



Cultural Ecology and Neoevolutionary Thought

A major theoretical shift occurred in American anthropology in the late 1940s and the 1950s. For the first half of the century, the principal work in American anthropology was based on the Boasian tradition or the neo-Freudian approach of the culture and personality school. Beginning in the 1930s, the antievolutionary perspective of the Boasian tradition had once again to compete with new and more sophisticated evolutionary approaches proposed by Julian Steward (1902–1972), Leslie White (1900–1975), and George Peter Murdock (1897–1985).

Steward and White developed a techno-environmental approach to cultural change and both were influenced by Marxist thought. Steward developed an ecological approach that focused on the adaptation of individual cultures to specific environmental circumstances. White is best known for his formulation of a general evolutionary theory of culture, an approach that had been abandoned after Boas thrashed unilineal evolutionary theory at the turn of the century. George Peter Murdock was influential in resurrecting the comparative method in anthropology. Like Steward—and Lewis Henry Morgan and E. B. Tylor before them—Murdock was interested in large-scale cross-cultural analysis. He is best known for his creation of the Human Relations Area Files, or HRAF. Harris (1968:606) credits Murdock, Steward, and White's revival of the comparative method with the "mid-century collapse of historical particularism." Although Harris' eulogy for historical particularism was premature, these three men set the foundation for the formulation of ecological anthropology and cultural materialism, two of the most influential forms of anthropological analysis since the 1960s.

Julian Steward was a student of A. L. Kroeber and developed his evolutionary theory despite the disdain of his famous mentor. Steward devoted most of his energy to the study of the environmental adaptation of specific societies. His first research was in archaeology, but he then moved to ethnography and worked with the Shoshoni, and Pueblo, and later the Carrier Indians in British Columbia. Steward also devoted a great deal of energy to the study of parallel developmental sequences in the evolution of civilizations in the New and Old Worlds.

Steward proposed that cultures in similar environments would tend to follow the same developmental sequences and formulate similar responses to their environmental challenges. He termed those cultural features most closely associated with subsistence practices the *cultural core* (1955). Cultures that shared similar core features belonged to the same *culture type*. Having identified these culture types, he compared and sorted them into a hierarchy arranged by complexity. Steward's original ranking was family, multifamily, and state-level societies; these categories were later refined by his followers into the now familiar classifications of band, tribe, chiefdom, and state.

Steward did not believe that cultures followed a single universal sequence of development. He proposed that cultures could evolve in any number of distinct patterns depending on their environmental circumstances. Consequently, he called his theory *multilineal* evolution, to distinguish it from nineteenth-century unilineal evolutionary theories. The methodology Steward outlined for multilineal evolution involved a field of study he called *cultural ecology*; that is, the examination of the cultural adaptations formulated

by human beings to meet the challenges posed by their environments. The selection of Steward's work we have chosen, "The Patrilineal Band," clearly shows how he viewed culture as an evolutionary adaptation to the environment.

Leslie White was trained in Boasian historical particularism—he was a student of Boas' student Edward Sapir at the University of Chicago—but found it intellectually unsatisfying. In his first teaching post at the University of Buffalo, he discovered and read the work of nineteenth-century evolutionists such as Herbert Spencer and particularly Morgan. White's research led him to the conclusion that unilineal evolutionary theory was fundamentally sound, but that nineteenth-century evolutionists had worked with inadequate data. Following Spencer, White argued that evolutionary development from simple to complex, with increasing specialization of parts, was just as valid for cultures as it was in biology. The problem was developing a quantifiable, universal standard of measurement. In his 1943 article "Energy and the Evolution of Culture," White proposed that the control of energy was a key factor in cultural evolution and could serve as the standard by which to measure evolutionary progress. According to White, culture was the means by which humans adapted to nature. Greater cultural complexity and specialization were achieved by increased concentration of energy. White proposed a grand, universal law of cultural evolution: culture advances as the amount of energy harnessed per capita per year increases, or as the efficiency with which energy is utilized increases. In this article, White traces the evolution of human culture, like Morgan, using technological advances in the utilization of energy sources.

Inspired by his reading of Karl Marx, White separated culture into three analytical levels—the technological, sociological, and ideological. Like Marx, he believed that all the institutions of society contributed to the evolution of culture, but technology played the primary role in social evolution and that changes in technology affected a society's institutions and value systems. Like many other Americans influenced by Marx, however, White did not use Marxist dialectics in his analysis of society.

George Peter Murdock received his undergraduate and graduate degrees at Yale University and taught there for thirty-two years. He also rejected the Boasian approach to anthropology—he was interested in the statistical testing of cross-cultural hypotheses, in direct opposition to Boas' avoidance of cross-cultural generalizations. Towards this end he established the Cross-Cultural Survey in 1937, which a decade later formed the basis of the HRAF, a huge bank of ethnographic data on over one thousand societies. This information is indexed according to standardized categories. Using this information, one can conduct cross-cultural quantitative analyses and test cultural hypotheses in a wide variety of societies.

In addition to creating the HRAF, Murdock is remembered for his 1949 book *Social Structure*. He believed that a universal set of principles governed the relationship between family structure, kinship, and marriage practices. In *Social Structure* Murdock attempted to determine these principles through quantitative analysis and using the comparative data from 250 societies was able to demonstrate the utility of the HRAF.

Murdock generally saw his work as deriving from the positivist approach of Spencer, but he recognized that Morgan's (1870) study of kinship was instrumental in shaping the quantitative-comparative approach he developed in *Social Structure*. On the opening page of his chapter on kinship, Murdock wrote "The scientific significance of kinship systems was first appreciated by Morgan in what is perhaps the most original and brilliant single achievement in the history of anthropology" (1960:61). Additionally, Morgan is one of the anthropologists to whom *Social Structure* is dedicated. Murdock's 1950 article "Family Stability in Non-European Cultures" illustrates his preoccupation with analyzing comparative data to arrive at universal principles and demonstrates his use of tables from which statistical conclusions about the societies can be derived.

Although White, Steward, and Murdock were evolutionists, they had very different perspectives on cultural evolution. Steward's multilinear evolution is specific and relativistic; he analyzed the adaptation of each culture to its specific environ-

ment. White's evolutionary scheme is general and abandons cultural relativism. In his view, cultures can be measured by specific, absolute standards and can be ranked on a universal scale. In the 1960s, Marshall Sahlins and Elman Service attempted to reconcile these two approaches. Based on yet another analogy with biological evolution, they suggested that evolution follows two paths. The first is general evolution, a grand movement from simple to complex. The second is specific evolution, the change of individual cultures in response to their particular environmental circumstances (Sahlins and Service 1960).

Murdock's cross-cultural comparisons of cultural traits in many ways paralleled Steward's theory of multilineal evolution, and his attempts to statistically demonstrate universal principles of kin relations resembled White's effort to formulate a universal theory of cultural evolution. However, Murdock focused his efforts on the evolution of aspects of social structure such as kin terminology, family structure, and marriage patterns. Steward and White dealt almost exclusively with material culture and largely ignored kinship.

No theoretical viewpoint is immune to the political context in which it develops, and cultural ecology is a particularly good example of this point. The cultural ecologists relied heavily on the insights of Marxist analysis, but given the virulently anticommunist political climate of the United States at the time, they generally did not cite Marx openly. Steward disguised the influence of Marx in his work and was thus able to avoid controversy. White did not cite Marx either, but he was openly socialist and courted controversy.

After visiting the Soviet Union in the 1920s, he returned to the United States committed to social reform. White's style and the provocative stances he took made him many enemies. For example, in 1957, just after the Russians launched the satellite Sputnik, White said, "A cultural system that can launch earth satellites can dispense with gods entirely." The quote was carried in *The New York Times*, and clergy in Michigan, where White taught, responded by calling for his dismissal. To its credit, the university refused. White responded to the situation by asking whether God "need[ed] a protective clergyman to defend Him" (in Carneiro 1981). White's controversial positions probably slowed his professional progress, but in the late 1950s and 1960s he received numerous awards and two honorary degrees, and was elected president of the American Anthropology Association.

Although a materialist like Steward and White, Murdock was not a Marxist and avoided political controversies. However, his research did not escape the critical appraisal of other anthropologists. One of the most telling criticisms of Murdock's work is the same as that which Boas leveled at the nineteenth-century evolutionists in his 1896 article "The Limitations of the Comparative Method in Anthropology." That is, the data upon which his analyses were based were taken out of their appropriate cultural contexts, thus invalidating the reliability of the analysis. Murdock's popularity was largely limited to American anthropologists. Many British social anthropologists considered Murdock's work to be nothing more than mere classifying of data.

18. The Patrilineal Band^a

Julian Steward (1902–1972)

LOOSE AGGREGATES OF COMPARATIVELY INDEPENDENT families such as those of the Shoshoni occur only rarely because in most parts of the world subsistence patterns required sufficient regularity of co-operation and leadership to give definite form and stability to multifamily social groups.

(1955)

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There are many kinds of such multifamily groups of which the patrilineal band is but one.

The patrilineal band illustrates several concepts. First, it is a cultural type whose essential features—partrilineality, patrilocality, exogamy, land ownership, and lineage composition—constituted a cultural core which recurred cross-culturally with great regularity, whereas many details of technology, religion, and other aspects of culture represent independent variables, the nature of which was determined by diffusion or by unique local circumstances. Second, its cultural core resulted from ecological adaptations which, under the recurrent conditions of environment and subsistence technology, could vary only within minor limits. Third, it represents a level of socio-cultural integration slightly higher than that of the Shoshoni family; for its multifamily aggregates found cohesion not only in kinship relations but in co-operative hunting, in common landownership, and to some extent in joint ceremonies.¹

I shall analyze the cultures of these bands as they occurred among the Bushmen of South Africa, some of the Congo Negritos of Central Africa, some Philippine Negritos, the Australians, the Tasmanians, some southern California Shoshonean-speaking groups, and the Ona of Tierra del Fuego. Other tribes besides those covered in the present survey no doubt had the same pattern.

The essential features of these bands are most readily explained as the independent product of similar patterns of adaptation of technology and

certain social forms to the environment. There are only two other possible explanations of the patrilineal band. First, that the pattern was borrowed from neighboring tribes. This explanation is untenable since their neighbors did not have the pattern. Second, that the pattern is the heritage of some archaic culture which developed at an early period of human history and has been preserved ever since. Perhaps some social patterns do have great persistence, but they must meet some need. It would be stretching credulity much too far to suppose that a pattern which is closely adapted to a special kind of subsistence had persisted for thousands of years among tribes who had wandered through dozens of unlike environments to the remotest corners of the earth, especially when other hunting and gathering tribes had lost these patterns and acquired types of society appropriate to their mode of life. Moreover, like most cultural historical theories, neither the hypothesis of diffusion nor of archaic heritage provides an explanation of how and why the patrilineal band developed in the first place. The cultural ecological hypothesis on the other hand is not only explanatory but it is by far the simplest and most consistent with the facts.²

The cultural ecological explanation of the patrilineal band hinges on an identity of exploitative patterns rather than of technology or environment. Technology and environment were similar in crucial respects, but they were not identical in their totality. Cultures do not exploit their entire environments, and it is, therefore, necessary to

¹ Steward's preoccupation with the causes of culture is immediately evident in this first passage. Unlike the historical particularists, Steward was interested in discovering general laws of culture.

Steward divided culture into core and secondary features. He probably got the division from his professor A. L. Kroeber, who divided culture into value and utility components—Steward's *culture core* was similar to Kroeber's *utility culture*. It consisted of those cultural traits that Steward felt were closest to subsistence activities and economic arrangements. A key difference between the two men is that Kroeber thought the value culture more interesting and important than the utility culture, whereas Steward focused his studies on the utility features. Collections of elements of the culture core that regularly occur cross-culturally, such as the patrilineal band described here, he termed *culture types*.

² In this passage, Steward differentiates his own cultural ecological approach from that of the historical particularists, which he claims has little explanatory power. He further distinguished himself from the nineteenth-century evolutionists such as Lewis Henry Morgan and E. B. Tylor, who saw the existence of such bands as survivals of some preexisting social form, precisely the second possibility that Steward mentions and discounts here. Unlike other Boasians, Steward's research emphasized cross-cultural comparison, but his rejection of the idea of psychic unity separates his work from the comparative method of the nineteenth-century evolutionists.

consider only those features which bear upon the productive patterns.³ The environments of the patrilineal bands were similar in that, first, they had limited and scattered food resources, which not only restricted population to a low density but which prevented it from assembling in large, permanent aggregates. Second, the principal food resource was game, which unlike wild seeds, may be profitably taken collectively. Third, the game occurred in small, nonmigratory bands rather than in large, migratory herds. This kind of game can support only small aggregates of people, who remain within a restricted territory. Large herds, on the other hand, support much larger aggregates who can remain together as they follow the herds. These latter aggregates were bilateral or composite bands.

Dispersed and small game herds are, therefore, a condition of patrilineal bands, but this does not mean identity of environment, for deserts, jungles, and mountains tend to limit the number of game and the distance it could wander.⁴ Of the tribes examined here, the Bushmen, Australians, and southern California Shoshoneans lived in areas which had sparse game because of extreme aridity. Moreover, all were affected by the limited sources of water. In Tierra del Fuego, the habitat is one of wet plains but guanaco⁵ and small rodents, the principal foods, were scattered and nonmigratory. The Congo

Negritos⁶ and the Philippine Negritos lived in the tropical rain forests, the former in lowlands and the latter in mountains.

Exploitative technology of these societies varied considerably in detail, but in all cases it included weapons of about equal efficiency and hunting patterns which entailed as much cooperation as circumstances permitted. The Bushmen used bows, poisoned arrows, clubs, pitfalls, poisoned springs, grass fires, dogs, and surrounds. The Congo Negritos employed bows, poisoned and nonpoisoned arrows, spears, knives, and long game nets. The Shoshoneans had bows, thrown clubs, traps, nets, surrounds, and drives. The Ona used bows, spears, clubs, slings, and spring pole nooses. Australian technology may have been less efficient in that it lacked the bow, but it included clubs, spears, and the spear-thrower. The sociological effect of hunting scattered game individually or collectively was the same everywhere.

The interaction between a bow-spear-club technology and a small, nonmigratory herd food resource tended to produce the patrilineal band. This type of band was the normal result of the adaptive processes of cultural ecology, and though various factors constantly operated to destroy the ideal pattern, as will be shown, interaction of technology and environment was such as to restore it. Only a basic change in environment or technology could have eliminated the patrilineal

³ Steward's cultural ecology is often misunderstood as a sort of ecological determinism, but his emphasis was on the process of human labor within the environment. Steward was concerned with the technological process by which people exploited their environment, and his analysis focused on how different subsistence strategies necessitated different social structures. This emphasis derives from Steward's reading of Karl Marx.

⁴ Here and below, Steward focuses on the interplay between environment and technology. The idea that environment determined culture – a position known as geographical determinism – was not new. One prominent advocate was the British historian Henry Thomas Buckle (1821–1862), who believed history to be governed by laws of nature. The development of nations could be explained by the general effect of nature upon the human mind as well as the specific effects of climate, food, soil, and so on. American anthropologist Clark Wissler (1870–1947), a student of Boas, was also interested in environment and culture. His research convinced him that there was a relationship between the two. In a series of works including *The Relation of Nature to Man in Aboriginal America* (1926), Wissler attempted to map American cultural areas based on the principal modes of food production. Steward was not a geographical determinist such as Buckle, and his formulation was more sophisticated than that of Wissler. He believed that certain types of society are extremely likely to occur under particular conditions of technology and environment.

⁵ *Guanaco*: a South American ruminant, of which the llama and alpaca are domesticated varieties.

⁶ *Negrito*: in Steward's day, the parlance of racial classification included the term *Negrito*, used for short, dark-skinned peoples. These included people in Africa, India, the Philippines, and the Malay Peninsula. The term is rarely used today.

band. The inevitability of such bands under the given conditions is shown by its persistence along with clans, moieties, and other special patterns in the different groups, and, in the case of the Congo, an interdependence of the hunting Negritos and farming Bantu tribes who inhabited the same area.

With a given population density, the size of the territory and of the band which owns it are direct variables. If the group is enlarged the territory must also be increased in order to support it. Among the ethnic groups in question, however, the population is sparse, ranging from a maximum which seldom exceeds one person per 5 square miles to one person per 50 or more square miles. This prevents indefinite enlargement of the band because there would be no means of transporting the food to the people or the people to the food. The area which the band can conveniently forage averages some 100 square miles and seldom exceeds 500 square miles, a tract roughly 20 miles to a side. Consequently, the band averages 50 individuals and seldom exceeds 100.^b Only in regions of unusual resources—for example, where there are herds of migratory game—does the group size surpass these figures.

We now have to consider why these bands are patrilineal. First, it is characteristic of hunters in regions of sparse population for postmarital residence to be patrilocal. This has several causes. If human beings could be conceived stripped of culture, it is not unreasonable to suppose that innate male dominance would give men a com-

manding position.^c If, in addition to native dominance, however, the position of the male is strengthened by his greater economic importance, as in a hunting culture,^d or even if women are given greater economic importance than men, it is extremely probable that postmarital residence will be patrilocal.⁷

But in these small bands patrilocal residence will produce the fact or fiction that all members of the band are patrilineally related^e and hence matrimonially taboo. Band exogamy—that is local exogamy—is therefore required. Probably at one time or another such bands have actually consisted of relatives with traceable connection. Genealogical data on the tribes of southern California, for example, show that more often than not the band comprises a true patrilineal lineage. Because life is so precarious that increase of the total population is impossible and budding collateral lineages often become extinct, the possibility is small that several independent families which have no traceable connection will develop in any band. Such families will occur only if the band is extraordinarily large. And even in this case, the fiction of relationship may be perpetuated after the connection is forgotten if group unity is reinforced by patronymy, myths, and other factors.^{f8}

For these reasons, the bands of hunters who live in sparsely populated areas must ordinarily be patrilineal. But special factors may make them temporarily composite. Thus, if unrelated and hence intermarriageable families exist within a band, local exogamy and patrilocal residence with

⁷ Rather than arguing that material conditions (hunting) give rise to social forms (patrilineality), Steward here relies on the supposition of biological differences between males and females to explain the origins of patrilineality. It is an uncharacteristically weak explanation, especially given the last line of this paragraph, when he asserts the adoption of patrilocal residence regardless of whether males or females are relatively more influential in a society.

⁸ Notice that Steward's explanation is generally a materialist. Cultural fictions (the name of the patrilineage for example) are necessitated by ecological conditions.

This materialist basis was influenced by Karl Marx (see essay 4). The intellectual climate of his day prevented Steward from referencing Marx, but he had read Marx's work. Despite this, Steward cannot be considered a Marxist, nor was he as heavily influenced by Marx as was Leslie White, the other major American materialist of this era (see essay 19). Unlike Steward, White's work was concerned with establishing an overall evolutionary scheme for society and with the roles of conflict and class within society: these are typically Marxist issues. Steward's work lacks the characteristically Marxist emphasis on conflict as a motor of evolution. He was far more interested in showing the specific interrelations among technology, environment, and society. Further, as Harris (1968) notes, while Steward's division of culture into core and secondary features sounds superficially like Marx's division of society into base and superstructure, it is quite different. Marx saw superstructure as arising from base; Steward generally saw secondary features as virtually unrelated to the core

respect to the band are unnecessary. This will occur when parallel-cousin marriage is permitted or where bands have, for various reasons, become unusually large and lack any factor that would create or perpetuate a fiction of relationship between its members. Occasionally, matrilineal residence will introduce families which are not related patrilineally into a band. This will prevent strictly patrilineal inheritance of band territory and tend to weaken the fiction of relationship between band members. For these reasons, patrilineal bands at certain times or places deviate from the ideal pattern and consist of unrelated families. In this respect, they resemble composite bands, but whereas the latter normally must remain composite, patrilineal bands tend to return to their typical pattern. The factors which produce composite bands will be analyzed subsequently.

Political unity in all bands is very similar. Centralized control exists only for hunting, for rituals, and for the few other affairs that are communal. Consequently, the leader has temporary and slight authority. In patrilineal bands, he is usually the head of the lineage, which, being a status based on kinship, is usually not formally institutionalized. The shaman, however, controls many collective activities, and he is feared and respected for his supernatural power, which often gives him more influence than the other leaders. Bands which are ordinarily autonomous may temporarily unite for special occasions such as Australian and Fuegian initiation ceremonies. Although the reason for this larger unity is religious and social, food supply strictly limits the duration of multiband gatherings.

The occurrence of clans among Australians, Ojibway, and others, of moieties in Australia and in southern California, and of other social forms in no way affects the cause-and-effect relationships involved in the formation of the patrilineal band.⁹ Such institutions are variables with respect

to the pattern we have analyzed. Their presence or absence is to be explained by diffusion or by some special local factors and not by adaptations of technology to environment.¹⁰

TRIBES WITH THE PATRILINEAL BAND

In the following pages some patrilineal bands will be discussed in detail, showing reasons in each case for departures from the ideal pattern.¹¹

The Bushmen⁸

A hunting and gathering culture imposed upon an arid and unproductive native environment produced a sparse population among the Bushmen. Population aggregates were necessarily small^h and the group that co-operated in various undertakings was a politically autonomous patrilineal lineage. Although the band or lineage split seasonally into smaller units, probably family groups, it owned and communally utilized a definite territory. Some hunting required joint effort of all band members, and game was often shared by all.

The bands of the Northwestern Bushmen, including the Heikum, were ordinarily patrilineal owing to patrilocal residence and local or band exogamy. The Naron bands, however, were sometimes composite because matrilineal residence, which was practiced occasionally in order that the wife's mother might help the wife with her children, introduced families which were not related patrilineally into the same band. This weakened patrilineal inheritance of the estate and tended to obviate the necessity of band exogamy, which, however, was preferred (Schapera, 1930:81-85). The Cape, Namib, and !Okung bands also tended to be composite because, although band exogamy was preferred, matrilineal residence, for a reason

⁹ When the members of a tribe are divided into two groups, these divisions are called *moieties*.

¹⁰ Critics of Steward's work point out that he explained away those things that did not fit the patterns he outlined by suggesting, as he does here, that they were secondary features resulting from diffusion or the specific history of the group under study.

¹¹ In this section of the essay, Steward cites evidence from a wide variety of societies to support his contention that certain environmental and technological constraints inevitably lead to the formation of the patrilineal band.

which has not been revealed, was sometimes practiced. Band endogamy, moreover, was facilitated by cousin marriage, parallel or cross, which was barred among the Northwestern groups (Schaepers, 1930:82-83; 102-07).¹²

Schebesta (1931) reports what appears to be an identical pattern. The Bambuti, Efe, Bac'wa, and Batwa of the Belgian Congo had exogamous, patrilocal, and generally autonomous sibs ("sippe") or families of male relatives numbering sixty to sixty-five persons each. Apparently, the "totemic clans" of these people were the same as lineages, that is, they were localized clans or sibs.

Central African Negritos

Several scattered groups of Negritos or pygmies living in the dense tropical rain forests of the Congo in equatorial Africa also belonged to the patrilineal band type. The bands were predominantly hunters, and the exploitative patterns produced the features typical of the patrilineal band despite the fact that the pygmies lived in a close dependency relationship with the Bantu Negroes.¹³

In the Ituri Forest (Putnam, 1948:322-42), a Negro village and a pygmy band jointly owned about 100 square miles of country. The Negroes were largely farmers, and the pygmies were entirely hunters, the latter supplying the former with meat in exchange for vegetable foods. The dependence of the pygmy upon the Negro might account for the cohesion of the pygmy band and for the pattern of land-tenure, but it would not account for the patrilineality and exogamy, which must be explained by the low population density, the small band size, and the predominance of hunting.

The bands ranged in size from 100 to 200 persons, 150 being the average. All families were

normally related through the male line, and the band, therefore, constituted a locally exogamous and patrilocal group. The cohesion of the lineage or band was reinforced by the belief that a totemic animal was the ancestor of the band and by myths. The band contained unrelated families only when exceptional circumstances introduced a man from some other band, for example, when a man could not get along in his own band or when he had trouble with his Negro group. The patrilineal features resulted from the hunting pattern. The men spent all their time hunting for game which was normally scattered. They used nets in collective drives or else bows, spears, and knives in individual stalking. The game was varied and included turtles, rats, antelope, buffalo, and elephants. Hunting was restricted to the band's territory, the size of which must be interpreted as the optimum which can be exploited. Had the territory been substantially larger, the band would have surpassed a kin group in size and therefore ceased to be exogamous and patrilocal. However, the sparse population, the limitations upon the area which could be hunted, and the patrilocality after marriage produced localized lineages.

These bands sometimes tended to be composite for two reasons. First, it was customary at marriage for the husband's band to furnish a woman who married a member of his wife's band. When no woman was available, the man lived with his wife's people. Second, band endogamy, that, marriage between related members of the band, though felt to be a breach of incest laws, was often practiced when other bands were remote and inaccessible (Schmidt, 1910:173).

The Negritos of Gabon in French Equatorial Africa were grouped in some 100 or 150 villages, each of which usually comprised one family

¹² Harris (1968:667) claims that Steward's listing of factors responsible for patrilineal, complex, or matrilineal band formation are "fortuitous and quixotic." Note the reliance in this passage and later in this essay on "a reason which has not been revealed" and other such devices.

¹³ The fact that hunting bands of pygmies lived in close proximity to agricultural Bantus was critical for Steward. Traditional evolutionary schemes had placed agriculture far above hunting and gathering. If diffusion alone could account for cultural traits and agriculture was superior to hunting and gathering, why had the pygmies not adopted it? Steward felt he could solve this problem using a cultural ecological approach.

"rangée sous l'autorité d'un seul chef, le père du clan, généralement de 30 a 35 individus males."¹⁴ These seemed to be independent, patrilocal, and exogamous, and therefore true patrilineal bands. But they belonged to some kind of larger patrilineal totemic clans, which were preferably, but not always, exogamous (Trilles, 1932:20-23, 143-51, 409-18).¹⁵

Semang

The more or less inadequate information now available indicates that many of the Negritos of the Malay peninsula possessed the patrilineal band. Largely hunters and gatherers and more or less isolated in the sparsely settled mountain forests, the Semang groups were small, ranging, according to fragments of evidence recorded by Schebesta (1929), from individual families which were probably temporary subdivisions to groups of 50 or more persons. These seem to have been politically autonomous, landowning bands. Skeat and Blagden (1900:495-97) say that the Kedah Semang band often amounted to an enlarged family and, somewhat obscurely, that the chief was practically "the head of a family, which in this case is represented by a larger family, the tribe." It may be, however, that band territory was sometimes further subdivided among bilateral families so that each owned an area for its durian trees. Schebesta says (1929:83, 234, 279) that "the individual groups wander within the tribal boundaries but always return to their family territory, especially at the time of the durian crop" and that the trees are owned by men as family heads. These family tracts were, perhaps, comparable to the Algonkian and Althabaskan beaver-trapping territories.

That these bands were truly patrilineal is indicated by Schebesta's statement (1929) that the unit of society was the "sib" like that of the Congo Negritos, but he does not particularize its characteristics. Elsewhere he observes that there was considerable band exogamy and patrilocal residence, although he recorded one band that was composite. One reason for the occurrence of the latter among the Kenta Semang was that durian trees were sometimes inherited matrilineally. This would, of course, favor matrilineal residence and tend to set up a composite band.

Philippine Negritos

The predominantly hunting and gathering Philippine Negritos lived in comparative isolation from the Malaysians. They were clustered in bands which Vanoverbergh (1925:430-33), says comprise "a certain group of families." These remained in the same portion of the forest and seasonally exploited different parts of an area which had a radius of not over twenty miles. Trespass on the land of neighboring bands was not forbidden but was avoided. The land was hunted communally by its owners, but cultivated trees and honey nests were privately owned. It is not recorded, however, how trees were inherited. Bands seem to have been politically autonomous, but the lack of an institutionalized band chief is implied by the somewhat vague statement that authority rested in the father of the family.

There is some indication that Philippine Negrito bands have recently changed from patrilineal to composite.¹⁶ Schmidt (1910:72-73), quoting Blumentritt on the Zambales-Bataam, says that the bands are now endogamous but at the end of the eighteenth century were exogamous.

¹⁴ "rangée . . . males": The French comment means placed under the authority of a single leader, usually the eldest of the clan, and consisting of 30-35 men.

¹⁵ In assembling his cases, Steward relied not only on ethnography that was current in his day, but on historical accounts. It was important for him to do so since his intellectual achievement was to explain the presence of the band in very different and widely distributed locales. Use of historical accounts was problematic, however, since it led him to use sources that were not very reliable and to discuss groups, such as the Tasmanians, which had disappeared by his era. Further, much of the information he presents here, for example his description of the Central African Negritos, has since been shown to be invalid, or, at best, only partially correct. Does this invalidate his argument?

¹⁶ Tracing out the ways in which culture changed was to become one of Steward's key concerns. He is known as the creator of multilineal evolutionism, which he contrasted with nineteenth-century unilineal evolution and his contemporary

Present-day endogamy is further shown by the presence of unrelated families in the same band.ⁱ Nevertheless, patrilocal residence is recorded, although it is not clear whether residence is patrilineal with respect to the band or the family.

There is, therefore, some doubt as to the frequency of the two types of bands and the customs concerning residence and other matters which would produce them. It appears, however, that some factor has tended to produce a change from patrilineal to composite bands during the past century. At least one important cause of composite bands today is the practice of marrying cousins. Although marriage was preferably between cross-cousins, parallel-cousins were eligible for matrimony (Vanoverberg, 1925:425-28).¹⁷

Australians^j

The relatively low productivity of Australia permitted but a sparse population which averaged only 1 person per 12 square miles for the entire continent.^k The population was grouped into relatively small, autonomous bands which Radcliffe-Brown calls hordes. Each band comprised 20 to 50 individuals and owned 100 to 150 square miles of land. The male members of the band inherited and communally hunted their tract, which was definitely bounded and protected from trespass.^l

These bands were truly patrilineal, and they approximated male lineages. They were almost universally exogamous and patrilocal. The idea of relationship between band members was further reinforced by kinship terminology. Even those ethnic groups which had moieties, sections (formerly called "marriage classes"), and matrilineal clans and totems had not, except in a portion of western Australia, lost the patrilineal band (Radcliffe-Brown, 1931:438).

Tasmanians

Information on the Tasmanians, though incomplete, indicates the aboriginal presence of the patrilineal band. The scant population^m was divided into autonomous bands of 30 to 40 persons each. Each band owned a tract of land on which it wandered seasonally in search of food. It protected its hunting rights against trespass, which was a common cause of war (Roth, 1899:58-59, 104-07).

The Tasmanian band must have been patrilineal, for evidence assembled by Roth indicates, although it does not prove beyond question, that the band was exogamous and marriage patrilocal.

The Ona of Tierra del Fuego

The Ona of Tierra del Fuego fall strictly into the patrilineal band pattern. The low subsistence level, based largely upon guanaco hunting, produced a population of only one individual to 4.5 or 5 square miles. This was grouped in politically independent bands of 40 to 120 persons, each owning an average of 410 square miles. Gusinde (1931) believes that the manner of life would not have supported larger aggregates. Each territory was named, band rights to it were sanctioned by myths, and hunting privileges were protected against trespass. Although each band was politically autonomous, there was no institution of chief.

The band was patrilineal because it was exogamous and patrilocal. Local exogamy was required even among the large bands in which relationship between members was not traceable, for native theory held that each band was a male lineage.

Tehuelche of Patagonia

The Tehuelche of Patagonia, although very incompletely known, are instructive when compared

Leslie White's universal evolution. He argued that unlike White and his nineteenth-century predecessors, he was not interested in formulating a general, universal plan of evolution but rather with showing how particular cultures changed and developed (1955:11-19).

¹⁷ Steward's is an uneasy evolutionism. It is perhaps best seen as a compromise between his historical-particularist training and his goal of creating an anthropology based in the discovery of causal principles. He placed societies in an essentially unilineal evolutionary scheme from family to multifamily to state civilization. He then focused on the multiple pathways that societies may take between evolutionary stages.

with the Ona. Also dependent largely upon herds of guanaco, their economic life appears formerly to have resembled that of the Fuegians. There is evidence that they were divided into bands, each having some degree of localizationⁿ and led in its travels, etc., by a patrilineal chief (Outes and Bruch, 1910:126; Beerbohn, 1881:93) who was called "father" (Musters, 1873:194). The band chief, however, acknowledged a general cacique, who, according to Musters, had very little authority. The institution of general or tribal cacique¹⁸ may easily have developed subsequent to the arrival of the European.

The introduction of the horse about a century and a half ago completely altered ecological conditions in Patagonia. It enabled people to move widely in pursuit of guanaco herds and to transport foods considerable distances. This would, of course, have tended to eliminate band ownership of small parcels of territory, even had it existed. It also permitted enlargement of population aggregates far beyond the size of the usual lineage. Further motivation for amalgamation of formerly separate bands was provided by internecine strife, which was stimulated by competition for foods and war against the white man. The political unit consequently increased in size and had a single, although not absolute, chief. Thus, in 1871, bands numbered as many as 400 or 500 persons, although they occasionally split into smaller groups (Musters, 1873:64, 70, 96-97, 117, 188).

As there is no mention of exogamy of any form, it must be assumed that these bands were composite. This is common elsewhere in bands of such size.¹⁹

Southern Californians

The Shoshonean-speaking Serrano, Cahuilla, and Luiseño, and some of the Yuman-speaking Diegueño of southern California were divided into patrilineal bands.²⁰ This region is exceptional in that abundance of acorns and other wild seeds permitted the unusually dense native population of one person per square mile. But this great density was accompanied by small territory size rather than large band size, probably because the very few and small sources of water prevented greater concentration of people. Therefore, bands averaged only fifty individuals and the territory only fifty square miles.

The other factors producing the patrilineal bands were those which operated elsewhere. Because of patrilocal residence coupled with the small size of the bands, most of them were actual patrilineal lineages so local exogamy was required. In addition, a band chief, "priest," ceremonies, ceremonial house and bundle, and myths contributed to group cohesion (Strong, 1927, 1929; Gifford, 1918, 1926, 1931; Kroeber, 1925, 1934). This strongly fortified patrilineal pattern may also have served to maintain the band at lineage size.

¹⁸ *Cacique* refers to a leader in Mesoamerican Indian communities.

¹⁹ Here Steward gives an example of the effect of technological change on social structure: the introduction of the horse led to an increase in band size. Examples linking technology and social structure were essential because they were the sort of things that would leave traces in the archaeological record, which meant that archaeological data could be used to bolster Steward's theoretical position. This connection between theory in cultural anthropology and archaeology was one of the factors leading to the emergence of the new archaeology in the 1960s. Steward had, in fact, begun his career as an archaeologist working in the Columbia River valley.

²⁰ Steward's most protracted fieldwork was among the Shoshoni in Utah, and here, as he describes Southern California peoples, he is closest to his own fieldwork interests. His fieldwork experiences were important for two reasons. First, working among the traditional Shoshoni, he was struck by the small group size and the extremely demanding environment they inhabited. In the deserts of the Great Basin, the powerful influences of environment and technology might have been more evident than they were in many other places. Second, Steward was known for his fieldwork technique. He was highly critical of ethnographic studies that used material collected from people no longer engaged in aboriginal lifestyles. He encouraged an ethnography based on recording actual behavior rather than one based on what people said about past behavior. It is ironic that in developing multilineal evolution, he, of necessity, had to rely on secondhand data collected under conditions that were not well known, precisely the type of information he distrusted.

The culturally similar neighboring Cupeño provide an illuminating contrast to these groups. Because the local abundance of food and water permitted greater concentration, they were able to live in two permanent towns, each numbering some 250 persons. Each village contained several lineages and had a chief. Bands were, therefore, of the composite type (Gifford, 1926:394-96; Strong, 1929:188-90, 233).

CAUSAL FORMULATION FOR PATRILINEAL BANDS

In any society there are certain cultural factors which potentially give cohesion to aggregates of several families: marriage, extension of kinship ties and corollary extensions of incest taboos, group ceremonies, myths, games, and other features. These features may be derived from cultural heritage of the group or they may be borrowed from neighboring tribes. In each group they are integrated in a total sociocultural system, but the nature of this system is not explained merely by tracing the diversified history of the features or by describing the functional interdependency of the parts. These features must be adjusted to the subsistence patterns that are established through the exploitation of a particular habitat by means of a particular technology; and the subsistence patterns are only partly explainable in terms of culture history. The use of bows and arrows, traps, hunting nets, game drives, or grass firing can generally be traced to diffusion,

but the hunting patterns and the social effect of these patterns are quite unlike in areas of sparse and scattered game and in areas of large herds of migratory game. Among societies which devote a very great portion of their time and energy to food-getting, these differences in hunting patterns will greatly affect the size, permanency, composition, and general behavior patterns of the group. The extent and degree to which subsistence patterns affect the total structure of the society and the functional integration of its various parts are questions to be answered by empirical procedure.²¹

The patrilineal band represents a social type the principal features of which are determined within exceedingly narrow limits by the cultural ecology—by the interaction of technology and environment. Other features, such as clans, moieties, age-grades, men's tribal societies, group ceremonialism, totemism, and mythology may or may not also be present. If they do form part of the cultural inventory of the band, they are integrated to the patrilineal pattern. A causal formulation of the factors producing the patrilineal band may therefore omit these various historically-derived features, for the latter are of interest only when attention is shifted to the uniqueness of each culture and they do not help explain the patrilineal features which are the subject of inquiry.

The factors which produce the patrilineal band are:²²

1. A population density of one person or less—usually much less—per square

²¹ This passage contains a critique of historical particularism and functionalism and outlines Steward's theoretical position. Staking out this position brought him into direct conflict with many other Boasians. For example, in this passage, Steward discards unique historically derived features as having no explanatory value. However, it was precisely these unique features that Kroeber and many other historical particularists were interested in documenting. They believed these showed the creative genius of humankind. Unsurprisingly, the relationship between Kroeber and Steward was not close. Kroeber considered Steward a promising but not particularly interesting student. Steward respected Kroeber but was fundamentally at odds with most of what he stood for (Wolf 1981:63).

²² While Steward rejected much of what his professors believed, his work was not unprecedented in American anthropology. Earlier, members of the culture area school attempted to map North and South America into a series of areas of similar cultures, which, they noted, tended to overlap with ecological zones. Otis Mason (1838-1908) formulated one such version in the 1890s, but Boas and his students Kroeber and Wissler created a more definitive mapping in the teens and early twenties (see Mason 1895, Holmes 1914, Wissler 1917). The culture area theorists tended to see environment as a passive factor placing broad restrictive limits on cultural possibilities. Steward saw the combination of technology and environment as the primary causal role in determining social systems.

mile, which is caused by a hunting and gathering technology in areas of scarce wild foods;

2. An environment in which the principal food is game that is nonmigratory and scattered, which makes it advantageous for men to remain in the general territory of their birth;
3. Transportation restricted to human carriers;
4. The cultural-psychological fact, which cannot be explained by local adaptation, that groups of kin who associate together intimately tend to extend incest taboos from the biological family to the extended family thus requiring group exogamy.

These four factors interact as follows: The scattered distribution of the game, the poor transportation, and the general scarcity of the population make it impossible for groups that average over 50 or 60 persons and that have a maximum of about 100 to 150 persons to associate with one another frequently enough and to carry out sufficient joint activities to maintain social cohesion. The band consists of persons who habitually exploit a certain territory over which its members can conveniently range. Customary use leads to the concept of ownership. Were individual families to wander at will, hunting the game in neighboring areas, competition would lead to conflict. Conflict would call for alliance with other families, allies being found in related families. As the men tend to remain more or less in the territory in which they have been reared and with which they are familiar, patrilineally related families would tend to band together to protect their game resources. The territory would therefore become divided among these patrilineal bands.

It is worth noting that the nature of Great Basin Shoshonean land-use precluded the banding together of patrilineal families and landownership. For two reasons, the pine nut, which was the principal food, had a very different sociological effect than game hunting. First, good crops were so abundant that there was never competition for it. Second, abundant crops occurred each year in very different localities and they brought different groups together each time.²³

Among the patrilineal bands, the component biological families associated together sufficiently often to permit an extension of incest taboos to all members. Prohibition of marriage within the immediate biological family is universal among mankind. There are generally extensions of marriage restrictions to collateral relatives of the second or third degree, though cross-cousins may marry in certain cultures. The patrilineal bands were so small that they usually consisted of known relatives who commonly fall within the prohibited degrees of relationship, and cross-cousins—the father's sister's daughter or the mother's brother's daughter—would normally be in another band. Band exogamy is therefore required.

The several features of the patrilineal band reinforce one another. Patrilocal residence after marriage because the male wishes to remain in country he knows causes an area to be habitually occupied, utilized, and defended by patrilineally-related families. Local exogamy prevents the introduction into the band of unrelated families, so that the band becomes in fact, a patrilineal lineage.²⁴

The requirement that the band be exogamous may persist after traceable kinship relations in the group are forgotten if the patrilineal complex is reinforced by other features, such as names, kinship terminology, myths, ceremonies, totems, and the like. Thus, the bands of Australia, southern California, and Tierra del Fuego conform more

²³ Steward was also influenced by his work with Carl Sauer (1889–1975), a geographer interested in anthropology and archaeology who stressed an approach to geography based on the interaction of humans and environment. Sauer was at Berkeley during Steward's time there, and he had an important impact on Kroeber and his students. Sauer, incidentally, is also infamous for his belief that Irish monks visited North America before the Vikings.

²⁴ Steward's approach is oriented toward technology and environment, but he frequently refers to psychology as an important factor (as here, where he discusses the male's wishes). Steward's work is contemporaneous with the culture and personality school (see essays 16 and 17), which relied heavily on psychological explanations.

rigidly to the pattern because they possess such supports. Among the Bushmen and Negritos patrilineal bands may often temporarily become composite bands when special conditions exist.

A theory of the patrilineal band which sought its origin in purely cultural-historical terms would be confronted by insuperable difficulties.²⁵ Such a theory would have to assume either that the band inherited the basic patrilineal pattern from some archaic world-wide culture or that it borrowed it from some neighboring tribes. As we have seen, primitive nonagricultural peoples in areas of seed resources, of fish, or of large game herds do not have the patrilineal band because these areas are not conducive to the exploitation of a certain restricted territory by small groups of men in the manner found among the patrilineal band peoples. It is inconceivable that this pattern could have survived the migrations of mankind over dozens of unlike environments during thousands of years. The theory of borrowing from neighbors will not stand up because the neighbors of these tribes simply do not have patrilineal bands.

A holistic or functional explanation minimizes the importance of cultural ecology by insisting that all features of the culture are equally cause and effect.²⁶ This simply evades the issue of causality. As we have seen, the clans, moieties, men's tribal societies, and other special features occur with only some of the patrilineal patterns and they also occur among quite different kinds of societies. There is a functional interrelationship between hunting in a restricted area, the male's continued residence in that area, patrilocality, and local exogamy. Exogamy within a localized patrilineal group causes the men to hunt scattered game in certain ways. The groups hunt what is available with devices at their command;

men best remain in the territory where they were raised; their wives come to their territory after marriage; and the bands are so small that people are related and, given concepts of incest, local exogamy is practiced. It is not claimed that the cultural ecological factors explain everything about the patrilineal band. They explain why these bands differ from other bands which have a similar technology and similar potentialities for extending incest taboos outward from the biological family.

A common explanation of the patrilineal band is that it is merely a localized clan, and diffusionists seek to trace its source to clans elsewhere. Societies which have clans may influence patrilineal bands in two ways; first, borrowed clans may crosscut the bands but fail to change their basic patterns; second, clan myths, ceremonies, and other features may be borrowed by the band and reinforce its local unity. But diffused unilateral structure and exogamy cannot explain the adjustment of male lineages to exploitative activities. In fact, the concept of the patrilineal band has greater value in explaining the clan than vice versa. If, for reasons stated here, a localized patrilineal group develops, it is in effect a localized clan. Whether it should properly be called a clan, however, would depend upon whether it is exogamous regardless of locality. Those groups which have reinforcing features, such as the southern California Shoshoneans, the Australians, and others, would be clans if exogamy continued after they were dislocated from their territories and the different bands mixed up. Evidently this has happened often in human history and clans have developed in many places. We shall subsequently show how the data of archaeology and ethnography support such an interpretation of the origin of clans among the Pueblo Indians of the Southwest.²⁷

²⁵ In this passage and later, Steward attacks the other prominent theoretical positions of his time. This paragraph dismisses historical particularism; later he takes on functionalism and diffusionism.

²⁶ When Steward presented the first version of this paper in 1936, British functionalism was growing increasingly important in this country. A. R. Radcliffe-Brown, then at the University of Chicago, was a loud and eloquent critic of the Boasians. This passage is aimed directly at his thinking. Radcliffe-Brown identified an ecological-adaptive aspect of social structure but assigned it no particular importance. Steward argues that because of this, Radcliffe-Brown's system describes but does not explain culture.

²⁷ Kroeber had done important work in tracing the diffusion of cultural traits throughout the Southwest. Additionally, radical diffusionist theories were popular in Britain and Germany when Steward wrote. Steward's point is that while diffusion

CULTURAL VARIABLES AND THE PATRILINEAL BAND

The features of the patrilineal band which must be explained by ecological factors are patrilineality, patrilocality, exogamy, landownership, and informal and limited leadership.²⁸ Many other features however, were fairly variable in form despite this basic pattern. A substantial range of possible alternatives made diffusion a more direct explanation of their presence.

Some of the technological traits secondary to the main hunting patterns were extremely variable. Containers used in transporting, preparing, and storing food, for example, could not be elaborate, heavy, or numerous because of the nomadic life, but the materials of which they were made, their specific forms, and their decorations were quite variable. The Congo Negritos, Semang, Shoshoneans, and Ona used basketry of various weaves, shapes, and ornamentation; the Bushmen and Congo Negritos employed some pottery; the other areas utilized skins, shells, bark, or other convenient materials. Fire was made with the wooden drill by the Bushmen and Shoshoneans, with the fire saw by the Semang, and with pyrite and stone by the Ona. The Congo Negritos had no means of making fire and were forced to borrow it if their own went out. Shelters were limited by the requirement that they be quickly and easily put together of materials available. These bands used natural shelters, such as caves, when possible. Otherwise, they built mere windbreaks, brush- or skin-covered conical lodges, or dome-shaped brush houses. Similar huts are found scattered throughout the world among primitive peoples, and it would be rather profitless to speculate as to whether they diffused or not, for they are so elementary that it would require no great ingenuity to invent them. Clothing was scant and made with simple skills, but styles

varied locally: string skirts or aprons, wrap-around skin skirts, breechclouts, robes, and the like, or perhaps nothing but a few smudges of paint.

Musical instruments and games were generally simple, for extensive paraphernalia was out of the question. The former were generally learned from neighboring tribes. For example, the Semang used flutes, jew's-harps, guitars, and drums borrowed from their Malay neighbors; and the Bushmen had musical bows, flutes, cocoon rattles, and drums, all probably acquired from the Bantu; while the southern California Shoshoneans used only flutes and rattles; the Australians swung bull-roarers and pounded sticks on rolled-up hides; the Ona struck sticks together; and the African Negritos thumped hollow logs.

A certain distinctiveness is evident in many features of social organization. While the formal aspects of these are attributable to diffusion, their functional significance was very similar because of their role in the total culture. Several of the bands had men's tribal societies—religious organizations into which young men were initiated during rites from which women and children were barred. The neophytes were scarified, given hunting tests, and made to observe food taboos while religion was explained to them. The Australian societies used bull-roarers in their ceremonies, whereas the Ona used masks and special huts and had rites based on the concept of death and resurrection of the initiate. Southern California Shoshoneans lacked such societies, but their group fetish bundle, ritual, and ceremonial leader had a similar function in reinforcing group cohesion. These and other social features, however, were not necessary to existence of the patrilineal band pattern, and they can hardly constitute the primary basis of cultural typology. The Semang have no men's society.

The presence in any society of the patrilineal band and the tribal society must be "explained"

²⁸ In this section, Steward explores cultural variables that he considers secondary features, those aspects of culture not closely tied to the cultural core and determined by purely cultural-historical factors such as random innovation and diffusion. While this section of the essay is fairly long (over 1,300 words), much of it is a simple cataloging of cultural traits with little or no analysis of them. This presentation reflects two factors: first, Steward's training in historical particularism (the collection and cataloging of cultural traits was precisely the sort of anthropology Kroeber urged on his followers); and second, the likelihood that Steward placed little importance on the information he presents here. From the lack of

in different terms. The secret society is scattered throughout the world in many kinds of cultures and there is little doubt that it represents a very ancient pattern which has fitted certain psychological-cultural needs as well as a variety of cultural functions so well that it has persisted in spite of tremendous cultural change and that it has even diffused from one type of culture to another. The secret society can in no way be considered a cause of the patrilineal pattern or of the type of land use that underlies this pattern.²⁹

There were other social features which, from the point of view of the patrilineal pattern, were secondary or variable and which were found also among tribes lacking the patrilineal band. Some of the northern Australians had matrilineal moieties, which were probably diffused from Melanesia. The combination of these with localized patrilineal, exogamous groups created a very complex organization. The uniqueness of this organization—the fact that it consisted of functionally interrelated parts—does not mean that the origin of its parts cannot be treated separately and in causal terms. The southern California Shoshoneans had moieties which cut across localized patrilineal bands, but these functioned primarily at death ceremonies.

The religious patterns of these tribes were affected by the ecological adjustments principally in a negative sense: they lacked complicated and institutionalized worship of the kinds found among more developed cultures, there being little ceremonialism dedicated to group purposes. Rites were concerned primarily with birth, puberty, sickness, death, and other crisis situations of individuals. The patterns of these crisis rites and of

shamanism show certain general similarity to one another and very probably they represent in large part an ancient heritage which survived throughout the world in cultures of many kinds. That is, these rites show a great deal of stability, their basic patterns persisting in many cultural contexts which are quite dissimilar. This fact makes it obviously quite absurd to conceive that religion could be the starting point, the primary factor, in an investigation of the origin of social forms and economic patterns. Religion was a functional part of each culture, but from the point of view of the basic social types and cultural ecological determinants its form was a relatively independent variable.³⁰

The local forms and functions of the puberty rites are an illustration of the considerable range of variations that could be woven into the basic pattern of the patrilineal band.³¹ We have already seen how puberty rites stressed the maturing of young men among the Northwest Bushmen, the Australians, and the Ona to the extent that the adult males constituted a secret organization. The Congo Negritos may also have had such societies; at least, it is clear that in the Ituri Forest young Pygmy men together with the sons of their Negro overlords were circumcised in groups every few years, each group becoming an age-grade society. The other tribes wholly lacked any such formal grouping of their males. Among the Semang, children of both sexes were merely inducted into the status of puberty by a simple rite at which they were painted, tattooed, scarified, and had their teeth filed. The Shoshoneans of southern California, like their nonpatrilineal neighbors, had observances for both sexes. Pubescent girls

²⁹ Here and later, Steward attempts to demonstrate that the cultural features he believes are secondary have little causal significance for the cultural core: subsistence, technology, and social structure.

³⁰ Here Steward reaffirms his basic materialism: material conditions condition ideas, not vice versa. This passage seems to be a direct attack on Tylor, who saw the progressive rationalization of religion as one of the fundamental processes driving cultural change (see essay 2), but why would Steward attack Tylor more than a half century after the publication of *Primitive Culture* and two decades after the latter's death? It is more likely that he was thinking of Max Weber. The English translation of Weber's highly influential *The Protestant Ethic and the Spirit of Capitalism* had been published in 1930, not many years before the first appearance of Steward's essay. In this book Weber argued that Protestant theology was critical to the advent of capitalism in Europe.

³¹ Steward turns the historical particularists' practice of cataloging cultural traits against them. Here, his style of writing is

Table 1. Patrilineal Bands

	Number of persons per square mile	Average size of band	Average number of square miles in band territory	Permanent residence patrilineal with respect to band	Exogamy of band, i.e., locality, required	Band politically autonomous, weak chief	References and remarks
N. W. Bushmen	?	50-60	?	X	X	X	Schapera, 1926, 1930; Dornan, 1925:85; Stow, 1905:33, 229-30; Dunn, 1931:7, 22
Congo Negritos— Bambuti, Efe, Bac'wa, Batwa	?	60-65	?	X	X	X	Schebesta, 1931; Schmidt, 1910
Negritos—Gabon	?	20-70	?	X	X	X	Trilles, 1932
Semang	½-⅔	35?	?		(X)	X	Schebesta, 1929; Skeat and Blagden, 1900
Australia—W	⅓	30	150	X	X	X	Radcliffe-Brown, 1930:688
—S	?	40-	?	X	X	X	Radcliffe-Brown, 1930:690
Victoria	⅓	50+	750	X	X	X	Radcliffe-Brown, 1930:691
Queensland	⅓	30	100	X	X	X	Radcliffe-Brown, 1930:694
Herbert R.	⅓	20-25	100	X	X	X	Radcliffe-Brown, 1930:696
Average	⅓	35	420	X	X	X	
Tasmania	⅓-⅓	30-40	350	X	X	X	Radcliffe-Brown, 1930:695; Roth, 1899
Ona	¼-½	40-120	410	X	X	X	Gusinde, 1931
California: Miwok, Luiseño, Serrano, Cahuilla, Cupeño	1	50	50	X	X	X	Gifford, 1926; Kroeber, 1925:883, 58; Strong, 1927, 1929; Gifford, 1926
Diegueño (N & S)	½	50?	50?	X	X	X	Gifford, 1926

were "roasted" in a pit and required to race each day, to scratch themselves only with a stick, and to refrain from drinking cold water. Boys were drugged, lectured on tribal lore and morality, subjected to biting ants, and required to dance. Among the Semang both sexes were painted, scarified, and tattooed at adolescence.

In all these tribes, as in hundreds of others throughout the world the shaman's chief func-

generally through singing and sucking out the supposed cause of disease. He had certain other functions, however, which varied with the special local patterning of religion. Among the Bushmen, for example, he officiated at puberty ceremonies, and among the Semang he mediated between mankind and the thunder god.

Death observances were matters of private ritual among most of these bands but the Sho-

into a ceremony which greatly strengthened group cohesion. An annual mourning ceremony was held under the direction of a special ceremonial leader, while images of the deceased were burned and myths were recited to commemorate the dying god. This ceremony seems to have contributed greatly to the cohesion of Shoshonean bands, and it may partly explain why the bands continued to regard themselves as kin groups and to practice exogamy after they became dislocated from their territories, scattered, and lost genealogical knowledge of their relationship to one another.³²

Notes

- a. This is an adaptation and expansion of the article, "The Economic and Social Basis of Primitive Bands," in *Essays in Honor of A. L. Kroeber* (University of California Press, 1936), pp. 331-50.
- b. Wilhelm Koppers observes that 15 to 20 individuals is common and about 100 the probable limit. See Wilhelm Koppers, *Die Anfänge des menschlichen Gemeinschaftslebens* (Vienna, 1921), p. 72.
- c. Bingham observed gorillas in a state of nature in groups of eight to twenty-two individuals, each group under a dominant male; chimpanzees are said to be similar; and it is probable that the males among the baboons observed in nature by Zuckerman had a comparable dominance. See Harold C. Bingham, *Gorillas in a Native Habitat*. Report Joint Expedition of 1929-1932 by Yale University and Carnegie Institution of Washington for Psychobiological Study of Mountain Gorillas (*Gorilla berengei*) in Parc National Albert, Belgian Congo Africa (1932). Also see S. Zuckerman, *The Social Life of Monkeys and Apes* (New York: Harcourt, Brace and Company, 1932).
- d. E.g., the extraordinarily low status of women in the arduous hunting area of northern Canada. Radcliffe-Brown has observed that Australian hunters would be much less successful in territory which was not known to them from childhood.
- e. Relationship is seldom traced beyond three generations among these people.
- f. I make no effort to solve the very difficult problem of why there are incest laws at all. Marriage with relatives to the third generation, i.e., cousins, is taboo in most of these cases, although cross-cousin and even parallel-cousin marriage is permitted among several.
- g. This section is based on I. Schapera, "A Preliminary Consideration of the Relationship between the Hottentots and the Bushmen," *South African Journal of Science*, XXIII (1926), 833-66; I. Schapera, *The Khoisan Peoples of South Africa* (London, 1930); S. S. Dorman, *Pygmies and Bushmen of the Kalahari* (London, 1925); E. J. Dunn, *The Bushman* (London, 1931); George W. Stow, *The Native Races of South Africa* (New York, 1905); S. Passarge, *Die Buschmänner der Kalahari* (Berlin, 1907).
- h. Schapera, *The Khoisan Peoples of South Africa*, pp. 67-81, has gleaned a few figures on band size from various sources: Cape Bushmen, who were seriously affected by foreign contacts, 100 to 150, according to one estimate, and 3 to 4 families each, according to a more recent figure; Heichware, 20; Kalahari, 30; !Okung, not exceeding 30; Northwestern Bushmen, ranging from 20 to 150 and probably averaging 50 to 60 each.
- i. Morice Vanoverbergh, "Negritos of Northern Luzon," *Anthropos*, XXV (1930), 538-39, found that some bands contained related males and also that related males occurred in different bands.
- j. This material is largely from A. R. Radcliffe-Brown, "Former Numbers and Distribution of the Australian Aborigines," *Official Yearbook of the Commonwealth of Australia*, No. 23 (1930), pp. 671-96, and Radcliffe-Brown, "The Social Organization of Australian Tribes, I-III," *Oceania* I (1930, 1931) 34-63, 204-46, 426-56 (especially pp. 436-39, 455).
- k. Radcliffe-Brown, *Official Yearbook of the Commonwealth of Australia*, No. 23 (1930), p. 696. The population range was 1 person per 2 square miles in the most fertile section to 1 per 38 square miles in the more arid regions.
- l. D. Sutherland Davidson, "The Family Hunting Territory in Australia," *American Anthropologist*, n.s., XXX (1928), 614-32. Davidson has collected evidence that in some localities the landowning group was the bilateral family. It is the opinion of Radcliffe-Brown, *Oceania*, I (1931), 438, however, that "the particularism of the family whereby it might tend to become an isolated unit is neutralized by the horde [i.e., band] solidarity."
- m. Radcliffe-Brown, *Official Yearbook of the Commonwealth of Australia*, No. 23 (1930), p. 695, gives the

³² Steward's work had a profound affect on the anthropologists of his day. Although his career, unlike that of Boas or White, was characterized by many short stays at different universities, he was a charismatic professor and attracted an important following. Among the students of Steward who later became prominent anthropologists were Stanley Diamond.

aboriginal total as probably 2,000 or 3,000, which is one person to 8 or 13 square miles.

- n. Antonio Serrano, *Los Primitivos Habitantes del Territorio Argentina* (Buenos Aires, 1930), p. 157. Nuñez, quoted by Serrano, says that among the Northern Tehuelche the head chief owned the land and that the lesser chiefs could not change their land without giving notice to him.

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19. Energy and the Evolution of Culture

Leslie White (1900-1975)

EVERYTHING IN THE UNIVERSE MAY BE DESCRIBED in terms of energy.^a Galaxies, stars, molecules and atoms may be regarded as organizations

of energy. Living organisms may be looked upon as engines which operate by means of energy derived directly or indirectly from the sun. The civilizations or cultures of mankind, also, may