THE FUNCTION OF RITUAL AS COMMUNICATION OF SOCIAL RELATIONS IN HUMAN AND NONHUMAN SOCIETIES

A Thesis

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by

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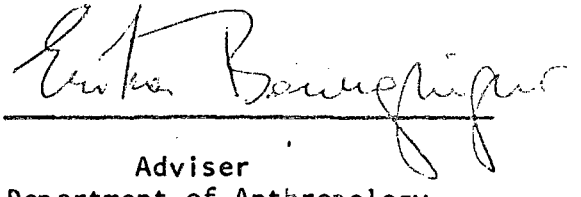

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DEDICATION

To three senior colleagues, Drs. Erika Bourguignon, Robert K. Dentan, and Anthony F. C. Wallace, and to one peer colleague, my wife, Rebecca.

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INTRODUCTION

The anthropological concern with ritual is as old as the field itself. However, in the past, anthropologists have tended to seek for the essence of ritual either in religion alone (especially nineteenth century authors) or in the psychological or sociological requirements of human existence (the various functionalist schools of this century). In either case, they have approached ritual as a strictly human phenomenon and not as a general type of animal behavior. This has been partially due to the lack of an adequate and reliable body of scientific data until fairly recently in the realm of animal behavior. Ethology, the scientific study of behavior (Tinbergen, 1951:1), had its real beginnings in the 1930's and has only begun to influence other fields in the last few years. However, with the development of ethology, there has arisen a considerable literature dealing with ritualization among animals.

My thesis is an attempt to add a broader perspective to the anthropological study of ritual by utilizing certain concepts and data from ethology. I intend to demonstrate the social function of ritual as communication of intragroup relations in animal (including human) societies in general.

That communication is the essence of ritual has for quite some time been understood by zoologists, particularly since Lorenz' classic paper in 1935, in which he introduced the concept of "social releasers". Social releasers are, to use Lorenz' original analogy, the keys which unlock appropriate social responses

in fellow members of the species (1935:88-89, 116-117, 121). The general theory is as follows: Any particular case of social cooperation depends upon the delivery of a signal; social releasers are these signaling devices, such as specially adapted movements,

> ...whose sole biological function is to release...social responses, in the broadest sense...The entire sociology of many social animals...is based on complex systems of releasers and innate mechanisms, which guarantee consistent and biologically adequate handling of the sex partner, the young, in brief, of all fellow members of the species (1937:141).

Lorenz' concept provided the starting point for many of the assumptions behind an ethological hypothesis on ritual and clearly pointed to communication as the central issue in such an inquiry.

It was Tinbergen who pioneered the use of the term "ritualization" in animal behavior. Tinbergen defined ritualization as the process whereby behavior patterns acquire a communicative function, that is, become "adaptively refashioned" into social releasers (signaling devices) (1951:191; also, 1953 and 1964). Thus, he established communication as the sine qua non of ritualized behavior.

Most later workers have followed the lead of Lorenz and Tinbergen in their treatment of the subject. I will cite two definitions from the ethological literature which demonstrate this: Portmann (1953:196) defines rite (read "ritual") as "any coordinated performance of actions, fixed for a particular social group, which is understood by the group's members" and Andrew (1964:229) defines display (read "ritual") as "a pattern of effector activity...which serves to convey information". For additional statements and elaborations of this basic position on ritual as social communication,

see Lorenz (1939, 1952, 1963), Tinbergen (1964), Hinde and Tinbergen (1958), Blest (1963) and Schaller (1963a, 1963b, 1965) and also the transactions of a Royal Society of London symposium on ritual held in 1966 (see Hinde, 1966).

Only a relatively few anthropologists besides A. F. C. Wallace (1966) have recognized that ritual is, in essence, communication. This being the case, the traditional studies of ritual in anthropology are for the most part only indirectly relevant to my thesis, a fact which I feel justifies a rather minimal and highly selective historical survey of positions taken by earlier anthropologists. However, I will sample some of the definitions of ritual which are best known in the literature in order to show how they relate to my thesis and will then proceed to show that my position may be quite readily reconciled with certain viewpoints which have been derived from ethnological research.

The evolutionists of the last century undertook the study of ritual as part of their search for the origins of the seemingly more basic concept of religion. Ritual was seen as deriving from religion and functioning as an active or passive means of dealing with religious forces or beings. In 1871, Tylor wrote that "rites" were symbolic performances of beliefs and the instruments of communication with, and control of, spirits (1871:448). Frazer (1911-1915) believed rituals to be pseudo-scientific formulae for producing desired effects, either directly through magic or indirectly through religion. Because these and similar theories 1) base ritual in religion and 2) assume rational functions for ritual,

they do not speak to the point of my thesis.

Largely in reaction to this tradition which was, at the time, ill-equipped to deal adequately with studies of origins, it seems to me that two main, and related, schools of thought have developed in anthropology which have affected the treatment of ritual in this century: The positions which have attributed to ritual (and other cultural phenomena) psychological and sociological functions. Function is here to be understood in a basically Durkheimian sense (cf. Radcliffe-Brown, 1935:178). In this case, the function of ritual is the correspondence between ritual and the necessary conditions of existence of the psychological or sociological systems of which they are a part.

What I call the psychological functionalist tradition stems primarily from Malinowski. Malinowski's theory proposed that ritual served the psychological function of allaying anxiety by insuring a beneficial outcome when the primitive encountered conditions he could not control (1925, 1935). The following sums up his position:

> In the lagoon fishing, where man can rely upon his knowledge and skill, magic does not exist, while in the open-sea fishing, full of danger and uncertainty, there is extensive magic ritual to secure safety and good results (1925:31).

Most of the others of this tradition, such as Homans (1941), Kluckhohn (1942), Nadel (1952) and Wallace (1966), also hold that ritual functions to reduce anxiety. One of the most dramatic demonstrations of this function of ritual was reported recently by Castaneda: Of the three narcotic substances used by his shaman

informant, the most unpredictable one (and by reason of that unpredictability) required the most elaborate ritual (1968:218, 240).

Though the psychological function of ritual is not the main concern of this thesis, my approach can add a good deal of indirect evidence to the theory of anxiety reduction. In the first place, since men and most higher vertebrates are both social and psychological beings, it is expectable that phenomena such as ritual will have functions within both interrelated systems. It is, for example, quite easy to show that social stress can produce psychophysiological discomfort, damage and even death (Cannon, 1942; Selye, 1957; Calhoun, 1962; Christian, 1963; Funaro, n.s.a.). Conversely, reduction of social tension reduces anxiety among the group members. As Firth points out, "for any society to work effectively, and to have what may be called a coherent structure, its members must have some idea what to expect" (1951:30; cf. Bohannan, 1963:225). As i intend to show in the body of this thesis, ritual is a communication system which evolves as an adaptation to reduce social stress by defining social positions and thus indicating the expectable behavior. Therefore, the social function of ritual may be seen to implement its psychological function.

Also, animals under psychological tension often respond with highly stereotyped behavior patterns. This is perhaps most dramatically seen in neurotic or psychotic specimens, such as in laboratory studies of rats (Maier, 1939:30-31, 48, 70), cats and monkeys (Masserman, 1950:247), and humans (Coleman, 1964:278-280, 304), but it is also easily observable in normal animals. For ex-

ample, paling or the tension yawn is readily recognizable in cats, dogs and primates; among primates in particular, manual and oral manipulation of self and objects is quite common in stressful situations. The ethological literature on these behavior patterns is rather extensive (e.g., Tinbergen, 1951:113-119 and 1964:218-219; Armstrong, 1965:106-121). Such behaviors are usually called "displacement activities" and are defined as stereotyped, contextually irrelevant motor patterns which function primarily to release the tension generated in conflict situations, as when two or more "antagonistic" or mutually inhibiting drives are aroused (cf. the German term, "Ubersprungbewegung). Displacement activities make excellent raw material for rituals because they 1) are typically stereotyped and 2) are usually stimulated by other animals in social contexts; that is, by virtue of these "preadaptations", such behavior patterns often come to acquire a communicative function and are generally considered to be one of the major sources of rituals (e.g., Tinbergen, 1951:191-192 and 1964:214-216).

Of the many examples of ritualized displacement among animals, one of the best and most striking can be drawn from primate behavior: The chest-beating display of the mountain gorilla (Schaller, 1963a, 1963b:222-234 and 1965:361-365). This is a sequence of nine distinct displacement activities which have been incorporated into a definite display given in potentially dangerous situations. The display clearly releases the building tension in the animal and has achieved secondary functions as intimidation; that is, it has become ritualized (1963a:16). There are many

human analogies wherein stress produces rituals in particular societies. Mary Douglas, for example, has shown that the anomalous position held by the pangolin (Manis tricuspis) with regard to the Lele's traditional man-beast dichotomy has made this animal a cult object and focus of the important Pangolin Ritual, which ensures fertility and good hunting (1957; 1966:168-169). Others I have classified elsewhere (Funaro and Rengsdorf, ms.) as ritualized displacement are the Ghost Dance of North America (Mooney, 1896), certain Melanesian Cargo Cult rituals (Belshaw, 1950), and perhaps nativistic or milleniarian rituals in general (cf. Festinger, 1957 and Festinger et al., 1956; also Barber, 1941). Probably Gluckman's "Rituals of rebellion" (1954) also belong in this category of displacement.

This treatment, however brief, will show that there is a great deal of support to be gained for the thesis of anxiety-reduction by viewing ritual in the broader context of animal behavier (cf. Wallace, 1966:234-236). As in suggested here and in Discussion of the Hypothesis, this ethological approach should prove useful to anthropologists interested in the psychological function of ritual. Its implications are apparent, for instance, with regard to the classic Malinowski-Radcliffe-Brown debate on ritual and anxiety; Radcliffe-Brown's point seems clearly secondary (1939:148-149). I have felt it necessary to deal briefly here with the psychological function of ritual in order to show the relevance of the ethological approach to the general problem of ritual. However, this

thesis will be concerned primarily with the social function of ritual. The sociological tradition in the study of ritual was initiated by W. Robertson Smith, whose considerable contributions are sometimes ignored. First of all, Smith recognized that ritual was in general more basic than ideology in religious behavior while many of his colleagues were asserting that rituals were no more than the acting out of myths. Also, he laid the groundwork for the social functionalist approach to ritual when he defined a particular Semitic ritual, the sacrificial commensal feast, as an expression of the kinship bond between the god and its worshippers (1889:269-276). A useful term, "anthroposocial", has been contributed by Goode to describe the cultural relationship of a diety with its adherents (1951:43).

Durkheim also conceived of the relationship between men and their gods in much the same way (cf. 1915:236-7, 253-7). It was Durkheim, however, who really defined the position as a "school of thought:. According to Durkheim, the social function of an institution is the correspondence between it and the needs of the society. His overall theoretical position, however, is more useful here than his definition of ritual, because the latter depends upon the distinction he drew between the sacred and the profane (1915:56). Thus, I have found that in the context of my thesis, Durkheim's definition is not relevant (cf. Leach, 1954:12).

Radcliffe-Brown stressed that orderly social life is impossible without ritual. In his view, ritual is the means whereby a

society promotes social cohesion by inducing in its members the necessary collective sentiments.

> (The) rites of savages exist and persist because they are part of the mechanism by which an orderly society maintains itself in existence, serving as they do to establish certain fundamental social values (1939:152; also, 1922:234, 324).

Most of the others of this tradition, which corresponds basically to the British schooi of social anthropology, have followed Radcliffe-Brown's lead in analyzing ritual from the point of view of its social function (Radcliffe-Brown, 1939:1422-145). Of these, however, it seems to me that only two, Edmund Leach and Max Gluckman, have fully realized that ritual's primary social function is communication of social relations. Unlike Wallace and myself, who have come to this conclusion through some acquaintance with the studies of animal behavior, Leach and Gluckman have each proposed definitions of ritual apparently derived independent of the ethological literature yet strikingly consistent with the definition set forth here. I feel that such simiiar definitions of ritual as communication which have been elicited by strictly ethnographic data constitute some degree of validation for my hypothesis.

Leach specifically calls ritual a kind of "language" (1954:86, 281) and refers to it as "part of the total system of interpersonal communication within the group" (1954:12). For Leach, ritual is "a symbolic statement which 'says' something about the individuals involved in the action" (1954:13). He holds that the function of ritual is "to express the individual's status as a social person in the structural system in which he finds himself for the time being"

(1954:9-10). Gluckman believes that the rituals in which an individual participates "emphasize his role in relation to the other participants in the ceremony" (1962:42). A ritual signals the fact that a man is playing a particular role; it designates which social role among those possible (e.g., chief, husband, friend, kinsman, elder, father, fellow worker, shaman, etc.) is being (or will be) enacted (1962:28, 35). In this way, it averts conflict and allows social life to proceed in an orderly fashion.

Except for the difference in emphasis between status and roie, Leach and Gluckman are basically in agreement with one another and with the hypothesis proposed here that the social function of ritual is the communication of social relations. Thus, this primarily ethological concept of ritual can, it seems to me, be readily integrated into the social functionalist tradition in anthropology. indeed, without offering a theory or formal definition of ritual, many scholars of the British school have proposed ethnological interpretations of their field data which strongly suggest that they are assuming a definition quite congruent with my own--i.e., ritual is behavioral communication of social relations. Witness, for example, Kuper's remarks concerning the Incwala, the Swazi ritual of kingship.

> The Incwala dramatizes actual rank developed historically: It is 'a play of kingship'. In the ceremony the people see which clans and people are important. Sociologically, it serves as a graph of traditional status on which, mapped by ritual, are the roles of the king, his mother, the princes, councillors, priests, chiefs, queens, princesses, commoners, old and young...The laws of rank are expressed in action, so in discussing the ceremony they

> are consciously articulated. The major adjustment, the balance of power between the king, his mother, the princes, and commoners, is a central theme. A study of groups and individuals who do not participate in the Incwala completes the graph of rank in Swazi society (1947:225; see also 1963:72).

Leach interprets the Kachin crop protection ritual in almost identical terms: "The pattern of ritual 'represents' or describes the status relations within the community" (1954:174).

In sum, I have begun with a basically ethological definition that ritual is, in essence, communication of social relations. In this introduction, I have tried to indicate that there is no necessary inconsistancy between such an approach to ritual and the social anthropologist's concept of ritual. Briefly, I believe that a definition of ritual derived from animal behavior is applicable to human behavior because ritual can be legitimately viewed as a much broader behavioral phenomenon than has been traditional in anthropology. The body of this thesis, then, will be concerned with presenting an hypothesis of ritual, including a definition and demonstration of its validity.

RITUAL: AN HYPOTHESIS

Since this presentation will attempt to demonstrate the social function of ritual as communication, it is both appropriate and necessary to begin with the assumptions behind such an approach, starting with a brief discussion of communication. Any communication system consists of signs (signals), referents (meanings of the signs), and interpretants; the relations between these elements form the data for the three aspects of semiotic analysis in linguistics: Syntactics, semantics and pragmatics (Morris, 1935). The existence of each element implies the existence of the other two in any working system. interpretation, of course, need not be "conscious," and may simply involve stimulus and "programmed" appropriate response within a common reference system. Interpretants must include both senders and receivers in a working system (cf. Mason, 1958:172). As is expectable, then, types of signals are keyed to the sensory capabilities of the interpretants.

For reasons of my particular analysis, signals have been here classified within a three-part scheme based on conventional biological aspects. Signals may be roughly classed as physiological, morphological or behavioral. These categories are not meant to be necessarily mutually exclusive. For example, a display (as defined here) is a combination of behavioral and morphological signals. As a matter of fact, i view this classification system primarily as a heuristic device and intend that it be highly extensible, as is seen in my application of it to many human rituals. in man, even non-behavioral

signals may be (and usually are) simulated or modified by cultural means; but, by analogy with the kind of stimuli projected, perfumes may be classed as physiological, and clothes and other adornments as morphological, signals.

Physiological (chemical) signals are most commonly scents and are found in species having sensitive olfactory apparatus, such as most mammals and insects. What have been called "special hormones" among termites may be an example of another type; and, at a lower organizational level of systemic analysis, nerve impulses and DNA could be considered as physiological signals.

Morphological signals are structures and colors such as breeding plumage, sexual swelling, antlers, crests, color patterns, etc., and general attributes of sizes and shape. These signals are primarily visual and are correlated with the capabilities of that sense mode in particular organisms. Color signals, for example, are especially prevalent among birds and primates, which have color vision, but not in most mammals, which do not. The presence of motor pattern which conspicuously exhibits such a morphological signal constitutes a display, in my terminology. Obvious examples are the "presenting" of the female baboon and the tail spread of the peacock.

A great many, and perhaps most, signals are behavioral or have a behavioral component. Probably this is in large part because behavior offers a greater potential than the other aspects for variability and complexity of informational load via combinations and contrasts, especially over short periods of time. It is also possible that behavioral signals require less sophisticated sense receptors;

also, they may be detected by several sensory modes--that is, they may be visual, tactile or perhaps auditory. Auditory signals probably belong in the behavioral class, but they raise certain problems for my analysis and I will not consider them here. For the purposes of this presentation, behavioral signals will be confined to movements or acts, or, in other terms, motor or effector activity. It is these signals which have a specialized behavioral component that I call rituals.

The working definition of ritual used here is as follows: Ritual is behavior which is (has been) conventionalized to serve as social communication. It should be understood that this is primarily a functional definition, since I hold that it is the signalling function which distinguishes ritual from other behavior (cf. Wallace, 1966:234). The various processes whereby motor patterns become specialized for this function--e.g., stereotypy, exaggeration--are simply adaptive means of facilitating communication; they are important and ubiquitous, of course, but not in themselves essential to my definition. Neither the definition nor this thesis claims or attempts to explain the specific causes, motivations or content of particular rituals. My concern here is the social function of ritual--i.e., what ritual <u>does</u> as a necessary and integral part of any social system. In this context, rituals, whether of common or independent origin, whether instinctive or learned, are analogous (cf. Portmann, 1953:196, Lorenz, 1963:58 and Wallace, 1966:218); they have the same essential, radical function: The communication of social relations. It is

significant, I think, that the zoologist Portmann (1953:193) and the anthropologists Leach (1954:12-15, 86) and Wallace (1966:237) each specifically call the ritual system a "language", that is, a communication system.

To understand the definition of ritual proposed here and its relevance for anthropological theory, it is necessary to outline a developmental scheme. Societies require an ordered way of life, that is, one which assures consistent and appropriate treatment of its members. Both biologist Scott (1958:160) and anthropologist Linton (1936:92-93, 96) agree that the most fundamental process is the development of society is, as stated here by the latter, the

> adaptation and organization of the behavior of the component individuals...(which) transforms the aggregate into a functional whole and enables it to do most of the work of a society.

This behavioral adaptation is essentially the development between potentially competing individuals of stable social relationships, which can only come into being when the behavior between these interacting individuals becomes "regularly and predictably" differentiated on the basis of their relative social positions (Scott, 1958:160, 162). In socioiogical terms, random or unorganized behavior becomes institutionalized into roles, and the individuals acquire social identities occupying statuses which indicate their rights and duties to perform particular roles. it is the structure of these relationships which gives rise to the social order, which can, in turn, be described in terms of

> an idealized model which states the 'correct' status relations existing between groups within the total system and between the social persons who make up the particular groups (Leach, 1954:9).

The necessary behavioral adaptation and resultant social order are accomplished primarily through the evolution of a system of social communication which delineates social relations. Certain behavior patterns acquire a communicative function; that is, they become meaningful within society as signals of asserted relative social position (status, in its broadest sense) and behavior to be expected (role) of group members. "Without this ceremonial code", as Armstrong calls it, "there would be misunderstanding and confusion" (1965:148; see also Mason, 1958:172).

The process whereby behavior patterns acquire this communicative function as signaling devices is called by ethologists "ritualization". Though it is not my purpose to discuss the process itself at length, a few words are necessary since they bear directly upon my definition of ritual. The efficiency of any system of communication depends upon the reduction of ambiguity, which is accomplished through the stabilization of form and meaning of its units. In ritualization, where the units are movements, the result is a stereotypy or other conventionalization in the performance of behavior patterns (e.g., Blest, 1963:104; Tinbergen, 1964:223); these movements "often take on a formal stiffness, slowness or exaggeration" (Etkin, 1964a:194). The sole function of tbis standardization of a motor pattern is the increase of its efficiency as a signal by reinforcing its association from all other activities. "It is this inferred evolutionary process of increased adaptation to the signaling function which is called ritualization" (Tinbergen, 1964:220; see also, Blest, 1963:102, 122). The conventionalized

movements themselves, these products of ritualization, I have called rituals--hence, my definition of ritual as behavior which communicates social meaning or information between or among interacting individuals or groups.

Illustrations of this social function of ritual abound in the ethological literature and one can with little effort collect examples from all major orders of vertebrates and higher invertebrates. Though I feel it is imperative to realize that ritual operates as a general phenomenon of animal life, it would be useless here to just list examples; so I will cite one illustration only. A typical dominance interaction among primates will provide a simple and preliminary case in point.

As among canids and some other mammals, the key component of the primate threat ritual is the direct stare or glare, which appears to be a good index of the threator's confidence. The direct stare seems clearly aggressive when objectively studied in light of the situations in which it is given and the responses it elicits; depending on various factors, the direct stare among humans may be interpreted as expressing anger, menace, challenge, boldness (often with sexual implications), or merely impoliteness. Associated components include the frown (exaggeration and focusing of the stare), tensed lips and partially open mouth (intention to bite), and forward thrust of head and even body (intention to charge and accentuation of facial expression) (see especially Andrew, 1964:250-254). Other components are more variable from individual to individual, species to species, or culture to culture, but usually involve arm

and hand movements such as placing the arms akimbo (enlarges body outline) or shaking the fist or a weapon among some human groups. The threat ritual may be interpreted as an expression of the actor's confidence in his own superiority and willingness to assert it to the point of actual fighting; that is, the ritual is unmistakably a warning signal and communicates a social position of dominance.

The threat ritual is normally performed only by the dominant animal in an interaction. To avert an attack, the subordinate responds with a reciprocal ritual expressing fear or diffidence, disinclination to challenge, and in general an attitude of submission. The threatened primate typically glances furtively from the corners of the eyes, shakes the head, turns the face or entire body away, cowers, shrinks back or moves away, and grimaces in fear (e.g., Schaller, 1963b:293). These components so conspicuously avoid any movement resembling those of the threat ritual that they yield a submission ritual opposed in form as well as meaning. Like most systems of reciprocal rituals, the primate repertoire of threat and submission rituals provides excellent examples of Darwin's Principle of Antithesis: Opposite emotions or intentions tend to be expressed by opposite behavior patterns (1872:28, 50 ff.). This principle is best explained as being adaptive for communication via increasing contrast between signals, the ultimate resolution being diametric opposition. The rule's existence adds support to the hypothesis that ritual is essentially communication, since it assumes that efficiency in conveying meaning is the primary determinant of the form of reciprocal rituals.

The main points of my hypothesis have now been set forth. I believe that ritual is a general phenomenon of animal behavior, with recognizable formal characteristics, and has evolved as a system of communication in response to a social need for a mechanism to facilitate consistent and cooperative interaction among members of societies, thus allowing orderly social life to develop and be maintained. It remains to present evidence in support of this hypothesis.

However, before beginning this, there is one other topic to be covered. Certain of the generalizations which it is possible to make about ritual from the point of view of this thesis encourage me to propose a tentative, and no doubt primitive, classification of rituals. Probably it will prove to be incomplete, especially with regard to human ritual systems. Yet it will provide a framework for organizing the data and will also allow the reader to become more familiar with particular instances of ritual, as that concept is viewed here. I have grouped rituals into five categories: Rituals of dominance, courtship, greeting, community and transition.

A few introductory words concerning the basis and intent of this classification system are in order. Rituals communicate social relations primarily by communicating status. "Status"is used here in its abstract sense; that is, statuses are positions in particular social patterns or relations and represent an individual's or group's set of rights and duties in relation to those of other individuals or groups in particular social interactions (Linton, 1936:113; cf. Leach, 1954:10). The categories of the proposed classification, then, identify general kinds of status relations which rituals delineate.

First, rituals may communicate that individuals in an interaction are of approximately equal status. For example, greeting rituals declare that the participants are, for lack of a better term, "friends", and will behave accordingly; that is, no challenge or fighting will be forthcoming. Equality may be expressed also in rituals performed by the entire social group as a unit, such as the communal displays of many birds, the hunting rituals of wolves, or the intergroup challenges of howler monkeys. A rather particular kind of status equality is seen in certain courtship rituals which communicate sexual synchronization, i.e., whether or not the parties involved are sexually receptive and willing to mate.

Other classes of rituals pointedly signal that the participants are of unequal status, such as dominance rituals. in a hierarchical order, these rituals communicate relative rank; in a territorial order, they may either designate the participants as "landholder" or"landless" or serve to define the boundaries between landholders. Certain rituals of courtship which communicate differential status simply broadcast the sexes of the performers and, as such, facilitate sex recognition.

Finally, there are rituals which prepare other group members for a change in status, such as nest-relief rituals among many birds and rites of passage among humans. These rituals communicate that a different and distinct status, and, thus, role, are to be expected.

Before going on to a more detailed discussion of the particular categories, I should note that the classification scheme is best viewed as a framework which shows some of the very general relationships among rituals. For example, some rituals may belong to more than one class when more than one level of analysis is considered, as in the howler monkey instance noted above; group threat in corporate defense or group submission to a ruler or diety may be rituals both of dominance and community. Contigent aiso upon context and derivation, certain rituals may be treated as belonging to one or another class; for example, so-called appeasement may be either submission or greeting, and so-called advertisement either threat or courtship, depending on the peculiarities of particular social systems and species.

More will be said in Discussion of the Hypothesis about the selection and use of examples and the problem this poses for my thesis. Suffice it to state at present that, since all possible cases cannot be cited here, I will simply present examples which best illustrate my points. Because the reader probably has at this point a clearer idea of the ethological concept of ritual than he has of its applicability to human behavior, I have decided to give full descriptions from widely disparate taxa for dominance rituals only, preferring in the remaining categories to concentrate primarily on instances of human rituals. This procedure should be sufficient both to present a clear picture of nonhuman ritual behavior and to satisfactorily demonstrate that human rituals may be--

indeed, must be--included in such an analysis. Rituals of dominance have been chosen for this elaboration because they are broadly distributed and often dramatic and because i have already begun detailed descriptions of such rituals as they occur among primates in the explication of my hypothesis.

Rituals of Dominance. Dominance is used very broadly here as priority in situations of competition (cf. Collias, 1950:116 and Davis, 1964:56). Rituals of dominance, then, are those which communicate relative priority status with regard to most vital activities, such as feeding, sexual and locomotor behavior (cf. Carpenter, 1942:39). These rituals may be expressed in the context of an hierarchic or a territorial order (or both) and their elaboration varies widely depending on the particular social system within which they operate. Most typical of this class are threat rituals, which indicate intention to assert, and submission rituals, which indicate intention to defer, in competitive interactions. The dominant or subordinate status of each performer in relation to other group members is thereby defined by ritual. The ritual system thus serves as a mechanism for regulating extra- and intragroup competition; most significantly here, it operates to insure protection and adequate resources for all group members under normal conditions and makes ordered social life possible.

The examples of dominance rituals are grouped below according to their occurrance in 1) invertebrates, 2) lower vertebrates, 3) birds, 4) nonhuman mammals, and 5) human beings. Selections have been drawn from such a broad spectrum of the animal kingdom in order

to suggest the ubiquity of ritual as a phenomenon of social behavior.

1) The salticid or jumping spiders, particularly those of the genera Corythalia and Mago, offer impressive examples of dominance rituals among invertebrates (Crane, 1949a; 1949b). For example, Crane notes three stages of rising intensity in the threat ritual of M. dentichelis (1949a:51; 1949b:171). Stage one begins with the carapace (cephalothorax) held low, as the rivals square off. The first pair of legs in each spider are poised with the femurs bent obliquely up and the distal leg segments held out laterally; from that joint the two legs are waved up and down, usually in unison but sometimes alternately. In stage two, the tempo and span of the waving increase, until, at the peak of the ritual, the legs almost meet overhead; frequently, to punctuate series of waves, the legs are swung all the way down together in front and the tarsi are rubbed rapidly together. During this, the second pair of legs is also occasionally lifted briefly. Sometimes stage three is reached, in which the rivals oppose each other closely, first legs straight overhead, and knock their chelicherae (fangs) together repeatedly. Fighting, however, does not ensue, nor are injuries sustained. Subordination is indicated by breaking off and retreating.

2) Among lower vertebrates, the Leatherfish (Monacanthus ciliatus) provides a useful example, since its hierarchical interactions involve reciprocal rituals of threat and submission. As the dominant approaches another, each fish lowers the pelvic spine, which draws open, like a fan, an expansible ventral flap. The dominant begins to "nose down" as he expands his flap and the subordinate, suddenly

yielding, collapses his flap and begins to "nose up". The final position has the dominant performing a headstand with his flap stretched open to the maximal degree and the subordinate performing a tail stand with fins and flap held flush against the body (Clark, 150:160-162).

3) Gannets provide typical examples of reciprocal rituals of dominance in birds. The threatening gannet bows with great formality: He sweeps his head down beneath his outstretched wings, then raises his head with sharp bill pointing, shakes it from side to side, and then repeats the procedure, calling aggressively all the while. There are two types of submission rituals, both of which direct the fighting weapon (the bill) away from the aggressor, thus indicating that no threat is intended (Principle of Anthithesis). The first is a "facing away" ceremony, which exposes the back of the head to the dominant--quite a common gesture among many "face-fighting" higher vertebrates to indicate submission. The other ritual is the adoption of the "pelican posture", in which the bill is tucked medianally into the breast feathers, again conspicuously avoiding any sign of threat (Nelson, 1964:35-37).

4) Among mammalian rituals of dominance, those of canines are some of the most distinctive and familiar. Darwin described the rituals of domestic dogs as early as 1872. Source for the data on wolves given here is Woolpy (1968:46).

The dominant wolf, in threatening, walks stiff-legged towards the other with his tail rigid and raised, the hair on his back bristling and his head held erect; his eyes glare in a direct stare,

his ears are pricked up and turned a bit outwards, and his fangs are bared; he growls continuously. The subordinate, in conspicuous contrast, arches his back, wriggles in a crouching walk, his tail pointed downward and fluttering or, at higher tension, tucked between his legs, and his head held low, drawn back or slightly averted; his gaze is unsteady, his ears are held back protectively, he does not bristle, and he may attempt to lick the dominant's mouth or muzzle; he does not growl, but may yelp in fear at a sudden move. Extreme submission is communicated by the subordinate's throwing himself on his back.

5) For reasons to be more fully analyzed in Discussion of the Hypothesis below, human rituals tend to be more complex, variable and numerous. Some components of the dominance rituals of men have already been cited as being typical of the general primate repertoire. However, now I would like to become more specific.

Schaller describes a particular submission ritual, "cowering", as it occurs among mountain gorillas. When attempting to escape punishment or indicate "surrender", the animal often bows forward and crouches, presenting the back and nape to the aggressor; this protects vulnerable parts of the body and seems to inhibit further aggression. Schaller then points out parallels in man's bowing, kneeling or prostration of self in the presence of holders of much higher status, citing particularly captives begging for mercy, Nyakyusa women greeting men, Japanese bowing, and Americans tipping the hat or nodding the head (1963b:293).

Submission gestures are typical components of religious rituals, since it is quite usual for men to consider themselves as being subordinate to their dieties. Besides bowing, kneeling, etc., religious rituals generally include other submission components, such as characteristic hand positions. For example, in Western Christianity, the hands in worship are usually pressed together open or clasped; this clearly communicates an attitude of non-aggression, since, according to Western tradition, hands displayed in this manner cannot strike a blow or hold a weapon. (Display of the open or touching hands commonly indicates non-aggressive intentions among humans, as in the handshake or salute in Western culture). Another very common hand position in human religious ritual is "begging" (hand open, palm up), which is also a typical gesture of submission or appeasement among chimpanzees, as when pleading for reassurance or some valued object (Goodall, 1967:154-155). The eyes, too, can indicate subordinate status; in ritual, they are often closed or directed away from the assumed presence of the diety, in avoidance of any sign of threat.

The Roman Catholic Mass will provide a familiar example of a religious ritual with well-defined submission components and will also demonstrate how these components are related to the social relations which are thought to exist between men and god. Participants in the Mass think of their relationship to god in two related and consonant ways: 1) They refer to themselves as "children of God" (all men being brothers) and use the kin term "Father" in addressing the diety, or 2) they view themselves as vassals, whose duty it is to love and serve the "Lord" or "King" in return for protection,

aid, etc. Thus the relationship is seen as one of lineality or fealty, both of which imply great differences in dominance status, in this case the subordinate position of men and the authoritarian position of the god. Expectably, then, the worshippers extend to the diety rituals of submission which are the same as, or intensified forms of, those rituals they would perform in the presence of actual individuals in their society who are in high or absolute authority (e.g., judge, king, pope): Bowing, standing, kneeling, beseeching, and other similar components as mentioned above.

Not all religious rituals communicate such extreme differences in dominance status, as can be seen in a comparison of the Mass with the sacrificial feast of the ancient Semites. Both are group-performed sacrifices centering around the eating of food with symbolic implications (Jung, 1941, on the Mass, and Smith, 1889:269-276, on the Semite sacrifice). However, the Semites, according to Smith, thought of god as a kinsman, an elder of the clan with all the attendant obligations to it, and they addressed him, in some circumstances, using the kin term "Brother". They therefore extended to their diety the same ritual they extended to actual or classificatory kinsmen--viz., the commensai feast; the act of eating together established kin ties. ("There is salt between us".) Thus the relationship here may be called intragenerational and is more equalitarian with much finer dominance distinctions.

it is unusual for threat rituals to be directed toward dieties, though when this occurs, the rituals also constitute extensions of the normal threat repertoire. Some examples are a Christian's shaking

his fist at the sky (where God lives) or the Arunta male initiates throwing boomerangs in the direction of the camp of the Mythic Mother (Battleheim, 1954:237-238).

Precisely because rituals are extended in such predictable ways, dramatic and artistic representations can depict dieties in threatening or obviously dominant attitudes. However, since we assume that gods do not actually threaten men, i will turn to rituals which mediate real social interactions and relations in order to illustrate how threat components are used.

Threat rituals are most obvious in the context of interactions which are here called "contests". In a contest, two antagonists threaten each other until one accedes and breaks away, as in the spider example cited earlier; in this way, dominance relations are settled (and thus competition regulated) without actual fighting or killing, which might disrupt social life or be otherwise disadaptive for the species. Such contests are quite common and may be roughly divided into two classes: The "ritual duel", which involves only two rivals, and the"ritual battle", which involves two rival groups.

The Yanomamo have a graded system of violence, in which all stages but the last two are ritual contests. The least violent of these is the chant duel, which takes place during the tense inter-village visits.

> Shortly after darkness, one of the visiting men walks slowly around the village periphery and mumbles a rhythmic chant. This is an open challenge. When one of the hosts replies in kind, the challenger moves toward the man, and they proceed with their formal, melodious incantations. Slow and deliberate at first, the chanting is loud and violent at the conclusion, when each man is frothing at the corners of his mouth, bouncing up and down from the

> knees, slapping his thighs to keep time. Suddenly they stop. It's over. One of them retires and the other again circles the village, bidding for a new partner. All night long this goes on (Chagnon, 1968:40-41).

The chest pounding duel results from minor offenses which have transpired between two rival groups, usually within a single village. An individual from each group alternately

> stands (or kneels) with his chest stuck out, head up in the air, and arms held back and receives a hard blow to the chest. His opponent literally winds up and delivers a closed-fist blow from the ground, striking the man on the left pectoral muscle just above the heart. The impact frequently drops the man to his knees, and participants may cough up blood for several days after such a contest. After receiving several such blows, the man then has his turn to strike his opponent, while the respective supporters of each antagonist gather around and frenziedly urge their champion on (Chagnon, 1967:26-27).

The club fight is occasioned by major offenses, usually quarrels over women. Serious head wounds are typically sustained by the participants.

> The usual procedure calls for a representative from each belligerent group. One man holds a ten-foot club upright, braces himself by leaning on the club and spreading his feet, then holds his head out for his opponent to strike. Following this comes his turn to do likewise to his adversary. These duels, more often than not, end in a free-for-all in which everybody clubs everybody else...However, since headmen of the respective groups stand by with bows drawn, no one dares deliver an intentionally killing blow, for if he does, he will be shot (Chagnon, 1967:27).

The spear fight (which has some ritual aspects) and the all-out raid will not be considered here, but it is worth mentioning that previous to the raid, the Yanomamo perform in their own village a ritual battle in which they threaten the warriors of the village to be attacked, who are, of course, not present.

Some examples from the ethnographic literature of ritual duels are as follows: The Murngin Nirimaoi Yolno (Warner, 1937:156-157), the Tiwi duels (Hart & Pilling, 1960:80-83), the Greenland Eskimo drum matches (Mirsky, 1937:68-69), Samoan clubbing matches between island champions (Mead, 1937:299), Alorese rattan switch dances, (DuBois, 1944:120) and the Plains Indians' counting of coup (Lowie, 1954:117-118). Illustrations of ritual battles include: The Murngin peacemaking Makarata (Warner, 1937:163), the Swazi incwala (Kuper, 1963:70), the Shilluk inter-moeity battles (Lienhardt, 1954:153-154). Dinka mock battles against enemies (Lienhardt, 1961:281, 288), the Cheyenne battles between the sexes (Hoebel, 1960:60-61), and the Alorese challenge dances and mock battles over dowries (DuBois, 1944: 121, 130).

In describing the general primate dominance repertoire earlier, I covered man's most basic reciprocal threat and submission rituals, or ritual components, in simple dominance interactions. Now I would like to demonstrate their occurrence in more complex human rituals.

The medieval European ceremony conferring knighthood provides quite convincing examples of reciprocal threat and submission rituals defining relative dominance statuses of the participants. The vassal-to-be kneels, with head bowed and bared, before the liege lord, who confirms the relationship of fealty between them by delivering to the aspirant's head, neck or shoulder a stroke with his sword ("dub" from Middle English dubben, "to strike"). To rephrase this in terms of my thesis, the subordinate, in recognition of his status, takes an extreme submissive pose before his seated superior

and receives voluntarily, in a vital area of his body, a symbolic blow with the weapon which represents that superior's power to enforce his dominance.

Another illustration is seen in the Andaman peacemaking ceremony, which is performed when one group has a legitimate (i.e., socially recognized) grievance against another. The ritual obviates and need for actual fighting and restores peaceful relations between the groups.

> The dancers are divided into two parties. The actions of the one party throughout are expressions of their aggressive feelings towards the other. This is clear enough in the shouting, the threatening gestures, and the way in which each member of the "attacking" party gives a good shaking to each member of the other party. On the other side what is expressed may be described as complete passivity (Radcliffe-Brown, 1922:238).

One final point, which will be treated more fully in the Discussion of the Hypothesis, ought to be touched upon here before moving on to the next class of rituals. Dominance in men often operates symbolically, and, therefore, human threat and submission rituals frequently communicate real or metaphysical social relations by reference to symbol systems.

For example, the dominance relations communicated in Haitian Voodoo possession ceremony are symbolic and cannot be precisely understood in isolation. The loa (spirit), like a horseman, "seizes" and "mounts" his human vehicle, the chual by force, uses it for his own purposes, and dismounts at his own pleasure (Metraux, 1959:407). As the man dominates the horse, so the loa dominates the chual. Thus, the model for the symbolic dominance relationship between the loa and chual as delineated in the ritual is provided by the actual dominance relationship which the society recognizes to obtain between

a man and a horse; and the components of the ritual are clearly symbolic of acts which actually occur in man-horse interactions.

The potlatch among the Kwakiutl provides another illustration (Boas, 1897; Goldman, 1937). The potlatch is clearly a ritual contest, but dominance is asserted symbolically through wealth and its destruction; the threat which occurs during the ritual, then, is inherent not in the rivals themselves but in their ability to control the objects that are the symbols of power in Northwest Coast culture.

Rituals of Courtship. Like dominance, courtship also is viewed very generally in this thesis. The definition proposed by the zoologist Morris is consistent with a broad perspective and in addition recognizes the essential signalling function of ritual: "Courtship is the heterosexual reproductive communication system leading up to the consummatory sexual act" (1956:261). Such rituals, then, communicate information which facilitates sexual advertisement, recognition and approach, physiological and psychological synchronization (readiness to mate), anatomical and behavioral orientation, and other so-called "functions of courtship" (cf., Tinbergen, 1951 and 1953, Etkin, 1964b, Bastock, 1967).

The distribution of rituals of courtship, though wide, is differential. There exist many clear and elaborate examples among mollusks, arthropods and chordates, which reproduce sexually; but not all sexually reproducing animals court, and these rituals are sporadic in most classes except Aves and Mammalia.

Courtship rituals are not particularly elaborate within the primate order, except among humans. Sexual "presenting" by the female is common among most primates; it both orients her for mounting by the male and stimulates and invites this response, in many species also displaying the coloration and/or swelling of the sexual skin. In humans, anatomical adaptation for bipedalism has rendered dorso-ventral copulation, and sexual skin as a signal, less efficient and has, in correlation with a frontal approach and erect posture, brought about the evolution of different morphological and behavioral signals, though these might still be considered a form of presentation. Probably related to the general trend in primate evolution in favor of hands with well developed manipulative capabilities, grooming and other similar touching and caressing activities are very widespread as rituals used in courtship; this ranges from the simple orienting stereotyped touch by males of certain macaque and baboon species to the complex sexual advertisement and precoital play among some human groups. Besides grooming and caressing, other rituals indicating non-aggression, such as embracing, lip-smacking, grimacing or smiling, are utilized as components of the primate rituals of courtship.

For convenience, I have grouped human rituals of courtship into three categories: Simple signals, advertisement (or display), and gifting. This scheme will probably not cover all human courtship, but it will include many such rituals and will serve as an adequate framework for illustration.

1) Courtship signals are relatively simple motor patterns which communicate sexual status and/or intentions. A few will be

cited for illustrative purposes. To invite copulation, a Dusun woman will touch a man's hand as she passes a cup at a feast (Williams, 1965:83), an Alorese man will touch or pull a woman's breast (DuBois, 1944:82), an Ainu woman will bite a man, usually on the hand (Weyer, n.d.:195). For a more complex signal, see the Murngin pre-coital ritual described by Warner (1937:67).

2) Advertisement includes those rituals which conspicuously display the physical or cultural attributes which are considered attractive to members of the opposite sex and which are socially recognized as preludes to mating. Perhaps least complex of these are "promenades" as they occur, for example, in Italy or Mexico; often males and females walk in opposite directions around the village square in their finest clothing; and, during the paseo in certain Mexican villages, a pair will walk three times around the square to indicate their betrothal. Dancing constitutes a very large class of sexual advertisement, as, for example, among the Nuer (Evans-Pritchard, 1951:51-56), the Somali (Lewis, 1965:339), the Alorese (DuBois, 1944:93), and many other societies, including our own. Also, certain rituals of transition can have courtship functions. Insofar as puberty rituals can be considered formal recognitions of the reproductive capabilities of the participants, they probably can be classed as advertisement. (Since these are so common, I shall not attempt to list examples.) Finally, many societies have institutionalized activities which invite copulation, such as "Putting Out the Lights" among the Greenland Eskimos (Mirsky, 1937:62), which perhaps belong in this category.

sentation and/or acceptance (often highly conventionalized) of gifts which are socially understood to imply or lead to mating. Unlike the other two categories of courtship discussed here, this occurs only rarely among nonhuman animals; there are, however, examples of gifting in dragonflies (Portmann, 1953), flies, cormorants guils,terns, and other water birds (Etkin, 1964b). Human gifting is perhaps most obvious in various bride-price exchanges, of which there are numerous illustrations in the ethnographic literature. Other examples are bead presentations among the Zulu and Swazi (Twala, 1951) and the giving of opposum fur strings among the Murngin (Warner, 1937:73).

Rituals of Greeting. The term "greeting" may seem to suggest a usage too narrow for the range of signals included here. However, greeting rituals constitute, in the ethological literature, a recognized type of ritual which establishes "friendly" or nonaggressive social relations between individuals or groups; they communicate that the statuses of the participants are approximately equal or, at least, that dominance-oriented behavior (such as a threat or attack) need not be expected. It is in this broad sense that the term will be used, and so certain so-called solicitation and appeasement rituals will also be included in this category. Rituals of greeting are less common than those of dominance and courtship and perhaps develop only in rather complex societies.

Some human rituals of greeting have already been mentioned in the contexts of dominance rituals (e.g., U.S. handshake, Japanese bowing, and the accompanying smile in both cases) and of

courtship rituals (e.g., embracing and smiling). Probably the smile and display of the empty hand(s) are the most universal components in human greeting rituals.

The greeting ritual of the Ojibway is somewhat more elaborate than those noted above (Landes, 1937:114). Even more complex snd formal are the recognition rituals of certain (often secret) societies, such as that of the Masons (Coulton, 1928:167-169). Perhaps one of the most dramatic and elaborate rituals of greeting is that of the Jivaro. After painting himself, a visitor to a village makes much noise to warn the inhabitants of his presence, including a shout of "I am here!" He then gives the villagers time to paint themselves and finally presents himself to the headman and begins a highly stylized chant. He speaks loudly and in a syncopated rhythm, while holding his clenched fist up to his mouth, palm in, with his lips pressed against his knuckles. He frequently punctuates what he is saying by spitting vigorously and accurately between his fingers. He never looks at the other man, but his eyes flash. He gestures with his arms; his chest heaves. There are smackings of the lips and clickings of the tongue. These elaborate formalities to explain one's presence may continue for fifteen minutes or more (Stirling, 1938:96-98 and Weyer, n.d.:115-116).

Other relatively complex rituals which probably belong primarily to this category are the commensal feast to confirm alliances among the ancient Semites (Smith, 1889:269-270), the establishment

of name relationships among the !Kung Bushman (Marshall, 1965:259) and the First Salmon ceremony among certain Northwest Coast tribes (Drucker, 1955:156).

Rituals of Community. Communal rituals are more difficult to define than the other types in this scheme and are generally distinguished by being group-performed primarily for intragroup communication; they indicate that all participants are of approximately of equal status (in the context of their group membership) and will behave in a uniform manner. in this sense, they may be seen as rituals implementing group cohesion and may include most so-called rites of intensification (Chappie & Coon, 1942). Perhaps one of the best ways to introduce rituals of community is to cite actual comments by informants regarding their unifying value. A Javanese bricklayer told Geertz that "when you give a slametan, nobody feels any different from anyone else and so they don't want to split up" (1960:14). Kuper has recorded the following statement by Sobhuza, king of the Swazi:

> The warriors dance and sing at the incwala and so do not fight although they are many and from all parts of the country and are jealous and proud. When they dance they feel they are one and they can praise each other (1947:224).

See also a Dinka chief's comments on the ritual distribution of the sacrificial beast (Lienhardt, 1961:23). As might be expected, many, if not most, human rituals have a communal aspect; that is, they "say something" about group unity (cf. Radcliffe-Brown, 1922).

Among nonhuman animals, rituals of community are harder to validate. Swarming among insects may or may not constitute such a ritual. Rituals which Wynne-Edwards calls "epideictic" are communal ceremonies which serve as feedback mechanisms (implies communication) for maintaining and regulating homeostatic conditions (1962: 16-17 and 1964:72). Various kinds of corporate rituals, such as the howler case mentioned earlier, serve to increase internal solidarity and elicit uniform behavior. Finally, certain other rituals may qualify for inclusion in this category. Wolves, for example, go into a "huddle" before beginning a chase (Allen & Mech, 1963:209) and subordinate animals howl as a group when greeting the alpha male (Woolpy, 1968:46). Among chimpanzees, the "carnival" (Reynolds & Reynolds, 1965:409) and "rain dance" (Goodall, 1967:75-77) are possibilities.

If, indeed, human rites of intensification are to be considered members of this class, the Cheyenne Arrow Renewal ceremony is a good example (Hoebel, 1960:7-11). Some other rituals of community have already been mentioned above. Perhaps one of the best examples is recorded by Leach; two factions with great cultural distinctions, Shan and Kachin, join together in a communal submission ritual before the representative of the central Burmese government (1954:279-281).

Rituals of Transition. These rituals are virtually identical to those traditionally called rites of passage in the anthropological

literature (van Gennep, 1909 and Gluckman, 1962). Transition rituals communicate that a different and distinct status is being assumed and therefore a change in behavior is to be expected.

In nonhuman species, rituals of transition are rare, for reasons to be more fully analyzed in the Discussion of the Hypothesis. It is possible that certain behavior patterns derived from intention movements have become transition rituals, such as the "fiying-up" ceremonies of many birds, but the changes these patterns communicate are not strictly in the realm of social relations and are thus difficult to handle in terms of my thesis. More valid, I think, are ceremonies which one bird performs upon attempting to relieve its mate of nesting duties. Armstrong, an ornithologist, comments on these rituals as follows:

> There are innumerable differences in detail between the military ceremonial in Whitehall (Changing of the Guard) and the etiquette of the birds in our woodlands and by our shores, but both are manifestations of the emotion which concentrates itself about what anthropologists cali transition rites or rites de passage. Changes in status, such as sexual maturity or marriage, require to be regulated by ceremonial (1965:145).

The complexity of social relations in which each individual in human society is involved (Gluckman, 1962) necessitates an elaborate communication system to mediate temporary and permanent changes which must occur in these relations. (See Discussion of the Hypothesis.) The ethnographic illustrations of rituals of transition are both numerous and detailed. The Andaman funeral provides an excellent case study (Radcliffe-Brown, 1922:284-294). One other example will be cited in detail.

The Tallensi are strongly patrilineal and their ancestor cult is "the religious counterpart of their social order" (Fortes, 1959:19). The key relationship in Tale society (and religion) is that of father and son. The father, as long as he is alive, has absolute authority over his son; further, the son, regardless of his age or accomplishments, remains all this time a dependent in the eyes of society. Fortes describes the situation.

> in this social system, jural and ritual authority is vested in the men who have the status of fathers. Until a man's father dies, he himself has no jural independence and cannot directly bring a sacrifice to a lineage ancestor. He is, as it were, merged in his father's status (1959:17).

> Custom defines sons as their fathers' eventual supplanters but puts them in their fathers' absolute power. The hostility that this might generate is drained away in the ritual avoidances binding on an eldest son (who represents all his brothers). He may not eat with his father or wear his clothes or use his bow or enter his granary (1959:19).

When his father dies, the Tale son "breaks these taboos in a solemn ritual during the final funeral ceremonies for his father" (1959:19). In performing this ritual of transition, the son redefines his social relations with his father; the rite of passage communicates the breaking of the old son-father relationship and the commencement of a new father-ancestor one.

TESTING THE HYPOTHESIS

I have proposed that ritual is behavioral communication which conveys information about social relations and, as such, is an adaptation for the establishment and maintenance of a stable social system. It is possible to test the validity of this hypothesis in a number of ways. The test I propose here will take the form of the following statement:

> If ritual constitutes a communication system which makes possible stable social relations, then the absence or disruption of a particular ritual system will inhibit the development or maintenance of stable social relations in that society.

I shall now proceed to present arguments and examples to satisfy this test.

Leach's statement (1954:16) that, without ritual, anarchy would result constitutes essentially the same assumption as does this test of my hypothesis. That inhibition of social relations actually does occur when a ritual system is not operating can be easily demonstrated with a few examples from the ethological and ethnographic literatures, deliberately drawn from diverse taxa.

1) The fruit-fly Drosophila melanogaster exhibits complex courtship ritual, in which the male performs a circling dance consisting of three main components. The component relevant here is the wing display: The male spreads one wing (always the wing nearest the female's head) at right angles to its body and vibrates it vertically. Bastock found that males of a mutant form with vestigial wings failed to win females in competition with normal males because they could not perform the wing display (1967:54, 78).

2) Before a black-crowned night heron enters its nest, it performs a greeting (or appeasement) ritual consisting of a bow which displays its dark crown and white plumes to the inhabitants (mate and/or young). Having thus identified itself, it may step down into the nest. One day, Lorenz was observing young herons when the male parent returned. Upon finding Lorenz at the nest, it became excited and adopted a threat posture directed toward Lorenz instead of going through the greeting ceremony. The nestlings immediately attacked their father (Tinbergen, 1953:47).

3) A lek or arena is an assembly ground, within the confines of which individual males of the various avian and mammalian lek species hold small displaying territories or courts. The boundaries of each court are well defined and are defended against all other males. Any female entering one of these individual posturing places is vigorously courted by the resident male; if she moves away, his posturing ends at his borders. Thus, the court is an integral part of threat and courtship ritual. On one observed occasion, a heavy

snowfall had obscured the lek organization of sage grouse, and the new arena which the birds adopted infringed upon the boundaries of several territories. Confusion and fighting ensued, and little mating was possible. The females migrated to another arena where normal conditions prevailed (Armstrong, 1965:246).

4) Rhesus monkeys have a highly structured, complex social organization in the wild. In order to assess the effects of social deprivation, Mason (1958) devised a series of experiments to compare the social behavior of feral monkeys with that of laboratory-raised monkeys which had been housed in individual cages since shortly after birth. In a series of encounters between the monkeys in each group, the relevant points are as follows:

a) Fighting was both more frequent and more severe among the monkeys deprived of previous social experience; in about half the encounters, they failed to achieve consistent dominance relations. In contrast, the feral monkeys rarely fought, and their stable and firmly established social relations tended to circumvent major quarrels, even under the stress of feeding. Mason concluded that "the display of stereotyped responses, such as threat postures and vocalizations, probably served in lieu of overt aggression to enforce dominance relations" (1958:165, 169-170).

b) The differences between the two groups regarding sexual behavior were also striking. Feral males mounted frequently, often thrusting also, and their sexual episodes were of much longer duration. They were also observed to give the females a light, stereo-

typed touch at the waist preparatory to mounting to indicate their intentions, and would usually not mount if the females did not respond by rising and presenting. In contrast, the deprived males showed gross deficiencies in the organization and integration of the sexual act and did not achieve effective sexual performance. For example, they did not consistently touch the females appropriately, never assumed the normal body orientation, and continued to attempt coition with unresponsive or unwilling females. It was also found that the sexual patterns of the feral females--primarily presenting--were more stereotyped than among their deprived counterparts. Lip-smacking greetings and postural adjustment during mounting, which normally occurred among feral populations, were never observed among the deprived females. In an additional series of encounters, sexually sophisticated females which had had no previous experience with any of the test males, when offered a choice between two males, unequivocally preferred the feral monkey; these females frequently failed to respond to the sexual advances of the deprived males and often cowered, grimaced and showed withdrawal responses (1958:163-165, 172).

In the final analysis, Mason attributes the sexual and social ineffectiveness of the socially deprived animals to their ignorance of the proper rituals, as that term is used in this thesis: They had not learned the communication system of stereotyped responses which "the orderly progression of social interaction requires" 1958:172).

Nonhuman ritual systems are, for the most part, species-

specific. Among humans, however, the ritual community is the culture, and even within this sphere there exist subgroups (e.g., secular or religious associations) which may possess their own ritual subsystems. This enormously increases the possibilities for examples of the type here under consideration, because, except perhaps for certain very basic social signals such as the stare, smile, etc., each culture speaks a different ritual language; thus, it is quite the rule that inhibition of social communication and relations will occur when members of different cultures meet. For example, as products of U.S. culture, we tend to view the bobbing, smiling Japanese or the head-wagging Hindu as obsequious, even servile. The Bi Rom or Tiv who greets by shaking his fist at us may appear threatening, the Kikuyu who spits at us to indicate trust may seem contemptuous, the Arab who belches appreciatively after a meal may simply be regarded as impolite. We are apt to be a bit suspicious the first time we see European men kissing one another in greeting or conversing at the distance of a foot or less, and i remember my own discomfort walking down a Roman street arm-in-arm with my Italian uncle. The American black man is labeled "arrogant" when he no longer performs the traditional deference rituals expected by many white men, especially in the South. The stereotypes we hold of others are often largely constructed from our culture-bound interpretations of their ritual systems. We consider the British to be haughty and Latin-Americans to be pushy, whereas we ourselves are regarded as haughty by Latin-Americans and pushy by the British.

The sly, sensual Arab, the stolc Cheyenne or Ojibway, the passionate Italian, the militaristic Prussian, the mystical Indian are just a few of the many stereotypes which derive from our experiences with the ritual systems of others.

All these examples are perhaps somewhat anecdotal, yet these kinds of misinterpretations are typical of interactions between cultures and the list could be extended almost indefinitely. (For many of these and other illustrations, see Mead, 1947; Hall, 1955, 1959; Lorenz, 1963.) Characteristically, rituals do not operate cross-culturally, and the resultant miscommunication of intercultural sociai relations may not only disrupt social relationships (or prevent them from developing) but quite typically generates hostility.

> "Good" manners are by definition those characteristic of one's own group...The meaning of any conciliatory gesture... is determined exclusively by the convention agreed upon by the sender and the receiver of one system of communication. Between cultures in which this convention is different, misunderstandings are unavoidable...Indubitably, little misunderstandings of this kind contribute considerably to inter-group hate...Even the mere inability to understand the expression movements and rituals of a strange culture creates distrust and fear in a manner very easily leading to overt aggression (Lorenz, 1963:79-82).

5) Specific examples of inhibition of social relations among humans when the appropriate rituals are not operating are, as I have suggested, numerous. For instance, the Japanese place great importance upon the performance of rituals which constantly demonstrate their relative positions in the social hierarchy (Hall, 1959). American prisoners of war during World War II were unable to adapt to the many deference rituals which the Japanese insisted upon in

normal interpersonal relationships, for the prisoners considered them demeaning. Consequently, the Americans consistently insulted their captors (often perhaps inadvertently) and suffered needless torture at the hands of the offended Japanese.

> The Americans who were captured by the Japanese felt it was a violation of their dignity to have to bow. The Japanese thought this showed extreme disrespect and threatened the very foundations of life (Hall, 1959:80).

6) Such mis-communication and consequent disruption of social relations may also occur between more closely related cultures. Among numerous areas of friction between British civilians and American troops in Britain during the Second World War, the relationships between the local girls and the American men provided an especially acute point of misunderstanding (Mead, 1947). Feelings ran high, with the British accusing the American men of being immoral and the Americans retorting that the British girls had no morals. When analyzed, the problem seems to have been essentially due to differences in the courtship rituals of the two cultures; that is, each had different social signals communicating readiness or refusal to mate. The American males, who had learned in the United States to make advances and rely upon the female to repulse them effectively most of the time, were confronted by British females whose socialization had taught them to accede to every forceful invitation, this being a tacit indication that the British male accepted full responsibility.

> Several characteristic patterns of response developed. Some British girls became even chillier and, repelling even American optimism, succeeded in keeping the Americans at arm's length and sending them away to complain about everything in Britain. Some responded to the first stylized wisecrack with an impassioned surrender which was thoroughly disconcerting to the American in its intensity and implications. Some, finally, succeeded in maneuvering a middle course for a few hours, until the Americans who seemed to be "serious" could be presented at home as future sons-in-law---which annoyed a great many Americans very much (Mead, 1947:525).

That we are dealing here primarily with courtship rituals is well illustrated by tbe title of one of Mead's pamphlets written to help alleviate the misinterpretations and the resulting hostility: "What is a Date?" (1944).

7) Breakdown in social relations due to ritual malfunction can also occur within a culture. (For one example, see Kuper, 1947:197.) A Javanese case will provide a good illustration (Geertz, 1957; 1960). It is necessary first to understand the traditional rural religious setting in Java before the turn of the century. Historically, Hinduism and, later, Islam

> became fused with the underlying animist traditions characteristic of the whole Malaysian culture area. The result was a balanced syncretism of myth and ritual in which Hindu gods and goddesses, Moslem prophets and saints, and local place spirits and demons all found a proper place. The central ritual form in this syncretism is a communal feast, called the slametan...Contrasts (between the three religious subtraditions) were softened by the easy tolerance of the Javanese for a wide range of religious concepts, so long as basic ritual patterns---i.e., slametans---were faithfully supported (1957:550-551).

Slametans are given on almost all occasions of religious importance and are intended to be "commensal mechanisms of social

integration (550). Their social function is to produce rukun, "communal harmony". In my terms, slametans are rituals of community; they may be said to communicate unity, equality of status, oneness. As one of Geertz' informants put it: "Nobody feels any different from anyone else and so they don't want to split up" (1960:14). Thus, this ritual is the unifying factor not only for the traditional syncretic religion but aiso for the community itself (see 1957:551).

Since 1910, social change has speeded up in response to various forces. Almost all these forces, especially urbanization with its specialization and impersonality, have tended to weaken the importance of the neighborhood community as the basis of sociai reference. Geertz characterizes recent social change as

> a shift from a situation in which the primary integrative ties between individuals (or between families) are phrased in terms of geographical proximity to one in which they are phrased in terms of ideological like-mindedness. (1957:551).

The most obvious manifestation of this trend has been the widening split between the Islamic (santri) and Hindu-animist (abangan) elements of the old syncretic religion. In Modjokuto, these rival elements were seen in the two opposing politico-religious groups: The huge islam-based Masjumi and the anti-Moslem Permai.

The case in point here is a funeral slametan, normally a c[illegible], undemonstrative ritual. The mourners aspire to a feeling of iklas, "not caring", "detachment". Crying is strongly disapproved of. The entire ritual takes only a few hours and burial is accomplished as soon as possible.

In this particular instance reported by Geertz, a young boy, who had been living in the city with his Permai uncle and aunt, died suddenly before dawn. However, when his uncle, Karman, went for the religious official (Modin) in the area, the latter, being a Masjumi, refused to conduct the ritual because of Karman's Permai affiliation; Karman left and returned again later, but when the Modin still refused, he stormed out. As a consequence, the boy's body lay all morning without preparation, while the large number of mourners squatted in two sullen groups, Masjuni and Permai, muttering nervously about what was to be done, complaining about the politics, and whispering protective spells to deter the spirit of the now-rigid dead boy. An unofficial attempt to proceed with the ritual was begun and abandoned. As the hours dragged on, the tension rose. Finally, about an hour after noon, the boy's parents arrived and agreed to have the funeral done "the Islamic way". The Modin then performed the ritual and the boy was buried at last. However, the intense strain occasioned by the whole incident is indicated by the fact that it elicited some extremely atypical behavior: The raging of Karman at the Modin, wild hysterics of the dead boy's aunt and mother, and public expression of very personal feelings by the dead boy's father. Geertz' summation clearly states that the boy's death,

> instead of being followed by the usual hurried, subdued, yet methodically efficient Javanese funeral ceremony and burial routine, brought on an extended period of pronounced sociai strain and severe psychological tension. The complex of beliefs and rituals which had for generations brought countless Javanese safely through the difficult post-mortem period suddenly failed to work with its accustomed effectiveness...When I left the field about four months later,

> Karman's wife had still not entirely recovered from the experience, the tension between the santris and the abangans in the kampong (neighborhood) had increased, and everyone wondered what would happen the next time a death occurred in the Permai family (1957:550, 558).

Thus the slametan, which normally communicates communal harmony, may contribute to social disintegration when it fails to function properly.

The foregoing case studies all clearly indicate that any significant interference with, or disruption of, the ritual system results in the inhibition of adequate social relations and may lead eventually to the disorganization of society. The examples rather convincingly demonstrate, I think, the necessary function of ritual in the establishment and maintenance of social life, as my hypothesis proposes.

DISCUSSION OF THE HYPOTHESIS

I have proposed an hypothesis that defines ritual functionaliy as behavioral communication of social relations which develops as an adaptation for stable social systems. The approach is basically an ethological one which considers ritual as a general phenomenon of animal behavior. Now that I have presented my case for this hypothesis, I think it is important for me to state the advantages I see in expanding the concept of ritual in this manner.

In the first place, this approach gives anthropology something it sadly needs: A definition and method for analysis of ritual which are based in biology. Second, it stresses that ritual is an adaptation to social life and has a critical social function in virtually all societies. Third, it recognizes communication as the essential characteristic of ritual. Fourth, it treats all rituals as analogues, since they have the same function: Communication of sociai relations.

Finally, this approach clarifies numerous points about ritual which have been problematical in anthropological theory. A few of these will be mentioned. 1) The ritualization of many displacement activities (see Introduction) provides an explanation for the anxiety-reducing function of ritual which certain anthropologists have noted in religious behavior. 2) Field workers have often commented upon the much greater importance tribal ritualists place on procedural correctness than on ideological considerations; that is, the efficacy

of a ritual seems frequently to depend primarily upon how precisely the performance follows the conventional form (e.g., Kuper, 1947:224). This becomes understandable in light of my approach, since stereotypy of behavior patterns is one of the most typical means whereby rituals are conventionalized to serve their communicative function. 3) Stereotypy and other conventionalizations characteristic of rituals may also in part account for the high resistance of ritual systems to change (see Tylor, 1871:449). 4) This approach settles the old question of which came first, myth or ritual, and it accomplishes this through the realization that religion is only one sphere among the many in which ritual operates. 5) My hypothesis clarifies the relation of ritual to religion. Briefly, I hold that, since man conceives of his relationship with the supernatural in anthropo-social terms, it should be expected that any attempt he makes to communicate with and establish and maintain social relations with a diety, for example, will involve the extension of his normal ritual behavior. This explains the ubiquitous association of ritual and religion, at least from the sociological point of view. As a matter of fact, if one knows the ritual repertoire of a society and in addition the social relations thought to exist between men of that society and their god(s), he ought to be able to predict some of the components of the rituals used in worship.

This approach also has certain disadvantages, though I believe most of them are methodological and temporary. Anthropology has only rather recently begun to recover from its rejection of the

searches for the origins and universals of cultural institutions (Hallowell, 1950, 1960, 1961, and Mead, 1958). This makes it difficult to gain acceptance for generalizations such as those proposed here about ritual. Indeed, I am not sure that this hypothesis will cover all human rituals; yet it is not my purpose here to answer every objection, but to make tenable general statements which may constitute contributions to theory. Perhaps the greatest problem for my approach involves the selection, presentation and use of supporting data. I have deliberately chosen my examples from widely diverse taxa; in this, my purpose is to emphasize the virtual universality of ritual as an adaptation to sociality despite differences in origins and motivations. My practice has been to cite those examples which best illustrate my points. Such use of data may sometimes appear highly selective, but I have tried, wherever possible, to list alternate sources and examples.

There is one final problem I intend to discuss here. It is my contention that the rituals of humans and nonhumans are analogues; i.e., they have as their essential, radical function and communication of social relations. in certain less fundamental ways, however, the rituals of men do differ from those of other animals, because of the peculiarities of the human way of life. it is important to mention some of these differences in order to place this comparative approach in perspective.

In the first place, human rituals are much more variable. The rituals of primates in general are less stereotyped than those of

other animals (Hinde, 1966:290). This is no doubt largely because learning plays such an important role in the normal social development of the higher primates (e.g., Mason, 1958 and 1965). Among humans, in fact, social behavior is virtually all culture-specific rather than species-specific, and may even vary intraculturally within certain limits. Another factor contributing to the variability in man's rituals--and one which is uniquely human--is language. In other animals, the communicative efficiency of a ritual is enhanced primarily (though not solely) by increasing conventionalization (e.g., stereotypy) of the motor patterns. In humans, however, there exists a highly developed and quite specific open system of communication, language, which operates in addition to the motor patterns and typically complements, reinforces and extends their meaning. This allows the form of a ritual to vary somewhat without diminishing its efficacy as a signal. In this sense, language may be said to emancipate, to some extent, the form of ritual from the extreme rigidity which seems necessary in the lower animals, and so it has undoubtedly had a great effect on the evolution of human rituals. Finally, the rituals of man, unlike those of other animals, can refer to a metaphysical system of symbols which is quite as operative in his life as is the phenomenal system of interactions which can be directly observed. Because of this, it is possible for human rituals to incorporate meaning which transcends (though probably does not replace) the communication of social relations.

The other general reason for differences between human and nonhuman rituals is the great complexity of human social relations, which is made possible by culture as the primary adaptation to social life. This complexity is approached only by the societies of the Hymenopteran and Isopteran insects; however, the individuals of the insect colony are physiologically specialized for their different social roles, whereas cultural specialization among humans allows each member of society to perform many roles and to occupy several statuses simultaneously. It ought to be expected that such complexity without biological differentiation (except sexual) will require a complex system of ritual to mediate these social relations. Not only are there more possible social relations in human society, but there are aiso more changes in them in such contexts as societal evolution, group stages orsequences, individual life cycles, and everyday interactions. It is for reasons of accommodating the complex human social condition that rituals of transition are so much more prevalent among men as to be practically confined to them.

SUMMARY

1. In this thesis, I have presented an hypothesis concerning ritual: Ritual is behavioral communication which conveys information about social relations; this communication system evolves as an adaptation to stabilize social relationships and has therefore a necessary function in the establishment and maintenance of social systems.
2. I have offered a tentative classification of rituals, together with examples of human and nonhuman rituals.
3. I have proposed a test of my hypothesis: If ritual is a behavioral system of communication having a necessary social function, then inhibition of the operation of the ritual system will result in the inhibition of social relations and cohesion.
4. I have presented arguments and data to satisfy this test.
5. I have discussed some advantages and disadvantages of my hypothesis and its implications for the anthropological study of human ritual.

FOOTNOTES

1. Julian Huxley was the first, I believe, to apply the term "ritual" to animal behavior in the scientific literature (1914: 506-507). By ritual, Huxley meant an act which had lost its original (useful) function and had become an end in itself. This is quite different in emphasis from Tinbergen's usage.

2. Basically, the argument runs as follows: Whereas Malinowski holds that ritual reduces anxiety, Radcliffe-Brown claims that it is just as plausible to maintain the exactly contrary theory that ritual produces anxiety. The following points derived from an ethological approach support Malinowski's thesis: 1) Displacement activity, a very general and usually conventionalized behavioral response to anxiety, is one of the major sources of ritualized behavior; and, 2) as my thesis intends to demonstrate, ritual constitutes a communication system which develops as an adaptation in response to the social and psychological stresses of group living. in addition if the latter point is correct, it is possible to state reasons which are general throughout the animal kingdom for the anxiety ritual is claimed to allay. The contrary theory concerning anxiety, however, requires the pre-existence of a specific ritual (and its associated beliefs); thus though ritual may be said to produce anxiety, this anxiety is secondary to (and specific to) the particular ritual context, Homans has come to the same conclusions using different evidence (1941).

3. For a different approach to the classification of signals, see Moynihan (1967).

4. For more extended descriptions of the general primate rituals here cited, see Darwin (1872), Andrew (1964 and 1965), Marler (1965), Altmann (1962), Hinde and Rowell (1962) and Hinde (1966).

5. Additional ways in which dominance contributes to social cohesion have been stressed by Washburn and DeVore (1961:104) and Chance (1961:21).

6. Other examples among invertebrates include the dominance rituals of fiddler crabs (Crane, 1957), wasps (Pardi, 1952) and ants (Wallis, 1964).

7. For other examples among fish, see Tinbergen (1951), Portmann (1953) and Lorenz (1964); for dominance rituals of lizards, see Lorenz (1964), and for those of snakes see Shaw (1948, 1951).

8. Examples of such rituals in other avian groups may be found as follows: On chickens, Allee (1938), on ducks, Lorenz (1952), on gulls, Tinbergen (1959), on grouse, Johnsgard (1967), on geese and penguins, Collias (1950); for a general compendium of descriptions of bird rituals, see Armstrong (1965).

9. Mammals supply many fine examples of rituals of dominance, particularly because there exist in certain of the orders some extremely complex societies. Sources for some of these societies will be cited here: Rats and mice, Barnett (1967), Brown (1953), Scott and Fredericson (1951) and Funaro (ms. a); prairie dogs, King (1955); marine mammals, especially porpoises and seals, Evans and Bastian (1969); canines and monkeys, apes and men are cited elsewhere in this thesis. For dominance rituals among social ungulates, see Darling (1937) on red deer, Estes (1967) on zebras, Katz (1949) on Barbary sheep, Lott (1967) on bison, Collias (1950) on whitetailed deer and nyala antelope, and Bourliere (1964) on some comparative data; Schaller (1967) has given detailed accounts of the dominance rituals of seven Indian species of deer, antelope and wild cattle, in addition to his description of those of tigers.

10. Since the hand is such a pre-eminently important organ of manipulation among the Anthropoidea (and particularly in man), hand gestures figure prominently as components of many and various displays, some of them with quite different meanings. As is discussed above and below, hand gestures indicating non-aggressive intentions (as in submission and greeting rituals) typically involve the display of the empty or open hand, the touching of the hands together, or the touching of the hand or body of another individual; in humans, such gestures can usually be explained as demonstrating that no attack is intended with the hand or a weapon held therein. Hand gestures are also, quite expectably, involved in threat rituals, such as beating on objects or slapping out. Such components of human threat rituals are often associated with weapon display: The clenched fist is a common aggressive display where, as in Western culture, people do not normally carry hand-weapons (i.e., the hand itself is the weapon); among some societies where spear-carrying is a part of everyday life, shaking the fist in the air may be a ritual of greeting, as among the Bi Rom (Firth, 1951:23) and the Tiv (Bowen, 1954:1-2), perhaps to emphasize that no spear is poised to strike. The argument may appear to be somewhat naive, but it is clear that people often assume that the display of weapons implies aggressive intent. The !Kung Bushmen, for example, hide their bows and spears when meeting others; "no Bushman, no matter how excited, ever greets people with bis weapons on his back because this might be taken as a sign that he is quarrelsome, looking for a fight"

(Thomas, 1958-9:195). The U. S. policeman who openly wears a revolver appears intimidating to some among the non-gun-carrying civilian population and, indeed, some critics have claimed that the gun on his hip even makes him feel more aggressive; witness the recent proposals to change this image: Shoes instead of boots, a more "civilian" uniform and the weapon either absent (as in the British "bobbies") or concealed rather than in open view.

11. For other lists, see Gluckman (1954) and Norbeck (1963).

12. Some courtship rituals are described elsewhere in this thesis and I will list only some general references here: For invertebrates, fish and birds, see Tinbergen (1951) and Bastock (1967); for birds in particular, see Armstrong (1965) and Etkin (1964b); for mammals, see Etkin (1964b), Schaller (1967), Conaway and Sorenson (1966), and Evans and Bastian (1969). Especially elaborate examples of courtship rituals in particular species can be found in Crane (1957) on fiddler crabs (Uca spp.), in Tinbergen (1951) on the Three-spined Stickleback (Gasterosteus aculeatus), in Huxley (1914) on the Great Crested Grebe (Podiceps cristatus), in Buechner et al. (1966) on the Uganda kob (Adenota kob thomasi), and in Woolpy (1968) on the timber wolf (Canis lupus).

13. Some examples are given in Portmann (1953) for ants, in Armstrong (1965) for birds in general, in Barnett (1967) for rats, in King (1955) for prairie dogs, in Schaller (1967) for tigers, in Carpenter (1965) for gibbons, in Hinde and Rowell (1962) for rhesus macaques, and in Goodall (1965) for chimpanzees.

14. This is in no way meant to suggest that such stereotypes are not based on real cultural behavior.

15. I have elsewhere (Funaro, ms.b) proposed a second test of my hypothesis, which is stated as follows: If ritual constitutes a communication system which makes possible stable social relations, then there will be a demonstrable relationship in particular societies between the relative elaboration of certain classes of ritual and the relative social importance of the types of interactions they mediate. In that paper, I first applied the test to certain broad classes of higher vertebrate societies with positive results. I also obtained positive results when I next applied the test more specifically to data on eight selected species of monkeys and apes: I constructed a matrix, the dimensions of which were 1) courtship ritual, 2) dominance hierarchy, 3) sexual swelling and/or coloration,

4) consort pairs, and 5) initiation of mating behavior by (which) sex. Briefiy, the only significant correlations showed that all cited species which exhibit pronounced courtship rituals lack a pronounced dominance hierarchy and those possessing the latter lacked the former. My interpretation of these results is quoted below (ms.b:25-26).

> To sum up, then, a hypothetical argument explaining the correlations in the matrix between dimensions 1 and 2 might run as follows. In baboons and macaques, selection pressures have produced aggressive and dangerous males, which pose, as it were, an evolutionary problem: How integrate these males into a society without sacrificing their important defensive potential? The response is a system of controlled aggression to prevent uncontrolled aggression--a highly-developed system of dominance and associated repertoire of reciprocal rituals--which regulates these potentially-dangerous male-male interactions. Mating, in such societies, is likely to be primarily contingent upon non-sexual regulatory systems, and thus it places littie strain on the social system; the rituals of courtship tend to be simple orientation signals.
>
> In the howlers, langurs, chimpanzees and gorilla...(which lack) the complication of aggressive males, competition within the group is less of an "evolutionary strain" on social cohesion and thus we find a less pronounced dominance system for its regulation. However, in such societies, neither dominance nor intra-group territoriality provides a stable mechanism for the regulation of mating and this lack (I assume) may have constituted a potential threat to social integration; the evolutionary response has been the elaboration of courtship ritual. The absence of highly aggressive males prevents sexual competition from becoming a problem.
>
> This argument is, of course, highly speculative and its presentation in terms of generalized and more or less mechanical models makes it impossible to consider all the variables and exceptions. Yet the argument does, I think, present a consistent explanation which might be

> developed further elsewhere and fairly accounts for the differential distribution of courtship rituals among some higher primates and the relations between dominance rituals and courtship rituals in terms of the variables considered. Human societies perhaps contribute additional support to the argument, for here we also find courtship rituals highly elaborated in general. Holloway points out that in human evolution, "natural selection favored an intragroup organization based on social cooperation, a higher threshold to intragroup aggression, and a reduction of dominance displays" (1967:65).

I have not included this second test of my hypothesis in this thesis for two reasons. First, I feel that some of the scoring for the matrix is subject to interpretation (see ms.b:Appendix). Second, I think there is adequate evidence that reduced aggressiveness (via physiological and cultural mechanisms) has been a primary adaptation in the evolution of human society, especially considering the behavioral correlates for cooperative hunting required of early hominids (Etkin, 1954) and the general non-aggressiveness exhibited cross-culturally by modern hunting societies, as has been noted by Gorer (1966) and Service (1966); it is also clear that certain highly aggressive societies, such as the Yanomamo (Chagnon, 1967 and 1968) and the Jivaro (Stirling, 1938), exhibit extremely elaborate dominance and greeting rituals. However, I do not feel, at the time of this writing, that I have been able to collect sufficient supporting data or isolate the significant variables in culture and ecology which would allow me to construct (as ought to be possible) a predictive model to explain the differential elaboration of various classes of ritual in and between particular human societies.

16. I am referring here to myth and ritual as general behavioral phenomena; there are, of course, a wide variety of temporal and causal relations which may obtain between a particular myth and a particular ritual.

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