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## *Introduction: Studying War*

R. BRIAN FERGUSON

### Introduction

The editors of a recent multidisciplinary anthology of war and peace studies state, "in spite of the great promise anthropology holds in store for peace research . . . the performance of anthropologists has been on the whole insignificant" (Falk and Kim 1980: 160). Falk and Kim are at least partly correct; anthropology has not yet made a great contribution to a general understanding of war and peace, much less to understanding war in contemporary industrial societies. But are they correct about anthropology's "great promise"? Can the special tools and interests of anthropology make a significant contribution to understanding war, including modern war?

Quite possibly, given two distinctive characteristics of the field. First, anthropology emphasizes cross-cultural comparison. Anthropologists address war unconfined by the narrow boundaries of recent western history, boundaries that effectively limit most peace research (see Beer 1981). Second, anthropology is holistic, at least as an ideal. Anthropologists can study the multiple sociocultural connections of war in a way that usually is logistically impossible in studies of war in complex societies. From these two vantage points, anthropology might discover what is "human" about war, and how war generally is

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*WARFARE,  
CULTURE,  
AND ENVIRONMENT*

*Edited by*

R. Brian Ferguson

DEPARTMENT OF SOCIOLOGY  
AND ANTHROPOLOGY  
UNIVERSITY COLLEGE  
RUTGERS UNIVERSITY  
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connected to other aspects of social life. If anthropologists studying war could agree that certain statements of causal priorities and interactions of factors were valid cross-culturally, this consensus would provide an invaluable frame of reference for studying the particular case of modern war. Unfortunately, any such consensus remains a long way off.

At the end of this chapter, I suggest a few possible ways of contributing to peace research in the near term. Before reaching that point, I discuss what anthropology already has said about war, and what this volume adds to it. My methods of classifying and describing research, and my theoretical orientation for evaluating it, undoubtedly will inspire some disagreement, given the natural contentiousness of anthropologists. My present goal, however, is not to provide a detailed description of every anthropological approach to war, but rather to construct a coherent, intelligible overview of the field and its major divisions. This goal is mandated by the chaotic state of the field at present. Apart from a few active controversies, most of the research on war seems unconnected in any clear way to other lines of work. Existing collections of essays on war (Bohannon 1967; Fried *et al.* 1967; Fukui and Thurton 1979; Givens and Nettleship 1976; Nettleship *et al.* 1975) can be bewildering because of the unarticulated diversity of ideas presented. Recent textbook discussions of war are, to say the least, very different from each other (e.g., Alland 1980; Harris 1980; Hoebel and Weaver 1979; Moore 1978).

The 10 original essays in this volume are united by one general proposition: the occurrence and form of warfare are intimately related to processes of material production and other exigencies of survival. Consequently, the study of war requires attention to human interaction with the natural environment, to economic organization, and to the social, political, and military correlates of both. In view of this unifying proposition, the perspective of this volume can be called *materialist*, although that label covers a lot of ground. The scope of this volume stems largely from the fact that even though every materialist seems inclined to believe that she or he knows what the "material conditions of life" are, no one has been able to define them in a way that is generally acceptable to other materialists. How the material conditions are to be studied is even more controversial. Yet even so, a common adherence to this proposition distinguishes the studies in this volume from a host of other anthropological approaches that stress completely different concerns in their explanations of war.

One goal of this chapter, and of the volume as a whole, is to demonstrate the diversity coexisting (not always peacefully) under the materialist banner. Another goal is to describe both materialist and non-

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materialist approaches in a way that demonstrates that much of the work in both categories, including some that appears to be contradictory, is potentially complementary. This chapter has seven sections. The first discusses definitions of war. The second describes the belated rise of anthropological interest in war. The third classifies and briefly surveys nonmaterialist research on war. The fourth chronicles in some detail developments, nondevelopments, and current conditions in materialist approaches to war. The fifth considers the relevance of motivation in war studies—a favorite topic of mine. The sixth is a sequential discussion and comparison of the chapters in this volume. In the seventh, I try to extract some general meaning from it all.

### Defining War

Needless to say, the definitions of war are numerous. A few representative ones include: "an armed contest between two independent political units, by means of organized military force, in the pursuit of a tribal or national policy" (Malinowski 1964: 247); "public lethal group combat between territorial teams" (Naroll 1964: 286); "armed combat between political communities" (Otterbein 1968a: 278); and "the sanctioned use of lethal weapons by members of one society against members of another" (Wallace 1967: 179; also see Nettleship 1975; Richards 1975). These definitions have two elements in common: all specify a type of behavior and a war-making unit. Both elements pose problems.

The specified behaviors are a problem because in each definition except Malinowski's, the reference is to actual fighting, to combat. Yet there is more to war than combat. Waging war usually involves mobilizing people, marshaling resources, and a host of other processes. These usual concomitants of open warfare can occur even in the absence of combat, as in "cold wars," or when two sides enter into a "state of war" but somehow avoid bloodshed. The militaristic displays in the "nothing fights" of the Tiwi (Hart and Pilling 1960) or the Dani (Heider 1972) may be better described as mobilized confrontation than as combat. Vayda's view (1976, 1979) of combat as part of a range of behaviors is useful here. On the other hand, violent conflicts can occur without the usual concomitants of war, as in many raiding patterns. Diamond (1967) stresses that the Vietnam war required relatively little mobilization of U.S. society, and that a nuclear death spasm would require none at all.

The war-making units in the definitions quoted involve other prob-

lems, because territorial, political, or societal boundaries are often unclear. In some situations, even the existence of bounded units is questionable (Fried 1975). Yet these problematical boundaries are the bases of further definitions in the work of Naroll and Otterbein, who use them to distinguish war (conflict between units) from *feud* (conflict within a unit). Such precise categorization is essential in the statistical approaches Naroll and Otterbein favor, but violent group conflict often resists such neat pigeon-holing. Acts of blood revenge, or feuding, often precede or accompany more intense and wider phases of combat. Feud and war can be stages in a continuum of conflict (Bennett Ross 1980; Köch 1974a; Vayda 1976; cf. Schneider 1964) that shows no respect for any a priori categories we anthropologists may establish. In practice, the nature and boundaries of war-making units often are structured by the conflict itself. Feuds, civil wars, revolutions, and class wars involve opposed groups within a society. Confederacies and alliances in war can oppose groups that maintain their unity only for the duration of hostilities, and then revert to independence.

Problems of definition are not peculiar to the topic of war, of course. As with nature and vacuums, culture seems to abhor a definition. The basic problem, I think, is that those cultural phenomena that command anthropological attention are multifaceted. Anthropologists become interested when a number of distinct behaviors, institutions, and beliefs cluster together in a similar manner in a broad cross-section of societies. The hitch is that, although the various aspects of a phenomenon tend to be found together, the association is never perfect nor invariant. A range of configurations usually is apparent, and this diversity makes definitions difficult.

Faced with such problems, several researchers have suggested new approaches to conceptualizing war. Fukui and Thurton (1979: 3; also see Vayda 1979: 193) for instance, eschew definition, and argue that we should focus on "inspecting the phenomena and not defining the word." A different approach is advocated by Nettleship (1975: 86), who thinks that war proper is a "civilized phenomenon," but recommends that violent conflict be approached as a continuum including everything from "individual antagonistic actions to its present theoretically maximum development in a nuclear holocaust." Both approaches have merit, but obviously we must have some idea of the identity of a phenomenon before we can inspect it. Moreover, it seems both possible and useful to distinguish the collective activity of war from "individual antagonistic actions." Trying to explain war and individual acts, such as aggressive genital presentation by !Ko Bushmen girls (Eibl-Eibesfeldt 1975), in one body of theory does not seem promising. It runs afoul of

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one simple fact: war, by any definition, is a social activity, carried out by groups of people.

Even if neat, restrictive definitions are not possible, I believe that the basic underlying phenomena characteristic of war can be described as follows: organized, purposeful group action, directed against another group that may or may not be organized for similar action, involving the actual or potential application of lethal force. Although this formulation may be too inclusive for some scholars, it does exclude individual violence, except as part of a larger mobilization of groups. It stresses the social nature of war, without making any presumption about the social units involved. It is not restricted to military activities alone, nor does it require fatalities, but only the potential for killings as a result of the action. Finally, it calls attention to the distinction of whether or not a target population itself is organized for war, a difference that leads to very different conflict situations.

### The Development of Anthropological Interest in War

Prior to World War II, the anthropological literature on war consisted of brief accounts within general ethnographies, a few more specialized studies (see Otterbein 1973 for references), and a handful of synthetic essays, some of which were concerned primarily with the relation of war to sociocultural evolution (Davie 1968; Hobhouse *et al.* 1965; Johnson 1935; Sumner 1911; Wright 1965). Despite the early emphasis given to war by Tylor, who wrote (1888 221) "after the quest for food, man's next great need is to defend himself", most anthropologists virtually ignored the subject (e.g., Goldenweiser 1937; Kroeber 1923; Lowie 1920; Wissler 1929). Otterbein (1973) explains this neglect as a result of two factors: the pacifist and humanitarian views of many anthropologists led their interests away from the study of violent conflict, and the fact that most field research occurred in areas where active warfare already had been long suppressed. I would add that the study of war was not consistent with dominant research concerns of those decades, be they the attempts by Boas' students to salvage information about cultures wasting away on the reservations, the search for social equilibrium pursued by the structural-functionalists, or the relation of the individual to society studied in the personality and culture school. Moreover, most researchers of whatever theoretical disposition were primarily interested in the constant so-

and the collections of essays listed earlier. The five divisions in this survey discuss the role of human aggressiveness in war, psychological approaches to war, and war in relation to social, political, and military organization. Materialist perspectives are mentioned as they relate to each of those areas, but the main discussion of materialist approaches will follow this survey.

#### *Human Aggressiveness and War*

Although war is a social activity, it is, like any social activity, carried out by individual persons. Nettleship's suggestion that war be placed on a continuum that includes individual aggressive acts is consistent with diverse studies emphasizing the human capacity for violence as the key to understanding war. Individual aggression has been a more general concern in psychology and ethology than in anthropology, but anthropologists have had to confront the issue because of the immense popularity of the "killer instinct" line of thought. Our supposedly aggressive "nature" has been invoked repeatedly as the root cause of war.

In the early part of this century, there was little doubt that people fought because they were born to fight. In 1910, James (1964: 23) wrote, "Our ancestors have bred pugnacity into our bone and marrow, and thousands of years of peace won't breed it out of us. The popular imagination fairly fattens on the thought of wars. Let public opinion reach a certain pitch, and no ruler can withstand it." In 1915, McDougal (1964: 34) addressed the issue of the "chronic warfare" that supposedly plagued tribal societies: "This perpetual warfare, like the squabbles of a roomful of quarrelsome children, seems to be almost wholly and directly due to the uncomplicated operation of the instinct of pugnacity" (see other selections in Bramson and Goethals [1964] for similar views). This "scientific" version of the original sin theme continues to be a favorite topic of the popular media. In the arts, William Golding, Stanley Kubrick, and Sam Peckinpah have endorsed it explicitly (Montagu 1976), but their work represents only a fraction of the novels and films employing the killer-lurking-within-us motif. In the news media, *Time* magazine is by no means unusual in informing its readers that man is "one of the world's most aggressive beasts who fundamentally enjoys torturing and killing other animals, including his fellow man" (quoted in Eibl-Eibesfeldt 1972: 1).

Seventy years ago and today, such conclusions seem self-evident to many people, without need of further consideration or proof (Berkwitz 1962). But this kind of innatist explanation could not have re-

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mained viable without some scientific credentials in back of it. McDougal (1926) tried to provide that backing, but his efforts were soon eclipsed by those of Freud.

After World War I, Freud repudiated his earlier position that had explained human aggression as a result of frustration of the sexual drive by the ego (Freud 1971). In its place, he offered a new conception of aggression as a fundamental, independent, destructive drive seeking a return to a state of nonbeing (Freud 1933, 1960). In response to the query from Albert Einstein, Freud (1964: 76, 78) asserted that this "lust for aggression and destruction" explained our "propensity for war." Found untenable even by many of the Freudian orthodoxy, this "death drive" played a restricted role in subsequent development of psychoanalytic theory (Bender 1973; Berkowitz 1962; Fromm 1973; Horney 1939; cf. A. Freud and Burlingham 1943), even though other formulations of aggressive drives were suggested by Freudians (e.g., Hartmann et al. 1949). The death drive's influence was even more restricted within anthropology. To my knowledge, only Henry (1964) in 1941 explicitly invoked the death drive in explaining a war complex. In 1964, Freeman (1973) attempted to resuscitate the concept in anthropology, without noticeable success.

Freud's justification of innatist opinions did not take hold, but that did not signify the end of the matter. Dracula-like, it rose again in the 1960s, supported this time by joint efforts of ethologists, psychologists, and physical anthropologists (Ardrey 1961, 1966, 1970, 1977; Dart 1953, 1959; Lorenz 1966; Otten 1973; Storr 1968). For brevity, I summarize only the ideas of Lorenz and Ardrey, the most influential of the group as judged by the reprintings of their books.

Lorenz generalizes freely from animal to man to argue that aggression is an innate drive or instinct, a kind of psychic energy that, if unreleased, will accumulate until it finally discharges against anything that is handy. He claims that this "drive-discharge" process is the basis of all human violence. For most of human history, he continues, aggressive impulses were controlled by innate restraining mechanisms, but the living conditions of modern society have rendered ineffective these instinctual controls, so mass destruction has become the mode. Ardrey follows Lorenz on most points, but he is more interested in the process of human evolution. He argues that war is a modern invention, but its behavioral roots run deep into ancient biograms for territorial defense and a hunting-based killer instinct. As with the death drive, this formulation of an aggressive instinct has had only limited expression in anthropological commentary on contemporary human war-



fare, although Freeman (1973), Hallpike (1973), and Tiger and Fox (1971) endorse versions of it or related views (also see Clallan 1970).

Two distinct issues are raised by Lorenz, Ardrey, and the other innatists. One is the role of intrahuman violence in hominid evolution. Fascinating as this topic may be, it is not directly relevant to this volume. It is sufficient to note here that theorizing has run ahead of hard facts, and none of the diverse opinions can claim to be substantiated (see Alexander 1979; Alexander and Tinkle 1968; Alland 1972; Falk 1980; Holloway 1967; Isaac 1971; Jolly 1970; Krantz 1973; Laughlin 1973; Leakey and Lewin 1977; Montagu 1976; Peters 1979; Pitt 1978; Reynolds 1973).

The second and more germane issue is whether an aggressive instinct or instincts can provide a meaningful explanation of war. The idea that it can has withered under intense criticism from psychologists and physiologists for oversimplifying the complex phenomenon of aggression, from physical anthropologists and biologists for fallaciously extrapolating from animals to humans, and from cultural anthropologists for ignoring observed cultural variation in responses to threat and stress and for confusing the individual and the social levels of analysis (Alland 1972; Fromm 1973; Holloway 1967; Jakobi *et al.* 1975; Montagu 1968, 1976; Moyer 1976; Otten 1973; Sahlins 1976a; Sipes 1973). Besides these direct criticisms, recent empirical and theoretical advances have rendered simplistic views on aggression obsolete. The studies collected in Holloway (1974), for instance, demonstrate a wide range of aggressive behaviors in primates, the importance of ecological factors in shaping them, and significant qualitative differences that distinguish human aggression from that of other primates.

Proponents of innate aggressive drives have become much more temperate in recent statements. They stress counterbalancing tendencies toward cooperation and the influence of social conditioning. Human nature is invoked primarily to explain aspects of the form of war. Eibl-Eibesfeldt (1979), for example, suggests that men in war come to view enemies as something less than human, in order to overcome deep inhibitions against killing other humans. This idea is not new, however, nor is it explainable only by reference to genetic programs (Gray 1973; Larsen 1976; Wedge 1973). Wilson (1978) asserts that humans are capable of learning communal forms of aggression, that we often respond to threats with fear and force, and that the range of human aggressive behaviors is smaller than the range of aggressive behaviors found in the animal kingdom. None of these revelations are particularly staggering, and if this were all Wilson suggests, probably few anthropologists would object to his observations. But Wilson's

chapter on aggression carries another message, which illustrates one of three general objections to innatist explanations of war.

Many innatists direct their writings to a popular audience, and in doing so, have often sacrificed standards of logic and evidence in favor of the pithy illustration or memorable quote. Even proponents of the innatist message recognize this fault (Evans 1974; Tinbergen 1973). Unfortunately, the practice continues, and Wilson provides a prime example. Wilson (1978: 99) raises the "favorite question of college seminars and cocktail party conversations," which is, "are human beings innately aggressive?" His answer is a flat yes. It is this unqualified yes that will be remembered at the seminars and cocktail parties, when his pages of qualifications or the tepid conclusions listed above are long forgotten. Flat statements make nice newspaper headlines (e.g., *New York Times*, January 20, 1983), but they sustain misconceptions about the relation of individual aggressiveness to war (see Maynard Smith 1978).

A second problem is that most innatist explanations discuss war in general terms only. They have no way of explaining why particular wars happen when and where they do, which would seem to be the central question. In the past few years, researchers associated with sociobiology have addressed this failing. Dyson-Hudson and Smith (1978) and Durham (1976)—who is not a sociobiologist (Durham 1979a) but whose work is endorsed by sociobiologists (Ruse 1979; Wilson 1978)—explain war patterns in particular societies by arguing that war, in the given social and ecological circumstances, contributes to the survival and well-being of the war makers. Because people who remain alive and well obviously will produce at a higher rate than those who do not, war is seen as contributing to their genetic fitness. The central concern of these arguments is understanding how culture acts as an adaptive mechanism. For the study of war, they offer some modeling sophistication and insights relating to the issue of motivation in war (discussed below), but otherwise they are very similar to existing ecological approaches to war (Orlove 1980). Biology itself adds no new predictive ability. Chagnon has taken a fundamentally different sociobiological course. He (Chagnon 1979; Chagnon and Bugos 1979) explains several processes related to Yanomamo warfare in terms of competition between males for reproductive success. In this formulation, individuals are motivated less by considerations of material well-being than by the number of offspring they or their close relatives can leave behind, who themselves will have a chance of reproducing. But Chagnon does not extend this model to explain Yanomamo warfare itself (contrary to Irons [1979], who claims that Chagnon has developed

a new general theory of war). More recently, Chagnon (1983: 86) suggests that "reproductive striving" is involved in Yanomamo warfare, but he does not present any specific hypothesis about the relationship, nor does he explain how reproductive striving is to be reconciled with the desire to preserve the political sovereignty of the group, which he also emphasizes in discussing war, as described below. In sum, those who stress innate factors in human aggression have yet to show how they can be used to explain the actual occurrence of war.

A third problem is the ability and apparent intent of the innatists to distract attention from the political, economic, and other circumstances involved in modern war. They repeatedly stress that an understanding of biology is essential for understanding and dealing with contemporary world conflicts, and they have not hesitated to offer "biologically sound" solutions (e.g., Eibl-Eibesfeldt 1979; Lorenz 1966; Tinbergen 1973). What is so remarkable about these pronouncements is that they are made with virtually no reference to the voluminous literature on the etiology of modern war. One can scan their bibliographies without receiving a hint of its existence. The military-industrial complex? Forget about it, the message seems to be, pay attention to your genes instead.

Our biological nature and evolutionary background may help us understand certain aspects of war. As a species, unquestionably we are capable of aggression on an unparalleled scale. But the capacity for collective violence does not explain the occurrence of war. Even if aggression is a universal human trait, war is not. "Warlike" societies fight only occasionally, and many societies have no war at all (Burke 1975; Dentan 1968; Fabbro 1980). It is the circumstances of social life that explain this variation, as the studies in this volume show. But the image of humanity, warped by bloodlust, inevitably marching off to kill, is a powerful myth and an important prop of militarism in our society. Despite its lack of scientific credibility, there will remain those "hard-headed realists" who continue to believe in it, congratulating themselves for their "courage to face the truth," resolutely oblivious to the myth behind their "reality."

I devoted so much space to the innatist view because of the enormous popular influence of this perspective on human aggressiveness. It is, however, only one of three approaches to the subject of aggression. A second is that aggression is caused by obstruction or frustration of goal-oriented behavior. Freud's first model of aggression fits this description, but Dollard *et al.* (1939) are generally credited with explicitly formulating the "frustration-aggression hypothesis." Dollard's group took no position on whether the aggressive response to frustration was

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innate or learned (Miller 1969), but they clearly differ from innatists in arguing that aggression is always environmentally induced, not spontaneous. The frustration-aggression hypothesis has received substantial empirical support, but it also has been extensively revised (Berko-witz 1962, 1969; Larsen 1976). Critics charge that the extensive reformulations leave the hypothesis so vague and nonpredictive that it is no longer tenable (Selg 1975).

Several anthropologists translate this perspective on individual psychology into social terms, discussing how aggression generated in daily life can act as emotional fuel for external wars (Ellis 1951; Kluckhohn 1949; Murphy 1957; Steward and Faron 1959; Wedgewood 1930; see the subsequent discussion of ecological models). They describe psychological, social, and ecological patterns that lead to internal generation of tensions, and to their displacement outside the group. The obverse of the displaced aggression hypothesis is the proposition that external conflict can reinforce the internal solidarity of a group. Murphy (1957), Wedgewood (1930) and many others endorse this idea (e.g., Epstein 1975; Eyde 1966; Otterbein and Otterbein 1965; also see Coser 1956, 1967; Simmel 1964), with some going further to argue that conflict creates or defines a group's boundaries (e.g., Turton 1979).

Probably most anthropologists would agree that pent-up hostilities within a group can be redirected to outsiders, although some reject this factor as a cause or explanation of war (Hallpike 1973; Leeds 1963; Newcomb 1960). Probably most also would acknowledge that external conflict can reinforce the internal solidarity of a group. It would be difficult to deny this, after witnessing the waves of chauvinism generated by the Iran hostage crisis and the Falklands War. The problem is that the reverse also occurs, as when the Indochina War tore apart U.S. society, or when World War I precipitated the Bolshevik revolution. The seemingly contradictory effects of external conflict pose a major problem for peace research (Beer 1981). Anthropology could make an important contribution by identifying general conditions that lead to one or the other effect.

The third approach holds that human aggression is entirely learned, either through conditioning or role imitation (Bandura 1980; Belschner 1975; May 1964; also see Larsen 1976). This view is the most consistent with the general mode of anthropological explanation, and it seems implicit in many studies, including those of this volume, that do not address specifically the issue of the ultimate basis of aggression. Most anthropologists, however, are probably agnostics on the whole issue. A round-table discussion on individual aggression and war (Scott 1976) did not even raise the three alternative models (cf. Sweet

1973). Anthropologists can disregard the issue because whether aggression is innate, learned, or a response to frustration—or a little of each, as is theoretically possible (Tinbergen 1973; Moyer 1976)—the enormous cross-cultural variation in aggressive behavior demonstrates that it is always shaped by the sociocultural system. Even anthropologists who propose psychological explanations of war stress the sociocultural determinants of individual psychology. To use an analogy, one need not consider the ultimate source of an electric current to study the workings of machines.

#### *Psychological Approaches to War*

Within anthropology, psychological approaches to war take several forms. The displaced-aggression approach already has been discussed. Another approach attributes the occurrence of war to the particular values of a culture, as expressed in the motivations of warriors. By far, this is the most common of all anthropological explanations of war, especially within ethnographic monographs. In some works, the origin or function of the value and motive receives further analysis; in others, it is simply reported and left at that. Numerous examples can be cited (Beals and Hoijer 1965; Fathauer 1954; Métraux 1963; Turney-High 1971), but Lowie's (1948: 34) discussion of South American warfare is representative: "Revenge seems to have been the foremost motive for warfare, but the Parintintin fought mainly for sport and the Tupinamba to gain prestige and to acquire victims to be eaten. The craving for glory also figures largely . . . The Paressi are unique in their wars of conquest. Another motive was the capture of individual enemies." Other often cited motives include the desire to take a trophy head, to count coup, to acquire spirit power, and to be seen as ferocious. The revenge motive, in particular, is so often cited without further explanation that it reminds one of instinct theories. The issue of motivation is discussed further below.

Another psychological approach explains the aggressive actions of a group by reference to a pervasive cultural pattern (see Benedict 1934) or cognitive orientation. Burch (1974) attributes Northwest Alaskan Eskimo warfare largely to their "Spartan ethic," which required a man to demonstrate his toughness and endurance. Hallpike (1977a) derives the Tauade's propensity for war from their "Heraclitean cognitive orientation," which led them to see the world in terms of perpetual change and conflict (also see Benedict 1974; Codere 1950; Mead 1961; Spicer 1947; Voget 1964).

Personality types or attributes engendered by a particular culture

are another focus (Boshes 1954; Leighton and Opler 1967). In social psychology, the authoritarian personality (Adorno *et al.* 1950) and the nationalist personality are well-known examples using a similar approach (also see Larsen 1976; Fromm 1973). Within anthropology, Wallace (1967) makes the important point that modern wars require personalities trained to submissive obedience to authority. A fascinating article by an ex-Marine (Eisenlat 1975) reinforces Wallace's point in discussing the mixture of aggression and obedience required by modern combat training. Eisenlat makes a second point relevant to anthropological studies of war in tropical regions; in Vietnam, the most aggressive, "gung-ho" Marines often were the first killed by ambushes and booby-traps. Caution and calculation were more valuable assets in jungle fighting (also see Duncan 1967).

A final psychological approach relates war to patterns of childhood development. Walsh and Scandalis (1975) suggest that both war and "primitive male initiation rites" originate in unconscious attempts to deal with the tensions of the Oedipus situation. J. Whiting (1969), although not discussing war specifically, explains aggressive adult personalities and other traits, including severe male initiation rites, by a long causal chain leading through child-rearing practices to specific ecological conditions (also see Koch 1974a; B. Whiting 1965).

The various psychological approaches are not mutually exclusive, at least in principle. Any number of models could incorporate child rearing patterns, adult personality types, widely held values, overall cultural patterns, and the need to channel hostility to outside the group. Any or all of these approaches also could be, in principle, reconciled with materialist approaches to war. Whiting's ecologically based explanation shows how this can be done. Harris (1979, 1980) reinterprets both Walsh and Scandalis's and J. Whiting's work in light of his own model of warfare; Vayda (1967, 1969a) discusses the frustration-aggression response as a warfare regulator dependent on resource scarcity, and the adaptive consequences of certain warlike values. Some authors of psychological studies might not care for this prospect of reconciliation, since several take pains to deny the significance of economic or ecological factors in the cases they discuss. Nevertheless, materialist and psychological approaches are not necessarily incompatible, and the possibility of their integration offers a promising area for future research.

#### *Social Structure and War*

Most anthropological studies of war deal with nonstate societies, in which kinship is the dominant organizing principle of daily life.

From this fact has developed a substantial and fairly consistent body of work relating war and other conflict to patterns of descent, marriage, and postmarital residence.

The basic ideas behind this research are fairly simple. War is a cooperative male activity. Within a society, social institutions that divide related men's loyalties ("conflicting loyalties" or "cross-cutting ties") diminish the likelihood that men will use force in settling disputes. Institutions that unite related men into discrete, solidary groupings ("fraternal interest groups") make them more able and likely to use force when their interests are threatened. Between societies, this relationship is reversed. The smaller fraternal interest groups are less capable of large-scale, long-distance war than are the broader groupings of men engendered by cross-cutting ties. Cross-cutting ties result from a variety of integrating institutions, and especially from matrilineal postmarital residence (Colson 1953; Gluckman 1959; Murphy 1957; Van Velzen and van Wetering 1960). Fraternal interest groups are created by male-oriented structures, such as patrilineality, patrilineality, and polygyny (Murphy 1957; Otterbein 1968a; Otterbein and Otterbein 1965; Van Velzen and van Wetering 1960).

This association of forms of social structure with frequency and type of warfare has received substantial cross-cultural verification (Divale *et al.* 1976; Ember and Ember 1971; Otterbein 1968a; Otterbein and Otterbein 1965; Van Velzen and van Wetering 1960), and several recent studies document the role of fraternal interest groups in war (Chagnon 1977; Koch 1974b; Meggitt 1977; Otterbein 1968b). Moreover, this research dovetails nicely with observations on the inverse relationship between in-group solidarity and out-group conflict, keeping in mind that there are different levels of groups.

Unfortunately, several necessary qualifications complicate this simple picture. The elements of the argument are not always easy to categorize or simple in operation. The internal-external war distinction often is problematic. Some cultures include different social institutions, one of which unites whereas the other divides men's loyalties, for example, matrilineality combined with patrilineality (Murphy 1957). Certain cultural institutions seem to have both effects simultaneously at different levels, for example, men's houses (Maybury-Lewis 1974) or male age sets (Fukui and Turton 1979). Questions have arisen on the peace-keeping role of cross-cutting ties. Hallpike (1977a) argues that they can lead to an escalation of small conflicts. Kang (1979) demonstrates that the practice of marrying outside one's local group—one way of establishing cross-cutting ties—is not correlated with an absence of war (also see Dillon 1980). Here a clue might be taken from peace

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research, which indicates (Beer 1981) that the building of international alliances is a correlate of increasing hostilities. Alliances decline in periods of peace. In nonstate societies, alliance-making through intermarriage might best be seen as a strategy linking particular groups within a context of war (see Burch and Correl 1971; Chagnon 1977; Ferguson 1983; Meggit 1972; Peoples 1982).

Politics also complicate the relation of social structure to war. Sahlins (1961a) suggests that at the tribal level of political organization, a particular kind of social structure, the segmentary lineage, enables even antagonistic local groups of males to unite in efforts against external enemies. Otterbein's (1968a) cross-cultural research indicates that the significance of some kinship patterns in war declines at higher levels of political organization. Cohen (Chapter 9, this volume) describes how emergent states circumscribe the military role of kin-based groupings. The shift from a kin to a nonkin basis of war is an important watershed with far-reaching ramifications. Any comparison of "primitive versus modern" war must consider it. (Another aspect of the kinship-political organization linkage is discussed below.)

Despite these qualifications, the interrelation of forms of social structure with the frequency and form of warfare remains a cornerstone of current anthropological research on war. It is integrated with a materialist perspective by the work of Ember and Ember (1971), Divale (1974), and Harris (1977). They attribute the existence of war to economic or ecological factors, then argue that the form this warfare takes will determine forms of social structure. Conflicts between neighbors favors the development of patrilocal and other male-oriented institutions because they are more effective and efficient in local fighting. Long distance warfare favors development of matrilocality because of the wider unification and other advantages it brings. This line of reasoning exemplifies the growing importance of war in anthropological theory. War is coming to be seen as a major variable explaining form in other areas of social life (also see Ember 1974; Ember et al. 1974).

Structuralists take a different course in relating war to social structure. They approach war via the study of exchange, and they approach exchange as a "total social fact" involving a complex web of diverse social relations and meanings. Their intent is less to explain war than to understand it as the opposite of exchange. For Mauss (1967) and Sahlins (1972), war is assumed as a kind of background state of potential or actual violence which is transcended by exchange. For Levi-Strauss (1943) and Rubel and Rosman (1978; also see Rosman and Rubel 1971), war is the other side of exchange within a structure of relations—war is an exchange gone bad, and exchange is a war averted.

R. Brian Ferguson

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Although the assumption that war is a "natural" state is criticized below in another context, the structuralists have made an important contribution by drawing attention to the often intimate connection between war and exchange, and they are certainly correct in arguing that both can operate together as parts of complex sociocultural systems. These two key points are compatible with a materialist perspective. To argue that war, or exchange, are efforts to solve basic problems of subsistence and survival is not to deny that an elaborate sociocultural edifice can arise upon these activities. I stress this in another work (Ferguson 1983) on warfare and redistributive exchange on the Northwest Coast. Brown (1979), a structuralist, also suggests that structuralist and materialist perspectives are not necessarily antithetical in approaching trade and war.

Game theory (Boulding 1962; Rapoport 1965, 1974), systems theory (McClelland 1965), and conflict theory (LeVine 1980; also see Cohen 1973: 867-870; Coser 1956) deal with the structures and processes of war and other conflict situations. These approaches are techniques or orientations, a concern with the logic of confrontation, more than a body of empirical research. They can be applied to different domains of phenomena, and so could have gone under another heading in this chapter. They also can be applied from different perspectives and to different conclusions. Koch (1974b) and Vayda (1976), for instance, both draw on conflict theory, but find themselves in opposite camps on the importance of land shortage in certain war patterns. Systems theory has been related closely to the development of ecological approaches in anthropology, and a nonlinear, systems view of causality underlies several of the contributions to this volume (see discussions of systems causality below; in Leeds 1975; Price 1982, and Chapter 6, this volume).

#### *Political Organization and War*

Anthropologists have long been interested in the relationship between war and levels of political development. They have concentrated on two central issues: What is the role of war in the process of political evolution? and, How does the practice of war differ at different levels of political development? The two issues have provoked more theorizing and debate than any others in the anthropology of war. Aspects of each are discussed below, but no complete summary of this large and complicated literature can be attempted here. Interested readers should consult the older classics in the field (Andreski 1971; Davie 1968; Hobhouse *et al.* 1965; Keller 1920; Sumner 1911; Wright 1965), more recent studies (Adams 1975; Brumfiel 1983; Carneiro 1970a; Cohen and Ser-

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One general point, however, must be made because of its relevance to later discussions. The study of war in relation to political evolution has been and remains a stronghold of materialist analysis (although in this area especially it is sometimes difficult to say what is or is not a materialist approach). For the past two decades, however, there has been a gap between materialist studies of political evolution and of war *per se*. Whereas war's influence on political evolution has been a continuing interest, the study of how political development influences war—a central concern in earlier years—has languished. I return to this point in later sections.

Obviously, not everyone who studies war and politics is a materialist. In fact, the major contemporary challenger to ecological theories of war is a political theory. Koch's political explanation of war (1974a,b), on first glance, looks much like the social-structural argument that fraternal interest groups and an absence of cross-cutting ties are associated with local ("internal") warfare. But in discussing the Jalé and other societies with this type of social structure, he extends the argument to focus on political institutions of conflict resolution. The Jalé, he argues, are inculcated with a belligerent attitude during childhood. Adults will quarrel over many things (although nothing Koch interprets as a critical resource), and these quarrels often escalate into war. Escalation occurs because Jalé social organization and psychology preclude the formation of an overarching third party institution to mediate or suppress conflicts. So the Jalé fight, according to Koch, because there are no political institutions to stop them (see Cohen, Chapter 9, for another discussion of Koch). Chagnon (1967) takes a similar view in regard to the Yanomamo, but he and others take the idea further.

Chagnon (1967, 1974, 1977), before his turn to sociobiology, argued that the existence of war in a region threatens the sovereignty of local groups. As an adaptation to preserve their sovereignty, people develop a militant attitude, a suspicion of outsiders, and a tendency to nurse grudges and seek revenge. They resort to war as a matter of course. Chagnon, along with Sahlins (1968, and see above) and Service (1967, 1975), invokes Hobbes to argue that war is the normal state of existence for "tribal" peoples who have no overarching authority to prevent war. By simple inference, or by direct implication in the case of Chagnon (1974: 195; 1977: 163), this proposition suggests that war is the normal state of existence for *all* societies, because even modern

nations are not subject to an overarching power able to prevent war. And if war is normal, then it requires no special explanation. Chagnon states this view quite clearly in the second edition of *Yanomamo*: "Warfare among the Yanomamo—or any sovereign tribal people—is an expectable form of political behavior and no more requires special explanations than do religion or economy" (Chagnon 1977: 163). That statement remains in the third edition of *Yanomamo* (1983: 213), although some of the supporting argument has been cut. Given the widespread use of *Yanomamo* in introductory anthropology courses, the proposition is of more than theoretical concern. Thousands of students every year are learning that war between sovereign political groups is normal, expectable, and need not be questioned. Because of the wide audience, and because this hypothesis is contrasted to ecological explanations by its proponents, it merits more consideration here (see Bennett Ross 1980 for another critique of the Hobbesian view).

The point that a strong overarching authority will prevent or diminish internal warfare is valid, but obvious. The important questions here concern the process of sociopolitical evolution: what conditions lead to the development of supralocal authorities, and do social structures like those of the Jalé really prevent their emergence? It is the other side of the argument that needs examination: do societies without overarching authorities make war simply and solely because there is no institution to stop them?

There are two ways to read this proposition. If these authors mean that any type of conflict may lead to war between autonomous groups, and so it is the fact of their autonomy that is decisive in the outbreak of war, then they are correct. It would be absurd to assert that insults, minor social transgressions, jealousy, or whatever, have never in and by themselves precipitated a war. If, however, they mean that all types of conflict are equally likely to lead to war, as if societies were just waiting for an excuse to "have at it," then there is room for major disagreement. This is an empirical issue, and their hypothesis will fare inversely to ecological or other hypotheses that attribute wars to certain types of underlying conflict, such as competition over strategic resources. The more a determinant pattern is established, the weaker will be the "anything goes" hypothesis.

Even without reference to evidence, two problems can be identified in the Hobbesian approach. First, it equates the lack of formal institutions of conflict resolution with the absence of any means of regulating conflicts other than the unstable ties of reciprocal exchange. Yet even the "fierce" Yanomamo have their own internal peace movements: individuals may strongly oppose war (Biocca 1970: 207, 218,

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221; Chagnon 1977: 94), an entire village may desert an overaggressive headman (Biocca 1970: 197), men refuse to fight (Chagnon 1967: 130; 1977: 127, 130), and potential wars are channeled into substitute outlets for hostility (Chagnon 1977: 115, 118, 121). Descriptions of similar behaviors are found in many accounts of nonstate war. Although proponents of the Hobbesian view do not suggest any instinct for pugnacity, neither do they consider that humans might be inclined and work toward peace—not due to any instinct, but because of the death, suffering, and wasted effort war entails.

Second, political autonomy explains only the potential for war, not its actual occurrence. Even if we accept the highly dubious proposition that war, like an economy or religion, is normal for all societies, variations in war patterns require explanation just as much as variations in economic or religious systems. If one considers all the politically autonomous groups in the world, what does their autonomy explain about the enormous differences observed in the frequency of their warfare? The Hobbesian approach only tells us that groups are capable of fighting, and thus it is no more illuminating than the human capability for group aggression stressed by innatists. In fact there are strong resemblances between the two views (compare the Hobbesian view to Alexander 1979), and they both fall within the same tradition of western social thought (Nelson and Olin 1979). (A different political theory of war is considered in a later context.)

#### Military Organization and War

The structure of armed forces, military technology, strategy, and tactics are described in many ethnographic accounts of war. Despite this abundance of descriptive material, only a few studies analyze aspects of military organization in their own right. Meggitt (1977), Otterbein (1964, 1967), Turney-High (1971), and Vayda (1956, 1976) are unusual in the attention they give to tactics. One kind of strategic posture, military preparedness, is investigated by Naroll *et al.* (1974) and by Otterbein (1970). This work indicates a direct correlation of military preparedness and the frequency of war, supporting peace research studies that tend toward the same conclusion (Beer 1981). These findings incidentally, are of obvious relevance to the currently fashionable doctrine of ensuring peace by preparing for war. Other discussions of military organization are found in many studies of political evolution, although usually as a secondary concern. In short, military organization is a weak area in the anthropology of war.

In Chapter 10, Goldberg and Findlow make an important contribu-

tion by proposing a model to account for aspects of strategic postures. They also provide a select but substantial bibliography of military science. Some anthropologists might be disinclined to plunge into this rather cold-blooded literature, but military science may provide a rich source of ideas, analogous to the role of formal economics in economic anthropology. We would, of course, have to question the degree to which military doctrine applies to other cultures, but that would be an interesting question in itself. A more modest introduction to that literature is provided by Brodie and Brodie (1973) and Preston and Wise (1979).

Military organization may comprise a distinct set of variables, with their own determinants and consequences. Morren (Chapter 5, this volume) suggests that military effectiveness can vary considerably between two groups with similar sociopolitical structures, and several chapters indicate that one group's military stance will affect significantly the stance of their opponent(s). Recognition of the significance of military relations may lead to greater attention to the organization and application of military forces. Understanding the uses, effectiveness, and functional prerequisites of various strategies and tactics could illuminate the study of interaction across frontiers, and could be applied to the study of objectives and functional alternatives of war (see Vayda 1976). It is a promising area for research, the first step of which might be to update Turney-High's compendium of ethnographic material on strategy and tactics.

### Materialist Approaches to War

This section describes past and present materialist approaches to war within anthropology. Aspects of these approaches were discussed in the preceding section, to show that a materialist view is not necessarily opposed to other approaches to war. Substantial integration of findings may be possible. This does not mean that no contradictions exist. The different approaches to war begin with different premises, derived from very different conceptions of society and culture. Unquestionably, they will lead to specifically contradictory expectations about war. Specific theoretical contradictions are hard to find, however, since advocates of one view tend to attack or disregard other approaches in toto, as if in order for war to have a political or psychological side, it cannot have an economic aspect as well. Without recognizing that theories addressing different aspects of war can be at least partially

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complementary, it will be difficult to isolate where they are actually contradictory.

A materialist approach to war focuses on war's relation to the practical problems of maintaining life and living standards. Since about 1960, this usually has meant studying war in relation to local ecology. But ecology is not everything, and before discussing the ecological studies, I consider other lines of materialist research on war that faded away. The theoretical reorientations I describe represent an interesting but complicated problem in the history of anthropology. The shifts were subtle, and more often implicit than stated. Real understanding of the changes would require consideration of factors far beyond the single topic of war, including the political climate of the 1940s and 1950s. Because I cannot attempt that here, the following reconstruction and interpretation must be regarded as tentative.

A review of materialist approaches to war can begin with the 1940s, when war, briefly, became an important topic within anthropology. At issue was the question of economic motivation. Previously, economic motives were thought to underlie war only in state-level societies, or societies approaching that level. Both Malinowski (1964) and Turney-High (1971) shared this opinion, although both recognized exceptions to this rule. Generally, material gain was not believed to be an important motivating force in war in simpler societies, or if it was, it was only one of many types of motives. Sport, revenge, or prestige were thought to be at least as important.

In the 1940s, this view was reconsidered, as materialists asserted that even in politically simple societies, war was often a serious struggle motivated by economic need. Mishkin (1940) and Lewis (1942) rejected Lowie's (1935) and Linton's (1936) dismissal of economic motives in Plains Indians warfare (see Biolsi, Chapter 4, this volume), arguing that the warlike cultural values stressed by the latter authors were underlain by a framework of material need. Wagner (1940) offered a thoroughly economic rationale for the Bantu's desire to kill traditional enemies at every opportunity. Swadesh (1948), analyzing Nootka war texts, concluded that quests for trophies and revenge were secondary rationalizations in a conscious struggle over resources (see Ferguson, Chapter 8, this volume). The biggest splash occurred when a historian entered anthropological waters. Hunt (1940) explained the wars of the Iroquois (and by implication, wars of many other Native American peoples) as a struggle to control the fur trade, touching off a debate with reverberations down to today (see the review in Otterbein 1973; Gramby 1977; Trigger 1978; Biolsi and Ferguson [Chapters 4 and 8, this

volume] both discuss the impact of a fur trade on war). But as a general concern, interest in economic motivation proved short lived.

By the late 1940s, White's evolutionism was gaining influence within anthropology. White (1969) argued in principle against any kind of "psychological explanation" of social phenomena. For White, "wars are struggles between social organisms" that require explanation on the "cultural level" (White 1969: 343). In a watershed paper, Newcomb (1950) applied this view to Plains Indian warfare. He accepted the older sports-prestige view of the motives of warriors, but dismissed motivation as a mere proximate mechanism, not the cause of war. For Newcomb, Plains "men were warlike because their socio-cultural systems obliged them to be" (Newcomb 1950: 329). The causes of this sociocultural imperative were "powerful economic and historic forces" (Newcomb 1950: 329) above and beyond the consciousness of individual actors. Economic rationality was still at the heart of the matter, but now it is to be calculated on a level above that of "economic man." Newcomb later (1960) elaborated on this point, arguing that wars usually are fought over some economic good, but the need for this good is determined by social forces. One cannot even discover the underlying economic drive by talking to participants, he continued, because it will be overlain by cultural values, distorted by rationalizations, and, at least in hierarchical societies, complicated by divergent interests and obscured by deliberate mystification.

Newcomb was part of a trend away from "psychological explanations" in materialist studies. The issue of economic motivation was allowed to go unresolved, and this had some unfortunate consequences. For one thing, it allowed explicitly antimaterialist psychological interpretations of war to stand unchallenged for decades (e.g., Codere 1950; Fathauer 1954; see critiques of their positions in Ferguson [Chapter 8, this volume] and Graham 1975, respectively). That, in turn, led to a conclusion that the "ethnographic facts" had rendered the economic motivation hypothesis of warfare "merely ridiculous" (Hallpike 1973: 455). I return to the issue of motivation in a later section.

Lack of interest in economic motivation probably contributed to the disassociation of war from economic studies in anthropology, although this disassociation will be seen later to have been part of a much larger reorientation. Prior to World War II, there seems to have been a growing interest in the economics of war, and economic motivation was a big part of that. Compare, for instance, the discussions of war in Firth (1929), Thurnwald (1932), Bunzel (1938) and Herskovits (1952a). Firth virtually ignores war in describing Maori economics, despite the centrality of war in that society (see Vayda 1956). Thurnwald brings

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war into economics through a fairly extensive discussion of slavery and slave raiding. Bunzel emphasizes the multiple linkages of war to both economic and political systems. Yet, by the time of Herskovits war seems to have dropped out of economic anthropology. War is not mentioned in the extensive review of that literature by Cook (1973).

Our knowledge about the economics of war, such as it is, comes mainly from structuralist studies of war and exchange, ecological studies of war in interaction with the circumstances of production, and more important, from research on political evolution. Even the latter has been less concerned with war-economy links than with the separate relation of each to evolving political structures. (Goody's [1980] discussion of the "means of destruction" is a notable exception.) Yet several studies in this volume describe important direct links between war and economics, in both the spheres of trade and production (e.g., the discussions of war and redistribution in Ferguson and Price). Perhaps, like the topic of military organization, the economics of war could stand as an important field in its own right, and could then contribute to a more complete understanding of the evolution of complex social systems. At any rate, the area certainly merits more attention than it has received.

The larger reorientation mentioned above was a complicated process affecting not only materialist, but all anthropological approaches to war. The 1950s seem to have been a time of theoretical flux, as a younger generation moved into prominence within anthropology. Much of the approach of White and Newcomb to war also would be jettisoned before materialist studies settled down for a period of problem solving. Three major changes can be identified: a shift in focus within evolutionary studies, development of new concerns associated with cultural ecology, and a broad reconceptualization of types or categories of war. Together, they meant that the politics of war, along with its economics, would be neglected.

Prior to World War II, probably the main concern in the study of war was the way in which levels or aspects of sociocultural evolution affected the goals, organization, and conduct of war. Sociocultural evolution was used to explain differences in war (see the early political sources mentioned above, and the review in Otterbein 1973: 744-747). Newcomb (1960), for a later example, divides war into four stages, based on the level of technological development of a society. More recent evolutionary studies (also cited above) have concentrated more exclusively on the process of sociocultural evolution itself, and especially on the evolution of political systems. War is brought in primarily as part of that process, as a factor contributing to evolution,



rather than as a major topic requiring explanation itself. (The decline of evolutionary stages of war as a central concern is illustrated by comparing Fried [1961, 1967] and Carneiro [1978]).

Cultural ecologists were not likely to pick up this topic that evolutionists were leaving. As is discussed below, cultural ecology dealt with populations adapting to local environments. Issues like political centralization or differentiation were of little relevance in the "simple" societies they typically studied, and the stage approach may also have sounded too unilineal. Besides, a new way of categorizing war seems to have permeated anthropology around then, which also diverted attention from political inputs.

When Turney-High (1971) published his massive compendium on "primitive war" in 1949, it towered above everything else in the field, especially given the added authority of Turney High's own military background. He wrote that there are two kinds of war: *primitive* and *true or civilized* war. This distinction occasionally had been used before, but Turney-High gave it new weight and a technical meaning. The two were distinguished by the presence or absence of five tactical features (Turney-High 1971: 30), and the distinction roughly coincides with the advent of features associated with civilization (e.g., writing, metal working, and so forth [Turney-High 1971: xiii]).

The primitive-civilized distinction was adopted quickly. Herskovits (1952b) endorsed it almost immediately. Newcomb (1960) tried to reconcile his four stages with it. Vayda, who was to become the most influential writer on war in the 1960s, integrated the distinction and many other aspects of Turney-High's work into his dissertation (1956). At the 1967 American Anthropological Association meetings, "civilized" was changed to "modern", but otherwise the distinction generally was accepted (Fried *et al.* 1967, especially Part IV). It remains in wide use, although "tribal" has replaced "primitive", and the distinction seems to have lost the technical meaning Turney-High gave it (e.g., Alland 1980: 446; Plog *et al.* 1976: 436).

Use of this distinction encouraged the idea that all primitive or tribal war was more or less the same (e.g., Koch 1974a), and that a Rubicon separated it from modern war. Relatively little attention has been given to evolutionary changes in war (e.g., in Fried *et al.* 1967; Nettleship *et al.* 1975). Yet Otterbein (1970), who has studied these changes, finds neither uniformity nor a Rubicon, but a gradual emergence of more sophisticated military practices, which explains why Turney-High had to acknowledge so many exceptions to his generalizations.

The neglect of evolution had particularly important consequences for materialist studies. Combined with the internal tendencies of cultur-

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al ecology, it tended to close off consideration of the impact on war of political organization and structured inequality. (Turney-High notes [1971: xiv] that his work "tends to ignore" those and other sociocultural linkages.) Their significance is acknowledged, but not integrated into analyses. Vayda's dissertation contrasts Maori warfare with that of the Society and Hawaiian islands; the latter two are "true" war and are structured by the developed authority relations of those societies. But Vayda dropped those cases from later publications. Harris (1977, 1979) is very emphatic in stating that social evolution changes the bases of war, but his major research has been on war at the band and village level, at which politics are not a dominant consideration. Fried's relatively late discussion of stages of war can be cited as a counterexample, but Fried rejected Turney-High's two stage distinction (1967: 99-100). As a result of this restricted conception of a materialist approach, explanations of war that emphasize class differences, political conflicts, or similar concerns appear to be very different or even opposed to ecological explanations, as two examples will show.

Wolf (1973) does not connect his important and very materialist study of recent peasant wars to the ecological literature on war. Rather, he identifies it as a new kind of undertaking—new because anthropologists had ignored both wars within complex societies and the more general topic of political clashes and power struggles. Despite what this type of study offers for those who like their anthropology relevant, and despite its potential for establishing a bridge from war studies to phenomena such as revitalization movements, it has generated little follow up, materialist or otherwise. Only a few anthropologists have focused on war and related topics in contemporary complex societies (Cohen 1983; Cohen *et al.* 1979; Durham 1979b; Fried *et al.* 1967; Friedrich 1970; Mead and Metraux 1965; Nettleship *et al.* 1975; Part v, especially Leeds 1975; Stavenhagen 1970: Part iii; Turney-High 1971: Afterword).

More recently, Sillitoe (1978) has offered a political explanation of New Guinea warfare, which he contrasts explicitly to ecological resource scarcity arguments. But Sillitoe is talking less about what leads to war, which he says results from a public group decision about "collective interests," than about how big men manipulate existing wars to further their political ambitions (Sillitoe 1978: 254). I see no necessary contradiction between this undoubtedly valid area of research and arguments attributing war to environmental problems. In fact, because his war-as-politics hypothesis suffers from the same patchiness of supporting evidence (Sillitoe 1978: 253) that others use to criticize ecological explanations, it is not at all unlikely that consideration of both concerns might lead to more sustainable explanations.

This ends the review of potential areas of materialist approaches to war that were not developed. Contemporary implications of these "non-trends" arise in later discussion. The tentative nature of this reconstruction again must be mentioned. The same caveat is applicable to the following discussion of ecological approaches, although here I feel on somewhat firmer ground because the topic is a development that *did* occur.

The new direction that materialist studies of war were to take became evident when the graduate students of the 1950s began to publish around 1960. They were in implicit agreement with White and Newcomb that motives would not provide the key to understanding war, and with Turney-High that there was a valid category of phenomena to be studied under the label *primitive war*. But the actual trend of their studies was determined by additional influences, notably Steward's (1976) view of social life as an adaptation to local environmental conditions. Two other early influences were animal ethology, which provided comparisons about adaptive behavior (see Suttles 1961), and the work of Gluckman and his colleagues, who had been studying social conflict as a process contributing to the preservation of existing sociopolitical institutions (see Vayda and Leeds 1961). *Cultural ecology*, as it developed in the 1960s, dealt with how populations adapted to and maintained themselves within environmental constraints. One tactic used was the demonstration of hidden *positive functions*, in the sense of an underlying material rationality in seemingly irrational or destructive behavior patterns. War as a topic fitted well into this orientation, and for the first time war became a central concern of a subdiscipline of anthropology. For years to come, an ecological approach and a materialist approach to war would be virtually synonymous.

The initial ecological studies were relatively unsophisticated attempts to show that war had adaptive consequences, with *adaptive* defined as "being more advantageous than disadvantageous" in "providing people with the means of adjustment to the geographical environment and to other basic conditions of life" (Vayda 1969b: 203, 204). Suttles (1961) discusses conflict as a population spacing mechanism. Hickerson (1965) sees war as creating buffer zones that act as game preserves for hunted animals. Sweet (1965) describes how raiding redistributes camels over a region. Vayda (1969b) offers two models explaining how war can lead to the acquisition of certain kinds of land for swidden agriculturalists. (Vayda's article, originally published in 1961, initiated a debate over land shortage and war that is discussed below.)

Theoretical underpinnings of this new approach were filled in quickly by authors such as Leeds (1963) and Collins (1965). Drawing on Hempel and systems theory, the logic of functional analysis was spelled

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out. In a system of interrelated variables, a given variable  $r$  will have a range of acceptable values. If  $r$  moves beyond this range, the system is destroyed. But in functional systems, other variables are activated by disturbances leading to a change in  $r$ , which feed back to compensate for the disturbances and maintain  $r$  within its acceptable range. Adhering to Hempel, it was held that functional analysis could not account for the origin of a cultural variable, only for its operation within the system (Collins 1965). If the variables of a functional system are interlinked in a circular, self-regulating chain, then the system is equilibrated, that is, stable. The interest in equilibrated systems reveals the influence of structural-functionalism, via Gluckman, although it was now enveloped in cybernetic terminology. Leeds (1963) held that stable equilibrated systems were very common, although both he and Vayda (1969b) were concerned also with processes of change. Leeds's article, as well as his later work (1967, 1975), is noteworthy also for its emphasis on functional relations between purely social phenomena, as well as nature-culture links.

By the mid-1960s, ecological studies of war were divided between two distinct issues: the origins of war and the functions of war, with the former more closely related to the earlier evolutionary studies (now minus the stages) than the latter. Lathrap provides the best example of the interest in origins. Integrating Vayda's (1969b) model of expanding agriculturalists and Carneiro's (1964) research on the agricultural potential of the Amazon area, Lathrap (1968) presents a scenario for the human occupation of the Amazon basin. He argues that the richest agricultural and animal resources were along the coasts and rivers. Population growth led to competition and warfare over these lands, with defeated groups moving upstream or into the interior. This type of competition over productive ecological zones could be called an adaptation, for the victors, but the explanation does not rely at all on the complex circular chains characteristic of most functional analysis. In Chapter 7 of this volume, Balée supports Lathrap's argument in discussing competition over resources along the maritime coast of Brazil. Ferguson (Chapter 8) also emphasizes the importance of rivers, and especially estuaries, in explaining one type of conflict. Graham (1975) explains Yuman warfare by reference to the agricultural potential of river areas.

The functional approach attracted more attention than did questions of origin. Divale and Harris (1976), Netting (1973), Rappaport (1967, 1968), Siskind (1973), and Sweet (1970) all hypothesize circular and self-regulating functional systems involving war as a critical variable. Details of these complex systems differ in each analysis, and cannot be summarized here. (See Harris [Chapter 3, this volume] for an outline of the Divale-Harris model.) The analyses are fundamentally

similar, however, in that each begins with some imbalance between population and resources, each regards war as part of a response mechanism to reestablish balance, and each treats actors' intentions as a derived phenomenon, that is, the war makers may not consider or comprehend the positive functional consequences of their actions. The idea of a complex, closed system readjusting resources to people or people to resources (see Vayda 1967) characterized what might be called the *grand functionalist* approach to war, in contrast to the more limited functional analyses of the early 1960s.

Grand functionalist approaches dominated ecological studies of war into the mid-1970s, at which time ambitious model building was set aside for more introspective endeavors. Ecologists were reconsidering their premises, and they had to face empirical and theoretical challenges from nonecologists. The empirical challenges, which centered on the role of resource scarcity in war, are considered first.

One issue is the significance of land shortage, or scarcity of certain types of agricultural land, in war patterns of the western Pacific and parts of Southeast Asia. Many claim war over land is common in those areas (Brookfield and Brown 1963; Brown and Brookfield 1959; Ember 1982; Meggitt 1972, 1977; Peoples 1982; Rappaport 1968, 1979; Sahlins 1961b; Vayda 1969a,b, 1976, 1979; also see Bayliss-Smith and Feachem 1977). Others dismiss or downgrade land as an important factor in war (Hallpike 1973, 1977a,b; Koch 1974a,b; Sillitoe 1977, 1978). Evaluation of these opposed views is difficult because of the distinction between land acquisition as a goal of war and its acquisition as a consequence of war. Many peoples say that they fight to get land, but many others deny this goal (Berndt 1964). This leads Hallpike (1977b) to claim that even in cases in which land is a stated goal, it is only of secondary importance, and the people would fight even if they had plenty of land. For those ecologists who focus on the adaptive consequences of war, however, the entire issue of motivation or goals is not of central concern. Whether groups actually acquire land is more important than whether they seek to acquire land in war.

On this point, critics note that land acquisition only occasionally follows war, and that when a victorious group does occupy territory, it often does so only gradually and after the passage of considerable time. Yet many groups do acquire land through war (Berndt 1964). Support for the ecological interpretation of New Guinea war has recently been provided by an unexpected source. A critic of the land shortage argument presents (Sillitoe 1977) a compilation of data that supposedly refutes that argument. However, a simple statistical treatment of these data shows a strong correlation between population density and the tendency of a victorious group to occupy vacated land after war, thus

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supporting the ecological view (Ember 1982). Why low-density groups fight at all remains a question. Ember's suggested test of overall resource scarcity might be applicable here. At any rate, ecologists have never claimed that land is the only reason for war in New Guinea. One hopes Morren's chapter in this volume will push the controversy to a more sophisticated level by demonstrating that conquest of agricultural land is only part of a more complicated and locally variable pattern of conflict. Wagner's early (1940) and insightful discussion of similar issues in a Central African context deserves to be considered in this debate.

A scarcity of agricultural land also was suggested as the basis of South American warfare (Vayda 1969b). This may apply for the fertile riverine lands (Lathrap 1968, 1970; Morey and Marwit 1975; Roosevelt 1980), but the proposition lost support for the interriverine areas after Chagnon (1967, 1977) documented an abundance of land for the Yanomamo (also see Carneiro 1964; Murphy 1970). Ecologists had to find another limiting factor. The limited amount of game and other sources of animal protein in the Amazon region had been noted by several researchers (Carneiro 1964; Denevan 1970; Harner 1972; Lathrap 1968). Protein (or game) scarcity soon was cited as the limited resource underlying several South American war complexes (Bennett Ross 1971; Durham 1976; Gross 1975; Harris 1974, 1977, 1980; Ross 1978, 1979; Siskind 1973; also see Johnson 1982). Not unexpectedly, this view was challenged by others who claimed that the protein-game scarcity did not exist and/or could not explain warfare (Beckerman 1979; Chagnon 1974, 1977; Chagnon and Hames 1979; Hames 1979; Lizot 1977, 1979; Nugent 1981).

In the third edition of *Yanomamo*, Chagnon (1983: 80–89) includes a discussion of the "great protein debate." I will not go into specifics about his claims. Most of them relate to matters taken up by Harris (Chapter 3, this volume), and Harris is able to take care of himself. It is appropriate, however, to call attention to the extraordinarily ad hominem character of Chagnon's discussion, and to his distortion of his opponents' positions. Does Harris really try to explain the Indian sacred-cow complex as a response to protein scarcity, as Chagnon claims (1983: 84)? Chagnon indicates that the "Columbia crowd" sees protein as "almost a mystical force" that can "explain most everything" (1983:86). Many of the contributors to this volume are or have been associated with Columbia University. I will leave it to the reader to decide if they are obsessed with protein.

In this volume, Harris (Chapter 3) provides a history of the protein-game controversy. He describes how positions and issues have changed, and appraises the current state of the evidence, refuting a recent attempt

to document an abundance of game animals in the Amazon. He also specifies an empirical test of his position. Case studies of South American warfare by Bennett Ross and Balée offer support for the protein-game scarcity hypothesis, although they, like Morren, show that many other factors must be considered in analyzing any concrete example of war.

Scarcities of good agricultural land and animal protein sources have been implicated as sufficiently general considerations in war patterns to warrant broader testing of their significance. However, the focus on land and game has created an oversimplified picture of ecological explanations. War is never a simple function of the natural environment. Whatever significance environmental phenomena have is a result of their interaction with a society of a given form. The salient environmental condition in any case may be something other than a scarce resource, as Morren in particular emphasizes (Chapter 4, this volume). Nevertheless, competition for scarce resources very often is the basis of war. What type of resource may be involved will vary from one war pattern to another, and resources may be scarce due to many processes besides population numbers pressing on absolute supplies, as in cases when demand is affected by trade, contact circumstances, or political and economic differentiation. With higher levels of conflict and political development, actual scarcities of resources may be only one of several factors contributing to war.

Despite these qualifications, the hypothesis that resource scarcity is a primary cause of war in prestate societies clearly may be contrasted to hypotheses that explain war without reference to any scarce resource. In its specific applications, the resource scarcity hypothesis has been supported by a substantial amount of data, and it has survived several attempts at refutation. A hypothesis does not stand or fall exclusively on its own merits, however. It must be compared with alternative explanations. Several of the critics listed above do offer explanations of war. Hallpike explains the war pattern of a particular group by reference to its particular values and institutions. Sillitoe explains how big men manipulate wars to further their political ambitions. Koch and Chagnon explain the potential for war by a lack of overarching authority structures. But neither they nor the other critics offer any nonparticularistic hypothesis to explain why wars occur when and where they do, and this lack of a generalized alternative hypotheses weakens the positions of the critics.

Before leaving empirical concerns, it is worth mentioning that the recent war literature has been dominated by reports and hypotheses on warfare in New Guinea and lowland South America. There are signs of growing interest in other regions however, especially in war in sub-

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Saharan Africa (Cohen, Chapter 9, this volume; Epstein 1975; Fadiman 1982; Fukui and Turton 1979; Gamst 1983; Netting 1974a; Skinner 1972). The diverse issues raised in the African war literature suggest that it will continue to grow, and in doing so may lead to a more general understanding of war.

The theoretical controversies of the late 1970s and early 1980s were more widespread than the single topic of war. They involve a major reformulation of materialist studies in general. Researchers associated with ecology and evolutionism went through a period of self-appraisal (Adams 1975, 1978, 1981; Alland and McCay 1973; Bates and Lees 1979; Boehm 1978; Campbell 1973; Carneiro 1970b; Harris 1979; Naroll and Divale 1976; Netting 1974a,b; Orlove 1980; Price 1982; Rappaport 1979; Ross 1980; Ruyle 1973; Vayda 1976, 1979, 1982; Vayda and McCay 1975), spurred on by criticism from others with different orientations (Diener 1980; Diener and Robkin 1978; Diener *et al.* 1978, 1980; Friedman 1974; Hallpike 1973; Murphy 1970; Orans 1975; Richerson 1977; Sahlins 1976b). Several things contributed to this attempt at reformulation, and only a few of the most relevant issues can be mentioned here. There was a sense of unreality in the long functional chains. There was dissatisfaction with the ahistorical nature of functional logic. Critics contended that, despite the logical separation of function and origin, in practice the ecologists often confused the two. Even when the distinction was respected, critics doubted functional explanations because there often seemed to be no generative process that possibly could account for the existence of the posited functional complexes. Vague references to an unspecified process of variation and selective retention no longer would do. Functionalist analyses often seemed to suggest selection on the group or even higher levels, and such approaches came under severe attack within biology. With support from biological models eroding, the self-regulating functionalist models were criticized for "the fallacy of misplaced teleology [that] occurs when purpose is attributed to a unit of organization on which no creative process is known to operate" (Richerson 1977: 4).

The response to all these problems focused on two interrelated issues: process and individual strategies. One aspect of the processual reorientation is increased interest in applying evolutionary models to the study of war. Among the different evolutionary approaches applied, two have received the most attention, one associated with the work of Harris, the other with that of Vayda.

In 1976, Divale and Harris published a controversial theory of warfare (1976; also see Divale 1970; 1972; Harris 1974). Their central hypothesis is that war functions as a means of regulating population



growth via the creation of a "male supremacist complex" that leads in turn to selective female infanticide and thus reduces the growth rate. (Details of this model are provided in Harris [Chapter 3, this volume].) In its form, the original model is similar to other grand functionalist interpretations. Its distinctiveness is in its generality. It is not intended as an explanation of any one particular war complex, but rather of precontact warfare in general in band and village societies. Because it is a general hypothesis, it attracted considerable attention and criticism. (For discussion of the statistical basis of the argument, see Divale and Harris 1978; Divale *et al.* 1978; Hirschfeld *et al.* 1978; Howe 1978; Norton 1978. For alternative explanations of the practice of female infanticide and/or skewed sex ratios, see Chagnon *et al.* 1979; Dickeman 1979; Hawkes 1981. References in regard to the protein scarcity side of the argument already have been provided. Also see Parker and Parker 1979.) The generality of the model derives from the authors' interest in evolutionary process.

The 1976 model is essentially synchronic, as it is more concerned with the operation of the system than its origin. But by positing the model as explaining war at a given sociopolitical level, Divale and Harris are suggesting a process of evolutionary convergence. In later publications (Harris 1977, 1979), and especially in his current chapter, Harris focuses on that process (also see Price 1982; and Chapter 6, this volume). He argues that different band and village societies develop similar war patterns because they face the same problem of population growth pressing on available resources (*population pressure*, see Harner 1970; cf. Vayda 1976). The warfare-male supremacist-female infanticide complex is repeatedly adopted, he continues, because it is more effective and less psychologically costly than some alternative solutions, and because it can defend itself, that is, groups that solve the Malthusian problem through means other than war would be vulnerable to groups with the war complex. (Werner [1983] suggests a different dynamic through which warfare may depress population growth rates.) Harris's interest in general evolutionary processes and stages also leads him to attribute very different causes and functions to war in nonstate and state societies (see Harris 1979).

The same year the Divale-Harris model appeared, Vayda published (1976) his most extensive discussion of war. In this and other publications (Vayda 1979; Vayda and McCay 1975; Netting 1974a) it became clear that a major division had surfaced in ecological approaches to war, and to process in general. Far from evolutionary convergence, Vayda stresses that similar systemic problems can be addressed by different solutions or functional alternatives. From his

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microevolutionary point of view, Vayda argues that one cannot predict specific cultural responses to environmental problems. His interest is in studying the process through which human groups use existing cultural forms to "cope" with hazardous environmental perturbations. Vayda also stresses that war itself should be studied as a process, not an event. The goals of war, for instance, can change from one phase of a conflict to the next. Morren (Chapter 5, this volume) employs an explicitly similar perspective, but other authors make similar or related observations. Other new directions in Vayda and McCay (1975) are the rejection of equilibrational models and stress on multiple levels of analysis, including that of the individual. Harris (1979; Chapter 3, this volume) also calls for attention to the individual, which brings up the other key issue of the theoretical reformulation: the significance of individual strategizing. (See Vayda 1982 for a recent reformulation of his approach, which has not yet been applied to warfare.)

Grand functionalist models of war generally included a component accounting for individual motives in fighting. Rappaport (1968), Siskind (1973), and Divale and Harris (1976) discuss how pressure on resources leads to tensions within the group, which triggers new military action. Vayda (1967) makes a general statement about this, explicitly linking resource scarcities to the frustration-aggression and displaced-aggression hypotheses. Generally, however, functionalist studies were not very concerned with individual decision-making. Recently, several of the same authors have refocused on the individual, either in theoretical reappraisals (Harris 1979; Netting 1974a; Rappaport 1979; Vayda and McCay 1975), or in the content of their empirical descriptions, as does Meggitt (1977) in a book that deserves special mention as the finest ethnographic description of war currently available. Peoples (1982) offers an individually oriented reanalysis of Rappaport's study (1968) of the Maring. The comments following Peoples's article discuss many of the issues raised here.

New interest in the individual is a response to the general criticisms of functional ecology listed above. Individual strategizing appears to offer a way of going beyond the troublesome function-origin distinction by dealing simultaneously with processes of change and the systemic consequences of behavior. It also is a response to dissatisfaction with the treatment of individuals in earlier work, in which an individual's behavior seemed too set, too subservient to larger social needs, and too uniform within a society. A focus on individuals allows for study of internal social conflict, and it is flexible enough to easily incorporate social, economic, and political constraints on behavior, along with constraints imposed by the natural environment.

Orlove (1980) sees the focus on individuals and process as the great transformation of ecology of the 1970s. Many newer studies, he states, "examine the rationality of individual actors and the manner in which external constraints shape their choices" over time (1980: 260). The natural environment is only one type of external constraint, albeit a very important one. Orlove continues to note a corresponding deemphasis on concepts such as carrying capacity and homeostasis. Adaptation and function, I would add, also have considerably less currency. These terms involved ecologists in endless and not very productive debates over definition, which are often avoidable by using more precise terminology. In many newer studies, then, the material environment is invited in, but much of the functionalist baggage is left on the stoop.

If the function-origin distinction no longer has the force it once had, other differences are now apparent in ecologically oriented approaches to war. Some who have gone in new directions have gone in different directions, as with Harris and Vayda. Alongside the new approaches, sometimes within the same work (see Fukui and Turton 1979), modified versions of the earlier adaptation approach remain viable and in use. Generally, ecological studies now vary greatly in the types of problems or questions addressed, the levels of analysis employed, the kinds of models used, and the relative importance assigned to the natural environment versus sociocultural factors—all of which, of course, are related. They differ also on the conception of human motivation, a point I discuss shortly.

The growing diversity of these studies has led to some talk of the ecological perspective cracking apart. This need not happen if it is recognized that the situation within the perspective now resembles the situation described as existing between perspectives. Different ecological approaches to war are not theoretically contradictory; rather, they address different problems, or different aspects of the same problem, and so they can be complementary. The next paragraph is an attempt at synthesizing the various ecological approaches described throughout this section. No position is taken on the explanatory utility of any component idea. My only point is to show that they can be combined.

The natural environment of a people is directly or indirectly linked to aspects of their subsistence strategy and sociocultural organization. Changes within either the natural or sociocultural spheres can produce stress for some individuals. They will attempt to diminish this stress. The unit that acts to relieve the stress (individual, family, village, class, or whatever), and the action taken at any point, will depend on the nature of the problem and the already existing sociocultural context.

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The behaviors and ideas comprising their response, or the response complex, will have consequences, some of which may not be anticipated or even recognized by the actors. These consequences can restructure the relation of the population to the natural environment as well as internal sociocultural arrangements. By chance or by plan, a response complex may in some situations result in a self-regulating sociocultural subsystem that is capable of absorbing and relieving future stress of a similar nature, and so persists in time. In situations in which other, similar social units are experiencing similar stress, successful response complexes, self-regulating or not, are liable to be imitated and so spread by diffusion. In situations in which the source of stress is a scarce strategic resource that puts similar units in competition with each other, a response complex that gives one unit a competitive advantage over other units can spread through selection, other things being equal. Where force, particularly, is part of a response complex, the potential for selective replacement may be a great stimulus for imitative diffusion. Other successful responses to a source of stress may be rendered untenable by the presence of a unit that relies on violence in competition.

### The Question of Motivation

During the heyday of the functionalist approach, the old issue of economic motivation in war lay dormant (cf. Morey and Marwit 1975). Although material gain could result from war, it was not necessarily held to be the goal of war makers. People might fight for any number of reasons. If the fighting worked to their advantage, then these goals would be maintained or spread within local populations (Harris 1980; Vayda 1969a). Implicit in this view was the troubling proposition that actors were unaware of or unconcerned with the advantageous consequences of their actions identified by the analyst. With new attention to the individual, such premises must be reconsidered.

What motivates people to go to war? Harris (1979: 62) emphasizes material need, although not exclusively, in a recent discussion of motivation. Rappaport (1979: 46), in contrast, stresses that ritual obligations can compel behaviors that go against material interests. Other motivations proposed in recent explanations of war were mentioned earlier: political ambition, the need to vent frustration or anger, particular cultural values, and perhaps even calculation of reproductive success.

These different views, combined with the growing importance of

actor-based models, suggest that the issue of economic motivation in war again will move to center stage. For anyone familiar with the seemingly endless controversies over *maximizing* and related concepts in economic anthropology, confronting this question is as enticing as a picnic on quicksand. It is, nonetheless, important. Sooner or later we will have to confront the question of whether the motive of material gain is fundamental in social processes leading to war.

To address this issue, there must be some specification of material goals. Provisionally, three can be offered: (1) maintenance or improvement of existing subsistence standards; (2) energetic efficiency, or more specifically, maintenance of labor requirements within acceptable levels; (3) protection against life-threatening hazards, either environmental or human. Number (3) may encompass potential threats to (1) and (2). This list might be expanded. Sex is another basic motivation that may figure into some types of conflict involving raiding to capture women. However, it seems of less general importance in war than the others.

I do not think it vulgar to posit these considerations as a basic human motivational substrate, or at least as part of one, because they relate to the ability of any organism to survive. If one doubts the ability of social groups to act as adaptive mechanisms, and if one also denies that individuals act to maintain subsistence, energetic, and security parameters when they are threatened, then one has left humans without any means of tracking the environment and responding to promote their survival. Were that the case, it would be difficult to understand how we have survived.

I expect that many anthropologists would agree that these material considerations sometimes underlie war, provided they could stipulate that sometimes nonmaterial motives dominate. It is not as easy, however, to maintain this view in regard to war as it may be for other areas of social life, for war itself involves both definite costs and threats to life. If the motivational premise is valid, and in contrast to the Hobbesian view of war, we should find nonwar, the absence of active fighting, in the absence of challenges to material well-being.

If material considerations do underlie war making, a number of social and psychological factors will regularly complicate or conceal their expression, as noted by Newcomb (1960). Material deprivation is relative, with levels of tolerability dependent on prior circumstances and on comparison with one's peers. One group's misery may be another's comfort, so felt needs will vary with each case. Circumstances also will dictate whether people can choose nonmilitary means of addressing the source of their problems, such as productive intensifica-

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tion (see Morren and Price [Chapters 5 and 6, this volume]). Specific tactical goals (such as territorial gain, plunder, and slave taking) are not predictable a priori, but depend on the local ecology, economy, and other factors, as the contributions to this volume demonstrate repeatedly. The significance of military success for an individual warrior will be determined as much by existing social relations within his group as by his success in battle. Battle spoils may flow away from a combatant, but may be compensated for by other material rewards from within his own group.

Levels of political development add other dimensions to motivation. Differentiation of a society into groups with different positions in the political and economic structure raises the possibility of divergent interests in war. A dominant segment may attempt to mystify or conceal its true interests by wrapping them in a cloak of patriotism or religious fervor. Their actual goals may involve political control within or beyond the polity's frontier more than any direct economic benefits of a campaign (see Cohen, Goldberg and Findlow, and Melman [Chapters 9, 10, and 11, this volume]). This can be related to the third of the basic motives I proposed, as rulers seek to preserve and strengthen the political structure on which their privileged life style depends. With the advent of the state, rulers can compel people to fight for them. In states, the potential material costs for fighters may derive more from internal social arrangements than from the hazards of battle (see Cohen, Chapter 9, this volume).

Political structure is among the factors that influence the significance of the revenge motivation in war. I anticipate that an objection to my proposed material motives will be that they do not include the desire for vengeance, a motivation prominent in so many accounts of war. As noted earlier, revenge often has been offered as an irreducible basic motivation. Perhaps it is, to some degree, but it needs more consideration. Although a desire to strike back at someone who has wronged us may seem so understandable that it needs no further discussion, the great cross-cultural variation in permissible revenge reactions, and in situations that call for revenge, indicate that this motive is an eminently variable response.

One way to approach this topic would be to investigate the material consequences of taking or not taking revenge in a given social context. Small attacks and counterattacks can constitute a probing for weaknesses in more serious confrontations. Larger retaliatory strikes may be necessitated more by questions of survival than sentiment (Ferguson, Chapter 8, this volume). Whatever the independent role of pure revenge motivation, it seems to decline in importance as war comes to

involve larger and more complex social groups. When hostilities involve only a few individuals acting on their own, revenge is prominent, even though material factors still clearly affect the willingness of secondary parties to support the initial belligerents (see Bennett Ross and Biolsi, Chapters 2 and 4, this volume). The absence of overarching authorities clearly is an important factor at this level, because war may be only slightly more organized than murder. (Revenge feuding may be seen as a transition between murder and war.) As larger and more socially diverse groupings must be mobilized for battle, material gain will be a more generally effective incentive, especially as these larger groupings often will bring in multiple cross-cutting ties to the target group. (See Morren's discussion in Chapter 5 of how a death from any cause triggers a group reappraisal of their total situation.) With development of the state, revenge taking may be suppressed entirely by the government (Cohen, Chapter 9). A similar progression of motives was noted by several of the stage theorists discussed above, although they deemphasized material incentives except at the higher political levels (e.g., Malinowski 1964; Newcomb 1960; Turney-High 1971; Wright 1965).

Revenge is certainly not the only nonmaterial motive in war. It often is stated that war is enjoyed as an exciting, sport-like activity (e.g., Turney-High 1971). Be that as it may, it seems implausible that this alone would motivate someone to risk his life. When war involves serious costs and risks to life, individuals are liable to be reluctant to move to the front line. So societies relying on the military capacity of their adult males may be expected to bolster their resolve through enhancing the esteem of warriors. Successful fighters will have prestige. Many will internalize, or at least project the combative values they exemplify.

Rationalization can powerfully influence expressed motives in war. Conflict over resources can oppose groups that previously had been linked by ties of kinship, exchange, and affect, creating a situation of extreme cognitive dissonance. Need may compel actions that grossly violate existing norms and relations. Conflict can pit individuals against others for whom they feel no personal animosity. This is a difficult situation, for one may *fight* over a resource, but one *fights* another person. Emotions must be harnessed to that end, and interpersonal hostility, or at least distance, must be created if it does not exist. I suspect this is why the initiation of war between two formerly linked groups is so often preceded by a breakdown of social ties, by accusations of witchcraft or theft. These may be only symptoms of deeper

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conflicts, even though they may appear to be the cause of subsequent violence (see Marwick 1970).

In sum, factors such as prestige, revenge, and unfulfilled social obligations, can be expected to surface in wars based on material need. What would contradict the motivational perspective that I suggest would be wars carried out for these motives in the absence of material need. With all these layers of motivation piled on top, how can material goals be sorted out so that their significance can be evaluated? Newcomb (1960) doubted that they could. I think that there are at least two ways to do it, both based on inferences from observed behavior (see Harris 1979).

Within the total social context of a single group, the expectable consequences of various military postures can be defined and assessed to determine if individuals act in ways that conform to expectations of material benefit. (Certainly, critical evaluation of the three material goals I suggest would be appropriate in any empirical study.) At a different level of analysis, one could assess whether a regional war pattern, including changing intensities of conflict, who initiates attacks, and who is attacked, conforms to expectations based on analysis of material needs. If material considerations do account for the observed patterns in either type of analysis, the most parsimonious explanation would be that the participants themselves are acting on these considerations. Other motives offered by informants would be considered epiphenomenal, unless it could be shown that these other motives would, independent of material need, produce the actual pattern of fighting. I attempt to demonstrate the feasibility of the second approach in reanalyzing Northwest Coast warfare. Inferring motive from action is a problematic task, but the difficulties are not insurmountable. After all, deducing intent from behavior has been a basis of our legal system for a long time.

My concern with motivation is not shared by all the contributors to this volume. Readers will find statements in direct disagreement with the perspective I endorse. Some authors disregard the issue entirely, focusing instead on processes above the level of the individual. Price, in fact, recently (1982) has made a strong argument against the need to consider motivation, but I believe that the differences between our positions arise from different interests, rather than from any contradiction in theory. Because she is interested primarily in trajectories of sociocultural evolution, Price really has no need to worry about why people do what they do. In the long run, what matters in her research is the differential survivability of what they do. For researchers con-



cerned with a society at one particular time period, on the other hand, understanding how and why people react in certain ways is a vital question, and one that may be difficult to answer fully without addressing the issue of motivation.

### Comparing the Chapters: Similarities in Diversity

The comparison of my views on motivation with those of Price illustrates again a theme of this chapter: apparently contradictory views may be reconcilable. I stressed that point in discussing materialist and nonmaterialist views on war and in synthesizing ecological approaches to war. In the following discussion and comparison of the chapters of this volume, few real contradictions between authors emerge. Most apparent differences are shown to be differences of interest, emphasis, and presentation. Mostly, their arguments are interlocking and mutually supportive. But they do seem to be quite different, and that is not an accident.

Given recent public clashes between self-identified materialists (Adams 1981; Vaidyanathan *et al.* 1982) and all that already has been said in this chapter, it is probably not necessary to reiterate that anthropological materialism is not a monolithic school or approach. The point bears stating, however, because recognition and understanding of the diversity of materialist views may be a precondition for their eventual unification. This volume aims to cover as much of the materialist spectrum as possible. It also aims to cover the range of political development of societies. The chapters are ordered by levels of sociopolitical complexity, beginning with egalitarian societies and ending with empires. Naturally, this results in great differences between the war patterns that are described. This theoretical and empirical diversity may create the impression that the chapters are too different from each other to lead to any general conclusions. Some conclusions are possible, however, and are discussed in the final section. For now, the questions are: What are the individual chapters about? and, How do they relate to other chapters?

In Chapter 2, Bennett Ross examines two distinct levels of conflict among the Peruvian Achuará: warfare on the regional level, based on historical sources, and revenge hostilities, or feuding, on a local level, based on her own fieldwork. The two involve a similar interplay between local ecology, Achuará social organization and beliefs, and the

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multiple effects of Western contact. Contact produced the most dynamic set of factors. For centuries, Achuarã demographic, economic, and political trends have been influenced by western intrusions. Several of the contact effects she describes also are prominent in later chapters: the destabilizing impact of guns shows up again in Price and Ferguson; increased conflict due to contact-induced migration is focal in Biolsi and Balée; and the central significance of both endemic and introduced diseases is argued by Morren, Balée, and Ferguson.

Bennett Ross's discussion of no man's land game preserves—one of the first suggested adaptive functions of war—illustrates some of the changes in ecological analysis discussed above. She suggests that precontact warfare may have centered on game availability, but explains postcontact war primarily by reference to aspects of contact. Contact, in fact, led to changes in settlement and hunting patterns that radically altered effective availability of game. The game preserves of no man's land were still a result of postcontact war, and their existence further influenced other wars. But there is no suggestion here that because of the game preserves, war is adaptive. Although war is explained as a result of a complex system of variables, there is no suggestion of strictly functional interactions (as explained on page 29), much less of a closed equilibrational system. In her descriptions of local feuds, we also see what kinds of factors determine people's willingness to fight. Egalitarian in style, no one can be compelled to fight in another's conflict. Ties of sentiment, folk beliefs, and other concerns strongly influence chosen courses of action, yet even at this level considerations of material well-being are very important factors in mobilizing a body of allies.

Harris's chapter also deals with a case of South American warfare, but in a different way. Unlike the Achuarã, the Yanomamo are examined not for their own sake but as a test of a general theory that war in precontact band and village societies is triggered by population pressing on resources, and that it results, through a male supremacist complex and selective female infanticide, in a reduction in the rate of population growth. This difference in intent is shown by Harris's greater attention to theoretical points, and a more narrowly defined focus on data directly relevant to the theory. In this instance, the empirical issue concerns game availability.

Harris offers a spirited defense of the proposition that game is a critical limiting factor in Amazonia. But he also states that game should not be seen as a universal factor relevant to all war patterns—it just seems to be crucial in this situation. So there is no theoretical clash between him and Bennett Ross, in spite of her emphasis on contact-related factors. The big difference between the two is that the Yanomamo

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stand as a case in which the circumstances of contact apparently have not resulted in fundamental alteration of the precontact war pattern. As a consequence of that persistence there is a greater possibility of functional relationships regulating these wars than some of the others described in this volume. As Harris describes, his view of war developed during the functionalist period of ecological studies. His model still portrays a functional system—a circular self-regulating system of variables. But Harris addresses the problem of many past functional analyses, namely, an inability to explain the creation of the system. In a theoretical appendix, Harris charges his critics with mistakenly applying biological models to cultural evolutionary processes. He advocates a new approach to cultural evolution, which would encompass individual, group, and regional trajectories, not just as distinct levels of analysis, but as interacting fields. If this new approach is adequate, it could eliminate one of the biggest objections to functional analysis.

Chapter 4 is one of three restudies in this volume. Biolsi, and later Balée and Ferguson, use written sources on extinct war patterns to challenge standing interpretations of those patterns. Biolsi's choice of the Great Plains area is particularly interesting because of its centrality in an earlier period of war studies, as discussed above. Biolsi rejects the existing opposition of either ecological or cultural explanations of Plains warfare and stresses that both are needed. He and Cohen are the most adamant of the contributors about keeping their explanatory options open.

Biolsi argues that the buffalo herds were at issue in Plains warfare, but not because of absolute shortages, as others had argued. He identifies more subtle aspects of buffalo availability that were involved in conflicts, along with factors such as the historical contingencies of migration, cultural rules for behavior towards enemies, and, especially, past military interaction between groups. Another necessary consideration is a separate pattern of horse raiding. This raiding had its own dynamic, especially in response to changing Western trade demands. It contributed to a developing economic inequality between individuals, which in turn led to more raiding—an example of economic structure influencing war. Biolsi explains that this raiding operated as one component of the larger war system, so it also provides an example of the interaction of local and regional processes that Harris discusses.

On the Great Plains, there is no question of contrasting pre- and postcontact war patterns, because almost all our information dates from after the shocks of early contact. With the addition of Biolsi's chapter to the preceding two, there emerges the outlines of a pattern of differing impacts of contact on war, which will hold for three other case studies

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that follow. The difference is about whether postcontact wars continue to be fought over essentially traditional causes—food resources and the like—or over new kinds of scarcity derived from the contact situation. In the chapters by Bennett Ross and Ferguson, most postcontact fighting is linked directly to native–Western interaction. In the chapters by Harris and Morren, wars that occur after initial Western contact still center on more traditional subsistence and survival problems associated with the natural environment, although newly introduced diseases may have modified warfare even in these areas. Biolsi and Balée both describe intermediate cases in which getting food from nature remains central, but the structures of conflicts over food have been changed markedly by Western contact.

Morren's case study of the Mountain Ok of New Guinea represents a sharp change in geographic locale, but a continuation of themes raised in previous chapters. Like Biolsi, Morren advocates finer attention to details of local ecology, and stresses the interaction of different types of military action, with past encounters an important determinant of current strategy and tactics. Like Bennett Ross, Morren uses both extensive written sources and his own field material to describe conflicts at various levels, with the field descriptions emphasizing the processual aspects of war. But whereas Bennett Ross places her field observations primarily in a context of a long regional history of contact, Morren's main context is a synchronic comparison with war in other regions of New Guinea. His detailed description of warfare in the Mountain Ok region, and among the Miyanmin within it—which Morren calls *true war* in Turney-High's sense—includes attention to their own history of hostilities. The history of Western contact, however, is very thin, and with the exception of the results of introduced diseases, the effects of contact are portrayed mainly as an overlay suppressing and obscuring aboriginal war patterns. In this, Morren's chapter is most like Harris's, and the Mountain Ok are the only group besides the Yanomamo in this volume that appear to fall within the scope of Harris's proposed model. Significantly, they do appear to be pressing on available resources, and they do have an unbalanced sex ratio, as Harris's theory would predict. But Morren is not concerned here with testing that theory. His interests are more in tune with Vayda's work on coping, and so this contrast between Harris and Morren provides an illustration of the divergence of interests described earlier.

Morren distances himself from environmental determinism by stressing that ecological challenges are at least partially anthropogenic in origin. People interacting with their environment produce a variety of survival-threatening problems. A shortage of agricultural land is

important, but it does not stand alone. These challenges can be met through a variety of cultural responses. War is one of these responses, or rather war is a subset of responses that can be broken down further into varying strategies, just as the strategies are divisible into different tactics. Different responses, or different strategies and tactics, can dominate in different phases of the same conflict. The type of generalizations that can emerge from this way of viewing war are evident in Morren's comparison of the predominant strategies adopted in different ecological zones. Besides providing this opportunity for comparison, the proximity of different zones is itself an important factor in the hostilities within any one zone. The significance of interaction between ecological zones is stressed also by Price, Balée, Ferguson, and Cohen.

After four chapters dealing with particular cases of war, Price's theoretical essay is a change of pace, accentuated by her different position in the materialist theoretical spectrum. Price comes from the tradition of evolutionary theory rather than from ecology. Consistent with that tradition, her interest is in explaining how war acts as one factor in processes of sociocultural evolution. This chapter deals with development of inequality and sociopolitical complexity in the range between egalitarian and state societies. Because this range covers several of the cases described in the volume, this chapter has more than the usual number of links to other chapters.

Despite the fact that they occupy very different niches in materialist theory, Morren and Price are similar in viewing war as one type of response to existential problems, with other options including movement, exchange, and modification of subsistence techniques. Both recognize various possible strategies within each option. Both recognize sociopolitical organization as another set of variables impinging on action, although political concerns are less important for Morren, who is dealing with groups of similar and relatively unchanging political organization, than they are for Price. More generally, Price's theoretical treatment of the complexity of war systems addresses concerns that are broadly shared in the volume. Her discussion of system causality, her rejection of prime movers, or her discussion of within group-between group interaction (which is another way of looking at interaction of levels of phenomena) can be applied to most, if not all, of the chapters. More specific connections link this chapter to those of Harris and of Goldberg and Findlow. With Harris, she shares a central interest in evolutionary regularities, in regular convergence or divergence of behavior patterns. Whereas Harris focuses on the model accounting for evolutionary change, Price is more concerned with some of the evolutionary trajectories. With Goldberg and Findlow, she agrees on the

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continuum of evolutionary forms, on the comparability of different systems by reference to energetic criteria, and on the value of integrating archaeological findings into evolutionary research.

Price's focus on sociocultural evolution, especially on the relations between politics, production, and war, leads to other comparisons. She takes up several of the themes already discussed, and shares many common concerns with Cohen's chapter on political evolution. Price's chapter provides a broad evolutionary perspective in which to place and compare the chapters on particular cases and the political processes described in several of those cases. Two particular areas deserve special mention. One is the discussion of the effects of contact between societies of dissimilar political complexity. Western contact, as described in several chapters, can be seen as an important special category of this more general process. The second area receives less attention elsewhere in the volume. Price argues that, under certain conditions, labor rather than environmental resources may be the critical scarcity in a system. Competition over labor may lead to war. This suggestion is considered to a limited degree by Ferguson, and the related idea of recruiting warriors is found in other chapters. But Price has taken the idea much further, using it to explain evolutionary variations in social and economic organization, such as unilineal versus bilateral descent rules, the relative significance of redistribution in economies, and the ethics of sober investment versus conspicuous consumption. In drawing these connections, she extends our understanding of how war—not as a prime mover but in interaction with other factors and other forms of competition—leads to developments in other areas of social life.

Balée's chapter on the Tupinambá of the Brazilian coast is the second of the restudies. He criticizes an earlier explanation that attributed their warfare to revenge, not because of a particular interest in motivation, but because he feels revenge simply fails to explain the pattern of conflicts. Instead, he focuses on the ecological dimensions of wars at the time of contact and how the warfare changed under European influence. His discussions of ecology are very relevant to recent controversies about South American warfare reviewed previously and to related discussions in Bennett Ross and Harris. Balée argues that the Tupinambá did not fight for agricultural land, but they did fight for control of coastal and river areas, and access to protein sources was at the heart of the conflicts. Two basic types of conflict are identified, both of which find parallels in the subsequent chapter by Ferguson: (1) conflict between similarly situated groups over control of a particularly important, but restricted, resource; and (2) conflict between groups in different ecological zones over access to more productive areas. The

latter took the form of war between inland and coastal peoples. Contact brought substantial modifications of war patterns, one aspect of which distinguishes this case from other cases of contact: the baleful consequences (disease and slave raids) of living near the Westerners on the coast led to a reversal of the former desirabilities of sites, so coastal peoples began to battle their way inland.

Balée takes the topic of trade and war, discussed in some way in most of the preceding chapters, and considers it in relation to the structuralists' idea that exchange is the obverse of war. Like Price, he argues that exchange can mitigate hostilities if it is capable of ameliorating the resource imbalances. Then he goes a step further by suggesting how the development of a type of luxury trade may have facilitated the conduct of a seasonally alternating trade in necessities.

Ferguson's chapter is a restudy of warfare on the Northwest Coast of North America. The wars of the seven main cultural divisions of this region have been attributed to a number of different factors. This chapter tries to show that the warfare was similar in that generally (and in contradiction to some previous views), all were motivated by material interest. The emphasis on motivation, as well as the approach to it via inference from group behavior, are both unusual. In other ways, this chapter is consistent with overall themes and interests of this volume. It resembles Biolsi and Balée in its reliance primarily on information about group behavior, and Morren in the use of cross-cultural comparison. It is similar to Morren, Price, and others in emphasizing multiple causal factors, and to Harris and Price in claiming predictably regular responses to similar constellations of factors. Most of the chapter describes how several critical factors varied over time and location and the correspondence of the changing patterns of warfare. Identification of the specific factors supports parallel identifications and arguments in other chapters. By showing some warfare to be related to differences in productivity between ecological zones, or particular sites within a zone, it parallels arguments in Morren and Balée. By stressing the overwhelming significance of Western contact in transforming war patterns, it resembles Bennett Ross. In fact, the impact of contact—in terms of the depopulation, the introduction of guns, and the new trade and political developments—cannot be overemphasized. By including past relations of military opposition or alliance as important determinants of behavior, this chapter takes up a theme recurrent in several essays, although relations of hostility and alliance seem to have been a much less permanent, and more manipulable, matter on the Northwest Coast than what Biolsi describes for the Plains.

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described. As Price suggests, the need for manpower for war and for production leads directly to fighting in the case of slave raids, and to a pattern of redistribution to attract individual followers and ally groups. In several instances, a combination of war and other factors leads to developments in economic and political organization that follow expectations of both Price and Cohen. These changes also lead to modifications of subsequent war patterns. Another point about politics comes from comparing Balée and Ferguson. Price and Goldberg and Findlow argue against a taxonomic approach to sociopolitical evolution in favor of one envisioning multiple continuous parameters and processes. In trying to arrange these essays by ascending order of political complexity, I found their argument to be applicable in comparing the Tupinambá and Northwest Coast societies. By different criteria, and sometimes by the same criteria applied to different instances within the two cases, either of the two could be considered more advanced. The order of these two chapters could easily have been reversed.

Cohen's chapter concerns the role of warfare in the formation and subsequent development of states. It follows Harris and Price in its emphasis on theory, and falls between those two in the specificity of illustrative material, as Cohen focuses on case examples from central Africa and feudal Europe. His theoretical perspective is compared most easily to discussions in Price, although many of the themes raised are quite general throughout the volume. Cohen attributes war to an interplay of factors, without any one having preeminent causal significance. He emphasizes process over static types, with instability and decay as important sides of process. Internal-external interaction is described, both in terms of center-periphery relations within a polity and relations between different polities. He sees the possibility of multiple evolutionary trajectories, with his contrast of centralized and decentralized states reminiscent of Price's contrast of land and labor scarcities.

Comparison of Harris, Price, and Cohen also illustrates how apparent disagreements actually may be mere differences in interest. In Harris, the focus is on the interaction of populations with the natural environment; in Price, on the structure of production; and in Cohen, on political organization. Naturally, different interests lead to different conclusions, and these may seem to contradict each other. For instance, Cohen distances himself from the "protein hypothesis" of Harris, and, indirectly, from the energetic criterion of distinguishing important types of competition endorsed by Price. But, as discussed earlier, protein scarcity is not a universal factor, and the possibility of competition and conflict over materially trivial concerns does not necessarily ne-



gate the greater probability of strife over critical resources. On the other hand, the substantial similarity between these three authors becomes clear in Cohen's discussions of populations impinging on resources and of evolutionary convergences.

Like Price and others whose interests are more evolutionary than ecological, Cohen is interested mainly in the role of war in sociopolitical evolution. His discussion picks up where Price's ended—the origin of states—and continues with evolutionary trends within states. He argues that it is not war itself that can lead to state formation, but rather the ability of a central agency to control war. This leads him to review favorably Koch's theory of war, and to discussion of how emergent states must gain control over ethnic hostilities, the military independence of kin-based groups, and the freedom of individuals or groups to undertake revenge missions. (This chapter complements the preceding literature review by discussing not only Koch's but other theories from the perspective of war and political evolution.) Once states come into being, military pressures create tendencies toward convergence in their organization. Cohen discusses the tendencies of military groups to expand, to become more autonomous, and to appropriate more of the resources of a state. He also notes the tendency of states to become more similar as a result of military interaction. These themes are taken up again by Goldberg and Findlow and, especially, by Melman.

The final two chapters are each different in their own ways from the general patterns of the chapters in this book. One hopes they will expand the horizons of materialist studies of war in anthropology.

Goldberg and Findlow analyze aspects of the Roman occupation of Britain. Their central question is how to explain the fluctuating boundaries of the Roman territory. What makes their analysis unique in this volume is that it is quantitative. They develop and apply a predictive model, including six major variables, in conformity with established military thinking. They assert that this model is applicable to any society, and so its application to Roman Britain is akin to Harris's applying his model to the Yanomamo. The cross-cultural applicability of this model, its basis in energetics, its eschewal of nominal categories, and its amenability to incorporation of archaeological data, make it in a sense a realization of the type of approach suggested by Price. The concern with strategy and tactics in this chapter recalls related discussions in Morren. This chapter stands as an example of what can be gained through greater attention to how the military is organized and operates. One aspect of that organization merits further consideration here.

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forces. Goldberg and Findlow relate that one Roman legion consumed more than twelve tons of grain per day, reminding us that pre-mechanized military forces usually had to draw supplies from their region of operation, as well as get those supplies to the troops. Logistical organization becomes increasingly important with increasing scale of operations. (This suggests greater attention to contrasts such as that the Achuarã walked to war, whereas Plains fighters went on horseback, and Northwest Coast warriors traveled in canoes.) More elaborate logistical organization, however, also is more vulnerable to disruption. Thus, it was the highly uncentralized, simple logistics of the Celts that made the Romans rely on a costly attritional strategy rather than an interdictional one, and ultimately put a limit on Roman expansion. By drawing attention to the costs and internal constraints in fielding a force, Goldberg and Findlow support discussions in Price, Cohen, and Melman. They also illustrate a change in war, which has become apparent through the chapters preceding this one, and that will be emphasized in Melman: whatever factors affected Roman movement, they did not include any strategic resources associated with the disputed areas. The Romans were not fighting to conquer new resource territory.

The closing chapter was written by an industrial engineer who has long studied the political and economic connections of contemporary military machines. Melman's chapter was written after the rest of the volume had been completed. He was asked to summarize his own findings and compare them to the analyses and ideas in this book. The differences he sees between industrial and preindustrial war are striking.

Whereas preindustrial war may have been required by, or at least compatible with, the goals of survival and economic well-being of a society, industrial warfare is not. Rejecting the idea that modern war is primarily a struggle for resources, he argues instead that it is generated by the constant efforts of ruling groups to increase their power and extend their areas of control. The ascendant military complex increasingly diverts scarce resources away from production for human use to produce instead for human destruction. This debilitating drain, combined with the increasing destructive capacity of both nuclear and nonnuclear weapons, means that war machines, far from ensuring society's survival, have become a means of bringing society to an end. Furthermore, Melman argues that these cancerous military complexes have come to characterize all industrial societies, even new ones, and so they constitute at present a major obstacle to economic growth in the underdeveloped world. At this point, understanding the evolution of military systems has ceased to be a merely academic concern.

The general ideas of Melman's chapter, plus his many specific

contrasts of industrial and preindustrial war, suggest interesting areas for research. Melman is concerned with military complexes as they exist today. We can ask: how did they evolve? how far back can we trace their roots? From Price, Ferguson, Goldberg and Findlow, and especially from Cohen, it is clear that ruling groups seeking power via military action did not originate with industrialism. The earlier chapters of the book show that diversion of resources to war appears to be an even older phenomenon. By pursuing these leads, anthropologists might be able to contribute to understanding modern war. Even in this volume, Cohen appears to contradict Melman in suggesting that decentralization may be an emerging evolutionary trend. Anthropologists are in a position to ask other very relevant questions. Are there states, industrial or not, that have avoided the trend toward becoming garrison states? What is the significance of an industrial production regime versus the existence of a state military bureaucracy in promoting militarism? Generally, what factors promote, retard, or modify the development of military complexes? What is the role among these factors of competition for resources and markets, of variations in basic types of industrial organization, and of the structure of international relations as a factor independent of the economic organization of individual states?

### Summary and Conclusions

The chapters in this volume differ in their aims, in the theoretical concepts employed, and in the kinds of societies they cover. Yet as the comparison of chapters shows, there is a strong degree of closure to the book. Themes raised in one chapter are often picked up again in others, albeit in different combinations and argued in different ways. In this final section, I attempt to extract some general points from the volume as a whole. Needless to say, these are my interpretations, and probably do not represent the views of all the contributors.

This section begins with a brief review of the earlier discussion of materialist approaches to war. Then, I discuss the central themes of this volume, first dealing with aspects of the form of analyses, then moving on to issues of causation. Both are complementary to the synthesis of ecological approaches offered previously, but whereas that was a rather abstract amalgam of different current views on function and evolution, this discussion is a more detailed and concrete review of matters directly relevant to this text. It also incorporates new themes raised or

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suggested by this volume, the most important of which is the potential for unifying the ecological and political-evolution wings of materialist studies of war. This essay concludes with comments on the relevance of the anthropology of war to peace research.

The interest in economic motives in war that arose in the 1940s was shelved around 1950 as anthropological materialism entered a decade of new influences and changing interests. In the early 1960s, the ecological approach emerged as the dominant materialist approach to war, and it continued for about 15 years in a period of incremental elaboration and problem solving. In the mid-1970s, outside criticisms and internal divisions led to another period of theoretical reformulation that, like the 1950s, saw a decline in new analyses of war. This last period of reformulation is still with us, but the common themes that recur throughout the essays in this volume suggest that materialist studies again may arrive at a relatively stable platform of basic, shared ideas (until the next period of reformulation). These ideas are much more diverse than the last time around, however, which is why careful review and comparison will be necessary to bring them together.

Two recurrent themes of the volume represent application and extension of the "new directions" noted by Vayda and McCay (1975): (1) a recognition of multiple levels of analysis, and (2) an increased concern with process.

The chapters vary by which or how many levels of analysis they explore—individual, village, region, or whatever. But throughout, there seems to be a general recognition that different levels exist and can be studied to answer different questions. Furthermore, in several contexts it is noted that processes occurring on one level interact with and affect processes on other levels. The internal dynamics of a village may modify regional patterns of conflict and vice versa, an individual raider may embroil his entire band in fighting, and so forth. Earlier discussions in this chapter stressed the established trend toward the individual as a unit of study, but that is only one option. Studies in this volume actually pay more attention to patterns that are most comprehensible at regional or even interregional levels, such as trends in trade, large-scale migrations, and general military relations.

Process is another theme. Materialist studies always have considered some kinds of processes, but usually regular or stable ones, such as established repeating cycles or long-term evolutionary trends. These remain of great interest, but they have been joined by increased attention to more open-ended, unpredictable processes. Vayda has been calling attention to open-ended coping strategies for some time now. This volume adds an emphasis on the significance of contingent, his-

torical processes. The prime example of this is the attention given to the vagaries of contact in affecting native conflict patterns. Several war patterns described in this book would not be intelligible without considering the Western impact. (Compare these studies to Vayda's [1976] more stability-oriented discussion of persistent process in postcontact Maori warfare.)

Interest in regional trends and in history and contact reflect what may become a much larger reorientation of anthropological research. In a very broad spectrum of work, most vividly in studies associated with regional analysis (see Smith 1976), world-system theory (see Wallerstein 1976, 1980), and dependency theory (Frank 1969, 1980), anthropologists are investigating how local social arrangements are determined partially by supralocal forces and processes, which often involve interaction between different societies (e.g., Wolf 1982). This broad *societal interaction* perspective is much more extensive than the limited field of war studies, and cannot be pursued further here. Instead, the following discussion aims at a statement about causal priorities in war, involving both ecological and other factors, especially political ones, which is consistent with the analyses in this book.

It was never true, although it was occasionally alleged, that ecologists sought to reduce "culture" to "ecology." Even the earliest ecological analyses of war stressed the importance of existing sociocultural relations. We would probably be better off if the entire idea of culture versus ecology was dropped. It is no more valid than the opposition of genes versus environment—both are absolutely necessary for the development of an organism (see Gould 1983). We should be arguing about more sophisticated relationships between culture and ecology than "either/or." The causal arrows that one side draws from cultural traditions to interaction with nature, and the other side draws from the natural environment to cultural patterns, may well be two loops in cybernetic linkage.

The chapters in this volume treat the natural environment as a very important set of factors, but it is still only one of several that need to be considered in understanding war. Openness to multiple factors does not mean, however, an acceptance of undisciplined eclecticism, in which no priority or regular relationships are established between factors. Based on this collection of studies, I think it is possible to produce a general statement about the significance of ecology that at the same time takes into account sociocultural dynamics, and specifically, the factors of inequality and power—both of which have been neglected in past ecological studies more concerned with the nature-culture interface.

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People depend on resources from the natural environment to survive and live at traditionally acceptable standards. With a given economy—including technology, the organization of work, knowledge about the production process, and so forth—there will be finite amounts of some resources in a given area. This is not simply a matter of their presence, but also of their availability under all existing conditions. Larger annual harvests of animal protein, for instance, might be sustainable under a restructured and/or intensified labor regime, or agricultural land might be scarce only because disease or some other hazard makes large areas too costly to exploit. Any change that increases demand for or decreases supply of a critical resource in a situation in which demand already is near the effective limit of that resource, can result in problems such as diminished per capita consumption, decreased returns for production effort, increased opportunity costs of procurement, or depletion and degradation of the resource base.

Under these circumstances, a population can opt for one or a combination of three basic alternatives to alleviate the problems. (1) They can intensify application of existing production techniques, but this may have limited potential and/or potentially adverse consequences (such as depletion). (2) They can shift to new economic organization, and with a new economy essentially create a new effective environment. This is not something done overnight, however. A shift in production is usually a gradual, long-term process, often involving substantial risks, a decline in living standards, basic modifications of daily activities and social institutions, and sometimes insuperable environmental obstacles for a given technological starting point. (3) They can acquire more of the scarce resource from outside their original territory. Trade sometimes can succeed in this, or migration to uninhabited areas might relieve all pressure. But when trade in the needed resources is not feasible, and neighboring areas are not vacant, but populated by groups in similar circumstances; then acquiring more of a resource may mean going to war. War to gain territory or tribute, despite all its hazards, may be the most viable of the alternatives.

The circumstance of resource scarcity seems common enough, and so does war. One reason for this is that population numbers generate a demand for resources. Populations tend to grow, although they may not always grow until they hit some environmental limit. There may be various reasons or means for stabilizing numbers well below this limit, although, as Harris notes, not all such means may be equally likely to be adopted or possible to sustain. At any rate, if a nonstratified population is not impinging on environmental limits of subsistence resources, and there is no other factor such as trade or conspicuous consumption

that promotes demand relative to available supplies of critical resources, then they will not regularly be expected to initiate wars, although they may have to respond to attacks from others who are experiencing scarcities. This view contrasts with theories that explain war as generated by certain values, social structures, and so forth, in the absence of any material rationale. Such factors do affect the conduct of war and thresholds of violence. They can be very significant in an analysis, as several of the chapters demonstrate. But a materialist theory directed at explaining the occurrence of war must hold these factors to be secondary, and not regularly capable of generating and sustaining war patterns in themselves, if that theory is to be subject to falsification.

The presence of war in an area and, probably, the presence of other forms of group competition—conflict as well, adds a new nonnatural dimension to the effective environment. War is one of those hazards, like disease or exposure to difficult climatic conditions, that affects the total costs of living in and exploiting a given area. Other things equal, one would probably rather not live in an area of active warfare, and would remove oneself if it were possible. In another sense, war is very unlike natural hazards, because it is a hazard controlled and manipulated by other humans. It involves qualities not normally encountered in dealing with the natural environment, such as the need to anticipate other rational actors, and the way constellations of forces can change overnight. Although war is not a perpetual motion machine, going on and on by itself, where it is going on it will be taken into account by all those who wish to survive. So war itself becomes a factor shaping future wars, as it also affects other areas of social life. Changes in one of those other areas—political organization—will add a third dimension defining war. (The following discussion is based on all the chapters, but especially on Price, Ferguson, Cohen, Goldberg and Findlow, and Melman.)

Of all the sociocultural changes that can be induced by war, the most significant in terms of further modifying war is the development of inequality in socioeconomic position and power, which I refer to by the somewhat broader heading of *political evolution*. War is not, by itself, the cause of political evolution, although it is one cause, when combined with other necessary circumstances and trends. The precise combination(s) of all these factors underlying political evolution is hotly debated, and I have no wish to duplicate the discussions of later chapters here. But a few significant political consequences of war can be noted.

In combination with other circumstances, war can promote development of recognized leaders, and/or of a group of military specialists

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who do less or no work in regular subsistence tasks, and who may be able to act coercively against members of their own group. War leaders may extend their areas of control beyond the conduct of a military campaign into daily activities, sometimes including the ability to adjudicate or suppress internal conflicts, to direct and intensify production and distribution of goods, and to decide the "foreign policy" of a group. When war results in the conquest and domination of one group by another, its role in the development of unequal economic and power relations may be dramatic and obvious. Finally, other inputs to an evolving situation, such as accelerated trade and the support of powerful outside patrons, seem to promote both war and political evolution independently, and so tend to correlate.

Even these general statements must be qualified. War does not always lead to political evolution of any sort. Limited ecological potential, social arrangements such as those discussed by Koch, or other factors may curtail severely any structural impact of war. War can even work against centralization, as did the Roman action against the Celts. War may lead to more complex political systems, but ones that lack the infrastructure to persist after hostilities end, or which contain within themselves contradictory tendencies that eventually lead to reversion to simpler structures. Finally, military organization and capabilities can vary, to a degree, without any necessary reflection in economic or political structure.

All complexities and qualifications aside, the development of socioeconomic inequality combined with power differences, within and/or between groups, adds a third critical dimension to war (to join the economic and military dimensions). I noted above the emphasis of an earlier generation on how goals, organization, and conduct of war varied by evolutionary levels. Reading the following chapters in sequence, one sees what they were talking about. Only a few of these evolutionary changes can be discussed here.

In egalitarian and ranked societies, i.e., until the point at which clear social strata emerge and some people can exercise power over others, a political leader may have selfish interests to advance in war, but he can do so only if others freely agree to fight. As one approaches state-level organization, in which political leaders have recourse to means of direct compulsion as well as ideological manipulation, a lack of positive incentives for a commoner to fight may be outweighed by the negative consequences of not fighting. The carrot may be superseded by the stick. A state may engage in a war that benefits economically all the population, but different positions within the socioeconomic structure invariably will lead to different mixes of costs and



benefits resulting from military policy or action. It becomes eminently possible that rulers and ruled will have contradictory interests at stake in conflicts.

With the emergence of stratified groups, and even in levels leading up to that, allocation of available resources within a society will depend on internal social arrangements. A ruling group will enjoy resources by virtue of mediating social arrangements that do not similarly serve the nonruling population. The latter, too, will benefit from available resources according to their place in the social order. Of course, in any sociocultural system, stratified or not, the effective availability of resources will depend in part on the social order. What is new with stratification is that major divisions within society benefit unequally, and that continuation of the unequal benefits depends largely on the rulers' ability to maintain the established order.

Because it is the rulers who have the most say in military decisions, the environment becomes only one of a complex mix of factors contributing to war. This is a qualitative change, meaning that in war and other social conflict, the principal issues at stake may not pertain to the natural environment, or even to the external social environment, but rather to the internal order of society. A ruling group may start a war that has no economic rationale for the society as a whole, or even any direct material benefit for the rulers, in order to preserve or strengthen the sociopolitical structure that is the basis of their privileged position. Mao wrote that political power grows out of the barrel of a gun, but the foundation of that power is a sociopolitical structure that keeps the guns (or spears) from being turned and trained on the rulers. Often it does not take much to produce this reversal, so rulers may act on the potential of a future threat to their hegemony. Some threats are external, such as border harassment, but others come from within. A ruler may launch a war to co-opt and redirect an incipient rebellion, to weaken the forces of a potential rival by sending them to the front, or as part of a larger effort to expand the military's share of available resources.

In reviewing nonmaterialist approaches to war above, I referred to research demonstrating that political evolution leads to a decline in the influence of social structure on the conduct of war. Now I have argued that political evolution also limits the significance of ecology, as well as adding new factors, in war's genesis. All this is fairly obvious by the time one reaches the state, but the increasing dominance of political concerns in war is a gradual development that may begin with the simplest forms of socioeconomic differentiation and leadership. Greater attention to the role of politics at all levels would lead to a unifica-

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tion of ecological and evolutionary approaches to war, and so make for stronger materialist theory.

Reading through the chapters in sequence suggests one other generalization about the evolution of war. As one moves up the scale of political evolution, military activity dramatically increases in scale and organizational complexity. Another important characteristic of this continuum may not be so obvious: as one moves from Achuarä feuding to nuclear strike forces, the social institution of war becomes progressively more autonomous. It is not only less constrained by social structure and ecology, it becomes less embedded in social life in general, even including nonmilitary aspects of the political system. Among the Achuarä, the conflicts are inseparable from and constrained by the organic fabric of daily life. With nuclear weapons, a war can occur with the participation of only a minute fraction of the populace, other than as its victims. Far from being an integral part of social life, this kind of war can bring society to an end. When hundreds of thousands of people recently marched in opposition to the nuclear arms race, they were told by military specialists that the issues were too complicated for them to understand. The modern military not only has its own unique technology, social organization, and ideology, but it follows its own peculiar logic (see Bennett and Dando 1983)—a logic that is held to transcend any contrary social needs or humanitarian concerns. The ultimate consequences of letting this trend toward self-direction by the military to continue cannot be foreseen, and indeed may be too horrible to imagine.

The last point brings this chapter back to where it began, with the potential contributions of anthropology toward understanding modern world conflicts. One way of contributing would be through work on topics with direct relevance to contemporary peace research, such as the psychological dynamics of people in war, the conditions favoring social cohesion or division as a result of external conflict, or the several political issues raised on page 52.

Anthropologists could also address themselves directly to current struggles in the Third World. Perhaps no academic discipline is better equipped to explain the social dynamics of popular uprisings or to document the human consequences of superpower aggression, wars between Third World states, and internal state policies of tribal, ethnic, or class oppression. Anthropology may be less obviously relevant to the issues surrounding nuclear war, but our theory and techniques may still make a contribution, such as through cooperation with other sciences to develop a picture of what life would be like after a nuclear attack (if any still existed), or through ethnographic investigation of the

subcultures of the powerful and how their subcultures may influence the policies they develop (see Bunzel and Parsons 1964; Mead and Metraux 1964).

It would be dangerous, however, to undertake any of this research without full consideration of the ethical questions that may be involved. It is one thing to call attention to the activities of death squads, and another to advise a government which condones their activities; one thing to document and make public the ideology of military policy makers, and another to assist them in implementing their policies more efficiently and effectively. If there is to be an applied anthropology of war, it must confront the ethical issues from the start, or else it will be haunted by them later.

Another way of contributing would be to put more effort into synthesizing and generalizing anthropological findings on war, thus making the work more accessible and comprehensible to outsiders, and so more likely to influence their thinking. It has been difficult for non-specialists to get any sense of what anthropology has to say about war. Worse, the frequent pessimistic self-appraisals sprinkled throughout the anthropological literature has probably convinced many not to try. But the anthropology of war has been growing fast. Another decade like the past two and there will be no need to apologize for its lack of substance. If researchers would be more careful to distinguish real theoretical disagreements from differences in research interests, integrated, holistic theories of war might be possible.

Anthropological theory on war is not of only academic interest. Our already existing knowledge could help dispell some popular misconceptions by making it clear what war is not. While preparing this volume, I tried through informal conversations and attention to themes in the media, to ascertain popular conceptions about war. I found three common views, all of which make war seem inevitable. The supposed roots of war are: innate human aggressiveness, human ignorance and intolerance, and the never-ending battle for resources needed to survive.

The anthropological literature on war contains statements supporting each of these ideas, and indeed, each of them can be considered valid in some sense or circumstances. The literature does not, however, offer much support for any of them as a sufficient explanation for all war, which appears to be how they are understood, or as a factor that somehow makes war inevitable—this despite the fact that popular statements of these ideas are often accompanied by reference to the imagined behavior of "primitive man" as illustration. Much of the public, it seems, believes that anthropology has shown that humanity is

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doomed to war. By making war seem unavoidable, these misconceptions may weaken efforts to work for peace. They are dangerous ideas.

Anthropology could emphasize a very different message. Despite the disagreements within the field over the relative significance of the various factors involved in war, probably few anthropologists would take issue with one inference from this volume: understanding war in state societies requires attention to the economic and political interests of those who decide military policy. The costs and benefits of war among states are unequally distributed. The powerful may reap the benefits, whereas the powerless pay the costs. And the costs of modern war are awesome. This is hardly a new idea, but it is often ignored or suppressed in public debates, as in the reckless military buildup in progress at the time of this writing. This idea also offers some hope that war might eventually be controlled. If the hidden stakes in modern wars were laid bare, stripped of convenient myths of human aggressiveness and of inevitability, then perhaps those who are called to kill and die will say "no more," and demand that conflicts be addressed through instruments of peace.

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