may have been beneficial to the extent that they centralized and redistributed heterogeneously apportioned natural resources. Contra Service, Sahlins (1972) observed that Hawaiian chiefs did little to redistribute resources and argued instead that chiefs generally centralized and redistributed food. Sahlins viewed chiefs as the pivotal loci of organization and support in a Stone Age social safety net (Sahlins 1972:204–210). Yet in a study of Mississippian social evolution in the American midcontinent, Peebles and Kus (1977) noted that, in general, ethnographic descriptions show that Polynesian elites made little effort to redistribute food and that on occasions where food was given away the recipients of their largesse were usually other elites rather than local impoverished families. They suggested as an alternative that chiefs may have emerged as the centralizers and redistributors of information about the location of resources or as the regulators of the flow of trade items. However, Brown (1985 and elsewhere) has rejected Peebles and Kus’s characterization of the relationship between chiefs and trade items, arguing instead that Mississippian chiefs manipulated trade items to advance their own elite status.

Other managerial tasks ascribed to leaders include the organization of warfare and dispute resolution. Carneiro (1981) asserted the primacy of the organization of warfare as a universal cause for the origins of all hierarchies; yet reviews of archaeological cases of the formation of state societies are noteworthy because of the absence of concordance between indices of conflict and organization (for example, Wright 1986). Johnson (1982) suggested that hierarchical decision-making bodies developed to manage “scalar stress” caused by coresidence in large groups and by the inability to manage all of the potential face-to-face interactions that any given individual might experience. Scalar stress manifests itself as increased proportional frequencies of disputes and other social tensions in crowded situations. Yet, as has been noted by many, the general association between population densities and the presence or extent of social hierarchies is extremely weak (Coupland 1996; Earle 1991:4; Feinman 1991).

Feinman and Neitzel’s (1984) comprehensive ethnohistoric survey of “pre-state societies” of the New World conclusively demonstrated that no single managerial model works for all geographic regions, and that in some cases, elites provided no managerial service. In only 10 of 63 cases, elites centralized information. The conduct of warfare was an elite service in 30 cases, and dispute resolution was important in only 31. Provisioning for the poor or other-

wise providing access to material goods was observed in a paltry 9 and 10 cases, respectively. In 8 of 31 cases from the western United States, chiefs did not engage in *any* activity that could be construed as widely beneficial. Other cross-cultural studies of the attributes of chiefdoms and their environmental, demographic, and economic circumstances have verified that there exist few strong relationships between chiefly obligations and the degree of social, political, or economic inequality (Drennan 1987, 1991; O'Shea and Barker 1996). Although it is clear that sometimes some elites confer some benefits (again, see Feinman and Neitzel 1994, and contributions to this volume), it is equally clear that the GMM fails as a general explanation.

Egalitarian Societies Do Not Exist

A second objection to the GMM model is that its use has led to the creation or assumption of a heuristic structure that includes "egalitarian" societies and the many taxonomic groups that have been described as "complex." Comparative studies that reify the taxonomic divide between the simple and the complex inevitably ask the questions, What is missing from the simple societies that is present in those that are complex? and What is present in the simple societies that is absent from the complex? At the risk of starting another of those embrangling definitional debates, it is suggested that there are not now, nor have there ever been, any egalitarian societies.

One may define egalitarian societies as those in which the processes that operate to create vertical and horizontal heterogeneity in the distribution of wealth, power, or prestige are absent. This definition forces a concern for the processes that link social interaction with economic, political, and social change among *all* human societies. Although the above definition is a departure from the more traditional definition that egalitarian societies are those in which individual autonomy is supreme and in which all members have equal access to avenues of power, authority, and wealth (Gardner 1991; Woodburn 1982), it is supported by substantive research.

Many of the scholars who routinely study foragers have noted that there exists a great deal of variation in social organization and rules for social interaction and that foragers engage in inequalitarian behavior. One need only consider some of the studies of nonhuman primates and human foragers for proof that the "egalitarian-ness" of foragers who live in small social groups has been exaggerated. Many nonhuman primate species have hierarchies in which elite status is transmitted generationally through consanguineous relatives, usually a parent (Berkovitch 1991; Bernstein 1981; Lyons et al. 1994). Moreover, primates establish alliances in competition and warfare (Boehm 1992; Harcourt 1992; van Hoof and van Schaik 1992). Yet all are "egalitarian" societies if evaluated, using archaeological correlates of complexity (for example, O'Shea and Barker 1996; Peebles and Kus 1977; Ravesloot 1988). Inequality is pervasive in higher primate behavior, and status competition appears to be one behavior that is endemic to humans, gorillas, chimpanzees, and bonobos (for example, Stanford 1998), and probably to their mutual common ancestors (see Boehm, Chapter 3, this volume).

Inequality has also been observed among human foragers and horticulturalists. Relevant behaviors include restricted food sharing, status competition and rivalry, hereditary transmission of leadership positions, the formation of restricted-access information sharing groups, notions of kin-group land tenure, intragroup variation in the frequency and quantity of sharing, and the targeted selection of recipients of shared resources (see Kelly 1995:161–203 for a review).

Human foragers compete and develop status hierarchies and establish claims to regions or territories through their use. It is often assumed of “egalitarian” foragers and horticulturalists that unrestricted sharing is common, that it mitigates provisioning stress, and that the absence of permanently owned food promotes social leveling (Sahlins 1972:210–219). However, many now suggest that repeated acts of generosity create a deferential relationship between the receiver and the giver. Most of the “sharing” between members of foraging bands is “on-demand” rather than freely offered, and on demand sharing is a transaction that creates social debt (Halstead and O’Shea 1982; Peterson 1993).

Studies of high-technology foragers have demonstrated that competition over resources can lead to the formation of alliances, both when resources are extremely abundant and when they are extremely scarce. Examples are provided by studies of modern oceangoing purse seiners (Bjarnason and Thorlindsson 1993; Durrenberger and Palsson 1986; Gatewood 1984; Meltzoff and Lipuma 1986:686) and offshore lobstermen along the coast of Maine (Palmer 1991). These are economic and social groups whom most archaeologists would describe as egalitarian, there exist no permanent power or authority hierarchies, and economic and status differences are a consequence of individual foraging success rather than formally circumscribed social differentiation. The prevailing ideology among such groups suggests that access to prestige and economic success is not restricted. However, these groups contain all of the behavioral elements of inequalitarian societies, including economic differences that vary from wealth to near poverty, and status differences that vary from contempt to high prestige. The formation of information-sharing alliances, which are by nature exclusionary, creates a system in which access to the avenues to success is restricted, sometimes along kinship lines.

Gatewood’s (1984) study of information-sharing networks among the skippers of Alaskan salmon seiners provides an example. Alliances between information-sharing skippers ensured maximum harvests during seasons when salmon were extraordinarily abundant. Generally, competent skippers shared information only with other skippers whose abilities were respected: skippers apparently recognize that the value of information depends upon the source. The information-sharing strategy allowed skippers to minimize the risk of obtaining inadequate catches during years in which the inability to return with full cargo holds would have caused the loss of prestige. Since competition for prestige was a zero-sum game, information-sharing networks were exclusionary and secretive. Interestingly, during years in which yields were especially poor, information sharing tended to be restricted to closely related kin. In both instances, the avoidance of risk promoted restricted access

to information rather than the centralization and widespread redistribution of information (contra Peebles and Kus 1977). This result is entirely consistent with sociobiological models of alliance formation that predict that severe stress promotes exclusionary behavior rather than centralization and redistribution (Boyd and Richerson 1992; Smith and Boyd 1990).

GMM Models: The Product and Failure of Functionalism

The GMM is a product of the functionalist paradigm that greatly influences archaeologists. Functionalist perspectives seem useful because they link apparent cultural and social changes with environmental and demographic changes. Functional models *seemed* capable of retrodicting archaeologically observed trends in various diachronic case studies worldwide; it is this capability that renders functionalism appealing despite the failures of its explanatory progeny—the GMM.

Group selection is an operational assumption to which one is led when functionalist approaches are used to structure inquiries about sociocultural change. GMM models necessarily assume that major shifts in the organization of societies and attendant cultural variation are systemic adaptive responses to ecological or demographic change (Kroeber and Kluckhohn 1963:167–168; Malinowski 1945:1, 42). Moreover, in most operational definitions, “a culture” is a suite of material, behavioral, ideological, and organizational traits held in common by some geographically and temporally discrete group of people (for example, Thomas 1989:251–256; see also Harris 1979:47–54), especially when they are based on definitions of “Culture” that Kroeber and Kluckhohn (1963) call “descriptive,” “historical,” “normative,” and “structural.” Yet internal heterogeneity (in behavior, goals, ideology, material culture, and the like) is suppressed in order to facilitate cross-cultural comparisons in order to understand the process of adaptation (Kroeber and Kluckhohn 1963:87). Group-selection-driven models are the consequence of the suppression of intracultural heterogeneity and the assumption that culturewide change is an adaptive process that benefits all who are encompassed by a culture. Although group selection is a theoretical likelihood for some cases, intrasocietal heterogeneity has been largely ignored by proponents of the GMM. For a non-GMM discussion of phylogenetic theory of group selection, see Boehm (1996); for a non-GMM discussion of the formation of groups, see Boone (1992).

The notion that elites confer a managerial benefit follows from two small inferences that result from the use of normative definitions of culture and functionalist models of culture change. It is a small intuitive step to assume that cultural changes, being adaptive and therefore beneficial, must benefit everyone or almost everyone in “the culture.” It is another small step to assume that the “development of complex societies”—in effect, the establishment of social, political, and economic inequality to the point where one can identify elites—can only have occurred as a widely beneficial adaptive response to stress.

The need to address the problem of information loss in anthropological taxonomies may be the most significant obstacle to future efforts to derive

general principles about the evolution of social organization; the methodological process of data simplification affects higher-level taxonomic groupings as well. Many find the terms *band*, *tribe*, *chiefdom*, and *state* objectionable because they mask variation between cultures that are subsumed in a single group (for example, Feinman and Neitzel 1984; McGuire 1983; Lightfoot and Upham 1989). O'Shea and Barker (1996) have shown that information loss is a fundamental consequence of the use of extant taxonomies. One option is to generate more complicated taxonomies, and that is manifest in the burgeoning nomenclature used to describe complex societies. An alternative is to eliminate taxonomies entirely.

Human Agency or Human Actors as Sources of Culture Change

Scholars who are interested in gender inequality, Marxist-oriented scholars, and those who study the relationship between factions, classes, politics, and economics have also found structural roots of inequality or actual inequality among "egalitarian" groups (Flanagan 1989). In general, these approaches look at human agency, motives, and actions as causal forces in sociopolitical, socioeconomic, and cultural change. In a particularly compelling review, Brumfiel (1992) noted that the "ecosystems approach" (which for all intents and purposes here may be equated with the GMM) emphasized whole populations and whole adaptive behavioral systems; further, the "system level evolutionary consequences" (where something like a "system selection" that is analogous to group selection is proposed) have been the focus of ecosystems approaches, as the latter have ignored "the processes of social change" (Brumfiel 1992:553).

Brumfiel's (1992:559) program for studying inequality mandates the disposal of the ecosystem approach and includes the following recommendations: (1) reject the idea that cultural systems are "homeostatic" and "subject to selection and adaptive change"; (2) "recognize that human actors, and not reified systems, are the agents of culture change"; (3) consider goal-oriented action as a problem that may be studied without embracing radical particularism; and (4) "analyze specific sequences of change." Recommendations 2 through 4 are embraced by the approach that I propose later in this essay. Dumping the "ecosystem" concept is probably a bad idea, though, and I revisit the concept at the end of the chapter. Likewise, unless Brumfiel's first recommendation is a reiteration of her second recommendation, it is also rejected or at least modified. Cultural systems in their entirety are probably not the units at which selection and adaptation occur; components of cultural systems, to the extent that different classes, factions, or genders engage in patterned behavior that may be generalized as a model, are at least good *units of analysis*, if not units of selection and adaptation. The problem is discussed at the end of this essay.

The Study of Hierarchies Today

The collapse of the functional paradigm and the GMM promoted a

useful broadening of the inquiry on the operation of social hierarchies. In archaeology, most of this inquiry has been pursued in studies of political economy, or as Earle (1987) calls them, "political" models, but gender-oriented and Marxist approaches have also contributed to the discussion (see Conkey and Gero 1991; McGuire 1992; McGuire and Saitta 1996). They have been occasionally coupled with cultural ecology in order to identify limiting factors that inhibit status competition. Important changes that permit the intensification of status competition may include some combination of the following events: dependence on *r*-selected resources (Cashdan 1980; Renouf 1991), the invention of reliable storage facilities (Testart 1982, 1988), reduced residential mobility (Ames 1985; Brown 1985; Kelly 1995:310; Renouf 1991), and restricted access to stored food during times of provision stress (Hegmon 1991, 1996). Demographic scale and the opportunities of "aggrandizers" to engage in status competition may also be important (Hayden 1995). The political economy approach has generated an intensely interesting catalog of the mechanisms, and explorations of some of the low-level systemic relationships between power, economy, and ideology, by which aggrandizers may compete for power.

Unfortunately, rather than leading to a rejection of the GMM, the tendency has been either to assert that the origin of complexity was probably everywhere a consequence of a number of managerial crises coupled with idiosyncratic opportunistic exploitation by would-be elites or, alternatively, to reject nomothetic goals entirely (for example, McGuire and Saitta 1996:199; Shanks and Tilley 1987). When diachronic studies of archaeological regions from different centers of urbanization and "civilization" around the world are compared, one observes a great deal of variation in the relationship between population sizes and densities, the manifestation of warfare, monumental architecture, centralized storage facilities, the intensity of long-distance trade, and evidence of the presence of elites (Lamberg-Karlovsky and Sabloff 1987: 322–335; Wright 1986). The tendency has been to note that the development of inequalitarian societies was a pattern that was repeated worldwide in many cases and that the manifestation of power seems similar in each case, but that each case must have been strongly conditioned by idiosyncratic factors (Drennan 1991; Earle 1991:14).

Despite the observation that fundamental economic changes among "egalitarian" societies promote the intensification of status competition, most studies of the evolution of social inequality concentrate on chiefdoms and things more complex (Earle 1991). Studies of chiefdoms and states are necessary, and the research is interesting and productive; however, there is a continued presumption that "emergent inequality" is an event that first occurs among middle-range societies (for example, Arnold 1996), rather than a process that occurs among all human and in many nonhuman social groups. This assumption inhibits the development of a general theory of the evolution of social hierarchies.

So far, it has been established that the GMM has failed to provide a general model for the evolution of social hierarchies and that, as explanations for the development of "complex societies" in geographic cases studies, variants of

the GMM have very short use-lives. It has been demonstrated that part of the failure of the GMM lies in its inability to recognize inegalitarian behaviors in all human societies and even in some nonhuman primate societies; it is suggested that there are no “egalitarian” societies. It has also been shown that the combination of functionalism and the use of operational definitions of culture that suppress intracultural behavioral heterogeneity is an epistemological flaw of the GMM. That flaw accounts in part for the tendency of managerial models to ignore inegalitarian behavior in “egalitarian” societies. The same flaw has promoted group-selection-oriented explanations of culture change, virtually mandating the interpretive conclusion that development of social hierarchies is a problem-solving, culturewide adaptive response to stress.

Hierarchies as Ecologies of Genders, Classes, and Factions

If anthropologists want a general theory that can be used to retrodict archaeologically observable changes in social, economic, and political organization, such a theory must be able to account for inegalitarian behavior (and attempts to resist inegalitarian behavior) in all societies. Likewise, a general theory ought not to presume that changes in social organization are beneficial for all whom such changes encompass, as the Marxists, political economists, and gender scholars have noted. Instead, a theory must be able to account for intracultural variation in individual success; individual efforts at the centralization of power, wealth, and authority; efforts to resist such centralization; and the formation of classes and factions as self-interested groups.

Behavioral ecology might be a useful paradigm for exploring the evolution of social, political, and economic organizations at all scales of population and all extremes of inequality. The evolution of hierarchies may be characterized as a sequence of choices of individuals that involve the selection of economic and social processes that can be used to develop and maintain or resist exploitive relationships. Rational behavior and the selection of resources and alliances have long been of interest to behavioral ecologists.

Status Competition, Food Sharing, and the Domestic Mode of Production

To give credit where it is due, it is noted that functionalist efforts have been very successful at identifying economic and demographic parameters that are important for understanding how hierarchies change. It is clear that the most important qualities that regulate the extent of inequality have to do with elementary economic production. Aggrandizers cannot mobilize food for feasts or for conversion to prestige goods if surplus food does not exist. It is also difficult or impossible to generate food surpluses if resources are not intensifiable and storable.

It is also clear from many prior studies that demographic scale must generally be an important quality that regulates the extent of social inequality. The

amount of surplus available for mobilization will be conditioned by the size of the local population. In the absence of an ideology that allows elites to extract food from starving households, an aggrandizer who lives in a village that contains 3 households producing a surplus of a given value k has access to less surplus (food, energy, time, labor) than an aggrandizer who lives in a village that contains 20 households producing the same surplus k . Moreover, the number of households in a village will condition the number of opportunities to establish dependency relationships between aggrandizers and followers.

Sahlins (1972) noted that in the domestic mode of production (DMP) with Stone Age economies one is likely to find households that cannot meet their resource production needs. Owing to injury or deaths, infertility, or the out-migration of relatives, some households will consume more food or other resources than they produce. Under such circumstances, they should be provided for or they will die.

Sahlins implied that underproductive households generally receive support, but that implication may have been an error. Ecological simulations indicate that the long-term risks of starvation for most of the households in a region may be reduced by allowing some underproductive households to starve. Hegmon (1991, 1996) used environmental data from the Hopi mesas to calculate crop yields for families engaged in subsistence production over an interval of several decades. As a consequence of environmentally determined heterogeneity in crop yields, some households produced surpluses, and others had productive shortfalls. In simulations where all households engaged in generalized reciprocity (pooling), a significant number of households died. In simulations where no household shared, a large number of households died. However, in simulations where households practiced restricted sharing (sharing only the surplus portion of production), most households lived to the completion of the simulation.

Hegmon's simulation used environmental variation to create conditions where some households were insufficiently productive. However, if we assume that Sahlins's characterization of the nature of production in low-technology economies is accurate, then it is apparent that a small percentage of *any* population will exist in a state of dependency. Moreover, where variation in household labor conditions the amount of surplus (or deficit) produced by a household, then over the course of many years some households will be reliable producers and some will be reliable consumers of surplus. Some households will vary, underproducing somewhat in lean years and overproducing a little in good years, but never producing so much surplus that they may routinely lend resources to underproducers. These are conditions that promote permanent inequality and the use of social debt to leverage political support in pursuit of high status or economic power.

Behavioral Ecology and Egalitarian and Exploitive Systems of Patron-Client Relationships

Variation in household production in a DMP economy establishes a permanent condition in which repeated gifts of food or other necessary re-

sources may occur and in which social debt and the loss of household autonomy are promoted by competition between dependent households. When multiple households experience productive deficits, there exists a condition in which dependent households must compete for access to households that produce surpluses. Needy households that yield autonomy and that otherwise provide political support will be favored by aggrandizers in households that produce surpluses. Likewise, when there exist multiple households that contain an aggrandizer and that produce surpluses (patrons), there is competition to establish relationships with underproducing households (clients).

One can view control over production and social debt as a process that is very similar to the selection of food resources by foragers. Competition for success may involve rational choices between different options. For example, patrons in pursuit of elite status may perceive that greater benefits may be gained by targeting specific underproductive households and excluding others. Clients may perceive greater benefits to the receipt of food from certain patrons. In an effort to maximize gains and minimize losses, both patrons and clients may seek to establish control over social, ideological, and economic systems that are intimately associated with production. In a sense, both clients and patrons must "forage" for food or debts by selecting strategies that maximize gain and minimize risk.

Behavioral, or evolutionary, ecology has established itself as a very useful framework for studying foraging in humans and other animals (Krebs and Davies 1991; Pianka 1978; Winterhalder 1993; Winterhalder et al. 1988). Most often this research has been used to examine resource selection (for recent overviews, see Kelly 1995; O'Connell and Hawkes 1994), but occasionally it has been used to study the formation of alliances and social ranking among humans and other primates (Berkovitch 1991; Boehm 1992; Boyd and Richerson 1992; Harpending and Rogers 1989; Hawkes 1990:155–156, 1991; Palmer 1991). According to most theorists, foragers seek to maximize their rates of energy return when choosing between different classes of food (prey) or foraging areas (patches; Kelly 1995:78–109); for our purposes, energy may be generalized to include any desired commodity such as food or money that increases individual survival.

Evolutionary ecologists study the optimization of behavior (Foley 1985). It is assumed that optimization occurs as a consequence of rational choices between alternatives in cases where one or more of the following conditions exist (Kelly 1995:54–57): (1) there is imminent threat of starvation; (2) specific nutrients are in short supply; (3) there are time constraints on foraging or on other activities that are exclusionary to foraging activities; (4) foraging exposes the forager to risks; and (5) when surpluses may be used to enhance reproductive fitness. As is discussed earlier in this essay, conditions 1 and 2 probably exist for some households in all DMP economies.

To these I would add that the existence of *any* desired goal that is perceived to be useful or beneficial and that involves choices between alternative strategies will promote optimization. Even when individuals already have very high reproductive fitness or long life expectancy, they should optimize as long as they *perceive* that there are benefits to optimization. Although environmen-

tally or demographically driven food stress is a significant motivator for optimization, one should not expect to find optimization only among populations that are under stress.

Returning to the discussion of DMP economies, the existence of two simultaneous competitions is a context replete with potential for the evolution of strategies that maximize gain and minimize loss. If we assume that the ability to obtain surpluses increases the fitness of clients (by preventing starvation) and if we assume that it is desirable to maximize household autonomy, then clients should seek to maximize returns from patrons while minimizing their long-term social debt. In contrast, patrons should seek to maximize the long-term social debts that are owed to them and minimize their short-term outlays to clients. Such behavior would have the effect of maximizing the amount of social support, labor, or other useful items that may be mobilized when elites seek to elevate their status. When patrons minimize their gifts to clients, they maintain a larger pool of resources that may be used to obtain more clients or in events that promote prestige.

The extent to which relationships become exploitive should vary according to demographic trends and the organization of production. Where the number of patrons and clients and their respective surpluses and needs are balanced, we can imagine the evolution of a set of strategies that produce returns generalized by Figure 2-1. We might even label this set of strategies the idealized “unexploitive” relationship, and for the sake of argument, we shall stipulate that it has a slope of 1.

Changes in the environment or in the social interaction between households will alter the returns generated by patrons (debts owed by clients). For example, the widespread occurrence of moderate resource stress may increase the competition between clients for the largess of patrons, lowering the efficiency of client resource use strategies while increasing the efficiency of patron strategies. Strategies that greatly favor patrons are generalized by Figure 2-2, and we might call such relationships “exploitive.” They have slopes that are substantially less than 1.

Issues for Future Research

If we assume that would-be elites seek clients or even other producing households as sources of support for their efforts at the centralization of wealth, power, and prestige, then the relationships between elites and commoners may be modeled as a series of predator-prey relationships. Any number of archaeologically researchable issues may be considered, and a few are discussed below.

The first set of issues that may be explored are related to the question of whether or not elites and commoners optimize their energetic or other returns in their relationships with one another. Do elites seek to maximize the exploitation value of their relationships with commoners, and do commoners seek to maximize their autonomy? How are these efforts accomplished? Moreover, what are the mechanisms that most likely will allow patrons to demand resources from households that routinely meet their own provisioning needs?

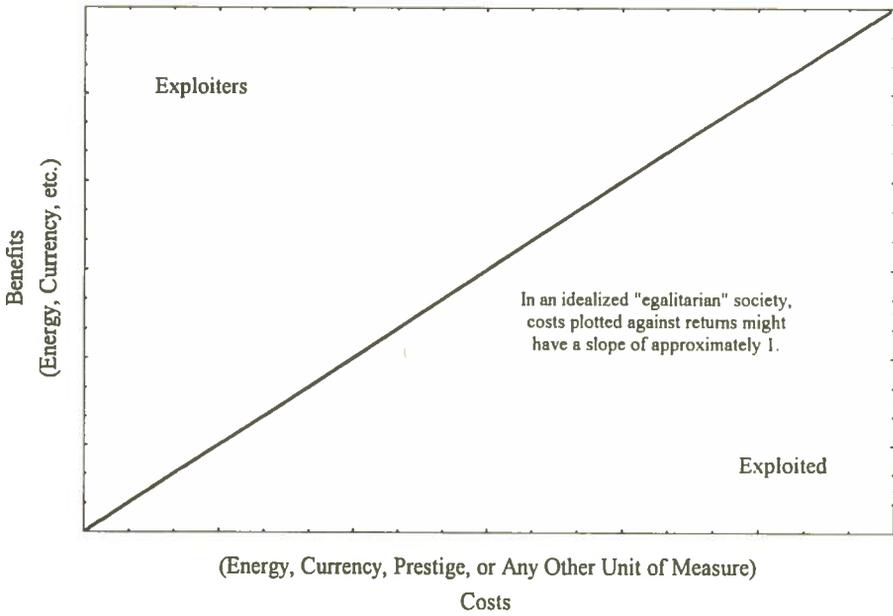


Figure 2-1. Benefits and costs in an idealized egalitarian society.

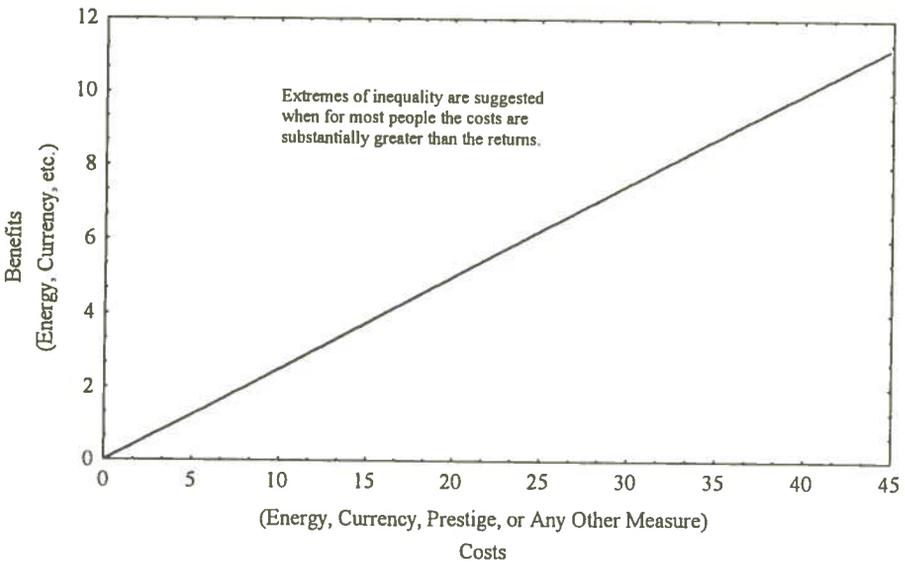


Figure 2-2. Benefits and costs in an idealized exploitive hierarchy.

We may predict, for example, that would-be elites will seek control over ideological or economic systems that are closely associated with production. Patrons might coerce dependent clients to support their efforts at controlling production. Here the concern with the costs and benefits of exclusion and incorporation of individuals in the formation of alliances and coalitions will likely be an arena of great importance.

One may expect patrons to seek control over production in order to generate food stress; by promoting food stress, elites could increase competition between clients for access to patrons. Such destabilization might enable elites to increase the returns realized from patron-client relationships. For example, horticultural aggrandizers might seek control over religious systems in cases where religion contains, compressed within the schedule of rituals and celebrations, the timing and location of planting of crops, or the rules that specify which household or clan plants which plot of ground. Obviously, if religion is largely divorced from production, then some other system should be the target of aggrandizers' efforts at control. To the extent that the association of production with one or another cultural subsystem varies in time and space, there should be much that is particularistic about changes in social, political, and economic systems.

The second set of issues relates to the connection between the extent of inequality and the scale of economic production by food producers. In any low-technology society, most households must be primarily engaged in activities that are related to subsistence production. When full-time craft specialists or administrators emerge, they are unable to engage in (or simply refuse to engage in) subsistence production. The maintenance of permanent craft specialists or social elites who may spend much less time engaged in subsistence production requires that surpluses be generated by food producers. Under such circumstances, the formation of new, nonproducing social niches may have much in common with the evolution of new kinds of predators in non-human ecologies. How many human low-level producers are required to maintain one higher-level human social predator? (Those who dislike the term *predators* may prefer to describe them as higher-order *consumers*.) Under what circumstances are successive niches of meta-predators (those who extract resources both from primary producers and from other social predators) added to or eliminated from social systems? These are questions that may eventually be studied as a consequence of repeated efforts at compiling cases studies of the costs and benefits associated with positions of high and low status.

Conclusion

A concern with the costs and benefits that accrue to persons of high and low status is important for those who study the evolution of social, political, and economic hierarchies. In a brief review, I demonstrated that managerial models have in general failed to produce robust accounts of the "emergence" of inequality; indeed, the notion that "inequality" emerges from an inherently egalitarian context was challenged. I suggested that many of the

flaws of the General Managerial Model are a consequence of the assumption of group selection, a kind of macrofunctionalism in which social changes are presumed to benefit all whom they encompass (the entire system, as opposed to discrete elements within the system); the assumption followed from the use of a normative concept of "culture" and the epistemological dominance of one variety of functionalist paradigm for studying culture change.

As an alternative, I suggested that social inequality, and social structures of all types, must be viewed as the consequence of a suite of competing interests and alliances that contest the control of power, economy, and ideology. I also suggested that the selection of strategies in these competitions may be studied from the perspective of behavioral ecology. The evolution of more complicated social structures may be viewed as a process that is driven by competition over resources; however, in human societies other humans and their labor are resources. When higher-ranked persons attempt to co-opt the products or labor of commoners, the relationship is an ecological one. Complicated social structures may develop in a fashion that is similar to the process of niche creation and resource use that describes the relationships between biological producers, consumers, prey, and predators.

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