IMPROBABLE SPECIES, DECEIT, AND SOCIAL CONTROL IN THE CONTEXT OF BEHAVIORAL ECOLOGY

RICHARD BEESON
University of Idaho

Abstract

The issue of improbable species and their relation to social processes seen through the perspective of behavioral ecology is addressed. It is now sufficiently established that deception, the sending of misinformation from one individual to another, is widespread in the behavior of both animals and humans. An attempt is made to demonstrate the circumstances under which deception is likely to occur and to show that this behavior is extensively employed in systems of social control. Among humans, the most important systems of social control often utilize improbable species. This paper strives to establish rational connections between deceit, social control, and improbable species.

This work is a continuation of my 1979 article, "The Improbable Primate and Modern Myth" (1979a, 1979b:166-195). There I attempt to show that the big foot or sasquatch, and other related unverifiable phenomena, are so improbable in both physical description and environmental occurrence, that it and they defy certain rational foundations of a long-standing cumulative positivistic science. This was accomplished by an analysis of hundreds of reported sightings over a number of decades that were documented in the then-existing literature (Green, 1968, 1970, 1973, 1978). As a brief recapitulation I found that the sasquatch:

1. is far too often reported as a single adult (approximately 90% of time) which violates the sociality attendant to a primate species with very long physical and social maturation rates;

2. is far more illusive than any other known animal and many times more illusive than any other primate. There would appear to be nothing in the sasquatch's environment requiring this response nor are there apparent reasons in terms of adaptability or reproductive fitness for this level of evasiveness;

3. is inordinately nocturnal in living habits which, except for two small primitive species at the beginning of the order, contravenes an unusually strong tendency in the remaining 60 some genera to be active exclusively during the day. This tendency increases with the anthropoid apes and is conspicuously present in pre-literate man;

4. is frequently described, in addition to the major tendencies toward being solitary, elusive, and nocturnal, by a number of lesser characteristics which are anthropomorphic and closely associated with the life-environment of those who report him. Examples include monogamy and a nuclear family structure and males that take direct responsibility for offspring; females with

pendulous breasts; the ability to swim and fish; and, being overly hairy, overly intelligent, and purposefully benevolent; and

5. is strikingly a larger-than-life animal.

Readers who wish a more detailed critique of the imputed physical, environmental, and social characteristics of the sasquatch should consult the original article. The point here is that the existence of such a creature is highly improbable. This being so, what remains is the need for a rational explanation of why so many apparently normal people either report seeing this animal or exhibit a tendency to believe in its existence--along with many other improbable species.

In my previous article I attempt to provide this explanation by applying several well understood principles found in social psychology; or, more specifically, in the sociological field of collective behavior. These disciplines are primarily concerned with processes of individual and group problem-solving. This theoretical framework derives from a number of related disciplines, all of which, e.g., ethology, sociobiology, and symbolic interactionism, have their origin in the early work of Charles Darwin (for a fuller analysis see Beeson [1986]). All of these biologically oriented perspectives can best be referred to simply as the field of behavioral ecology.

Problem-solving is fundamentally concerned, like organisms which unconsciously confront the process of natural selection, with the selection of means to accomplish ends. With animals this constitutes an unconsciously rational process. Among humans, the process is often consciously rational.

On the human level the overwhelming need of any problem-solver, i.e., anyone trying to cope with the environment, is a need to define the situation; to understand not only the objects with which he deals but also to determine their meaning--particularly in respect to his ability to act in that environment. To one degree or another this need is accompanied by some form of anxiety. Such increased tension heightens the suggestibility of the problem-solver so that he becomes less critical about what he experiences and tends to rely more and more on the judgment of others.

What the problem-solver gropes for are norms, rules of behavior that allow him to evaluate and ultimately define the situation well enough so that he can act in it. Most experienced problem-solvers have internalized and use normative guides that are backed by the power of social validation; these are commonly held and have worked well for people in the past. Such perceptual and symbolic understanding is continuously communicated to and from those in social interaction. With new or unusual objects and events customary norms are not always applicable nor have they always received social validation. It is for this reason that the communication process begins to rely upon the non-consensual symbols of rumor; understandings that are vague and must pass through a process of social approval before they can become concrete, i.e., specific and realistic.

Information about the sasquatch, as well as most other improbable species, often reveals such a collective communication history except that the normal process of social validation forever remains at the beginning stage of vagueness. The reason being, it would appear, is that there is no empirical object to be verified regardless of how long the process runs. Indeed, some myths that have their origin at the beginning of oral history (e.g., Merlin of King Arthur fame who can foretell the future), are still with us today. The result is that people roaming around in the natural world sometimes observe things that they mis-identify (sometimes purposely) and pass on to a social communications system which, because it operates rationally to bring social symbols from vagueness to concreteness, gives

this information a life of its own. Hence, the existence of many unverifiable accounts of improbable species.

Even though a number of years have passed since the publication of the original article, I find little in this analysis that I wish to retract or even seriously revise. In short, I stand by my conceptualization of the social processes that support the reporting of improbable species. The article did not, however, adequately confront an important related problem which is the psychological foundation of those who believe in these most improbable creatures. Recent advances in information in behavioral ecology, particularly in the social organization of animal behavior, may shed light on this puzzling human proclivity. The claim of this paper is, then, that the belief in the existence of unverified--and probably unverifiable--species has its origin in human motivation; that the postulation of such creatures serves certain widespread or even universal human needs. The reasoning for this conclusion follows.

The cardinal principle that comes from Darwin and is consistently supported by modern behavioral ecology is that animals--all animals--are self-interested. This is another way of saying that selection goes on at the individual level but in plain language it means that animals cannot develop behaviors (or psychological traits, or motivations, or anything else) that do not ultimately benefit themselves and increase their reproductive fitness. One of the important adaptations that assists this great contest in and with the environment is that most (probably all!) animals generate and share information. Animals have a great need to be informed about important aspects of their environment and other animals constitute the most consequential sources of such information. In fact, most sounds made by animals, with the possible exception of echo-location, as well as most color variation, is intended as a signal to some other animal (Krebs and Dawkins 1984:380).

Selection, therefore, would favor individuals who develop the ability to both send and receive information since each is a way to modify another animal's behavior. And if modifying another's behavior becomes an important move in the game then one can expect selection pressure to favor animals who, under the right circumstances, can cheat in the communication process. In short, one can expect a tendency toward deceit. That appears to be exactly what exists in the behavioral repertoire (and physical structure) of many species (Smith 1977:109, 381ff). So widespread is this tendency toward deception that a few widely recognized instances (Table 1) ought to adequately serve as exemplar. Please note that I do not impute a conscious symbolic recognition of these behaviors on the part of the animal.

Evolutionists will insist that these behavioral examples involve a process of natural selection that is focused on the individual and that when such behaviors emerge in a species' repertoire it is because of adaptive events in the relationship between the individual and the rest of the environment; that it is the individual that is selected. But the genes carried by the individual are also carried by relatives (in direct proportion to their relatedness) so the individual has at least two routes open to the reproductive future. One, in reproducing successfully itself, and two, in the successful reproduction of its own genes carried by relatives. These two paths are known as *reproductive* and *inclusive fitness* (Barash 1980:212). Fitness, then, is the ultimate goal of natural selection and refers to how successful genes and individuals, as well as populations of these individuals, reproduce.

Behavior is the result of a successful strategy. These are naturally selected from among various alternative strategies that were not as successful. What successful evolutionary units do once a strategy has been established is to optimize it. In order for a strategy to become optimal at least three conditions must be met. One, by competitive natural processes the trait or behavior must increase when rare. Two, the strategy cannot

Table 1

Examples of the behavioral repertoire and physical structure of certain species to create deception when communicating and translations of the message (Smith 1977:381ff.).

BEHAVIOR	TRANSLATED DECEPTION
The angler fish and the snapping turtle display a piece of flesh from the roof of their mouth (Alcock 1979:307)	This is something good to eat.
Most predator species attack the head of their prey. Many insect species develop false eye spots on less critical anterior locations (Brower 1971)	I am headed in this direction if you are interested in biting my head.
Insects, spiders, snakes, and mammals fake death upon a predator's approach. The opposum is a well known example (Hamilton 1963:17ff.)	I am not alive
The female Fowler's toad more readily mates with larger males with deep voices. Smaller toads lower their body temperature causing their croaks to be lower pitched (Fairchild 1981:950)	I am a big desirable frog
A series of displays: e.g., neck ruffs, wing spreads in birds and piloerection in mammals, i.e., swalllowing air or the erection of fins, feathers, or hair (Barash 1982:382)	I am big and aggressive and it would be foolish to attack me
Birds who feign a broken wing to lead predators away from nesting sites (Smith 1977:382)	I am disabled and therefore easy prey--chase me
Langur females exhibit a pseudo-estrus and mate with a new dominant harem male (Jolly 1985:263)	The offspring in our social group are yours. It is not to your advantage to kill them

be replaced without a loss of fitness and, lastly, when established and abundant it must be able to withstand a challenge by alternative strategies. If a strategy becomes optimal then a relative stability has been achieved in traits or behavior. Such strategies are defined by Barash as

> one of a specified set of behavioral (or other phenotypic) options that, if adopted by sufficient numbers of individuals in the population, cannot be superseded by any other available strategy. [These] become relevant to behavior when the *fitness* return from an act depends on what others in the population are doing [1982:212, 391].

Such stabilities are known in behavioral ecology as an *evolutionary stable strategy* or *ESS*.

If deceit is an important ESS in animal behavior then it would be instructive to focus on the specific payoffs involved. The behaviors described above are complex and it is not likely that one strategic relationship will account for all this complexity. Many behavioral ecologists believe, however, that since the focal point of the selection process is the individual, the basic exchange associations between individuals most accurately delineate behaviors like deceit. These associations can probably best be seen in the graphic representation below (Fig. 1). What is shown are the relationships of a game-theory "two-player game."

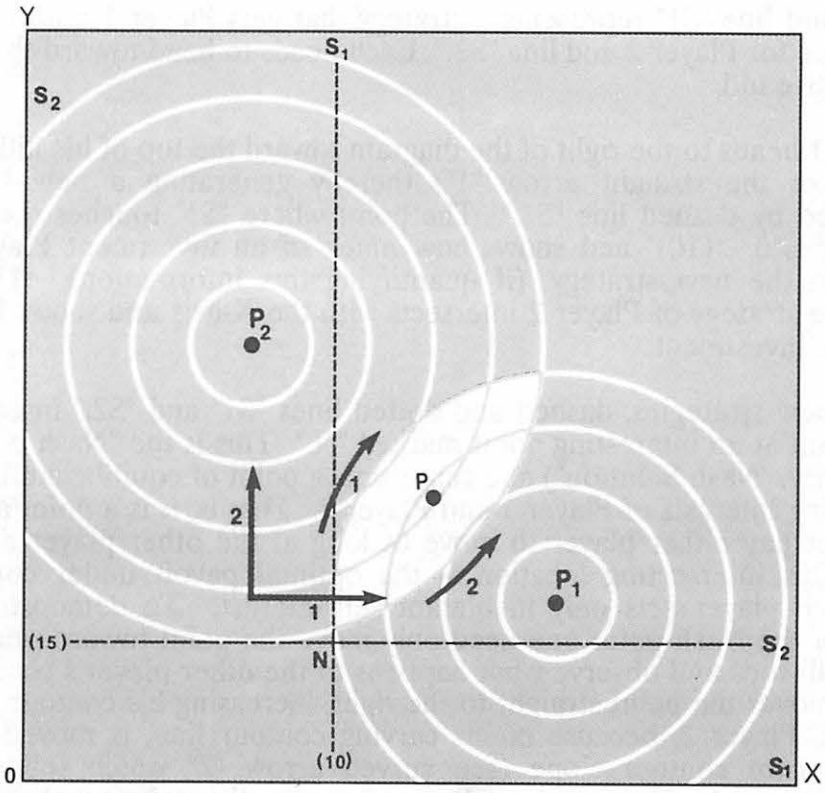

Fig. 1. A graphic representation of the relationships of a game-theory "two-player game."

The reader must forgive this elaboration of the obvious but the graphic representation is abstract, its content subtle and these relationships must be clearly grasped if what comes later is to be understood. Perhaps it is best if we walk through the graph together.

The graph is the N.E. positive quadrant of a typical rectangular coordinate system. The point of origin is the lower left-hand corner at "O." The solid vertical "S1" line is the Y-axis or abscissa. The horizontal "S2" line is the X-axis or ordinate. In this quadrant are two contoured surfaces such as those found on a geological topographic map. Imagine two overlapping hills standing next to one another. Each contour line represents an elevation and those closest to the center or peak are higher. By following each of the steps below we should be able to see clearly the nature of these relationships.

1. Players 1 and 2 both start at the point of origin, "O."

2. Each player wants to go straight to the top of his respective hill because that is where his interests are best served. To climb to the top of the mountain is to win the game.

3. There is a problem with these tendencies since Player 1 and Player 2 must always be in the same spot. Because a Cartesian coordinate system always shows a dependent relationship, Player 1's position always affects Player 2's position and vice versa. If each could go his separate way, no relationship would exist and no reason to show it as a function of coordinates.

4. The solid line "S1" represents a strategy that gets Player 1 nothing. The same is true for Player 2 and line "S2." Each needs to head toward the top of his respective hill.

5. Player 1 heads to the right of the diagram toward the top of his hill (in the direction of the straight arrow "1") thereby generating a new strategy, represented by dashed line "S1." The point where "S1" touches the Y-axis creates line "0 - (10)" and shows how much of an investment Player 1 is placing on the new strategy, (if quantifying this information). The new dotted-line strategy of Player 2 intersects with the X-axis and shows line "0 - (15)" as an investment.

6. Both new strategies, dashed and dotted lines "S1" and "S2," intersect on our diagram at an interesting point marked "N." This is the "Nash point" (in game theory, "Nash Solution") and represents a point of equilibrium between the differing interests of Player 1 and Player 2. That is, it is a point at which it does not pay either player to move as long at the other player does not move. This intersecting location is the optimal payoff under conditions where each player acts only in blatant self-interest. To demonstrate the stability of the Nash point one need only move the point toward one of the player's hill tops and observe what happens to the other player's position. If Player 1 moves the point straight to the right, increasing his contour level as he wishes, Player 2, because of his curving contour line, is moved farther down his own contour slope (see curved arrow "2" which follows "2's" receding contour). Conversely, if Player 2 moves the point up the diagram along his strategy line, thereby increasing his contour level, this move will, because of Player 1's own curving contour, place Player 1 farther down his contour slope (see curved arrow "1"). The stable equilibrium results because neither player will move if the other does not. Therefore, responding this

way, both players get a limited payoff in accordance with their investment. This point and the resulting payoffs is far from the optimum of either strategy in isolation but it is the optimum for both strategies together under conditions of unmitigated self-consideration in a world of competing interests. The Nash point is what sociobiologists call an evolutionary stable strategy (ESS), discussed previously (Smith 1972:13)

7. There are other points on the diagram where both players can simultaneously better their position. All such locations fall in the shaded area where the two hills overlap. Any point thusly situated will benefit both players although not necessarily proportionately. Point "P" in this area is called the "Pareto point" and is of particular interest because it represents the optimum payoff for both individuals. The only way a player's strategy position can be moved anywhere within the shaded area, including the Pareto point, is for both players to agree to move there and to further agree to move nowhere else. This is particularly true of the Pareto point because any further improvement comes at the expense of the other player; the possibility of either player being there at all depends upon collusion. Where the Nash point represents a *selfish stability*, the Pareto point (and other shaded area points) represents a *cooperative stability*.

8. Now, let us imagine the two players at the Pareto point. Any movement on the part of either player will immediately be met by a move back toward the Nash point by the other player, thus lowering the other player's position. Once this is recognized by both players an equilibrium is developed where there is no movement. And, once this message is known to be understood by the other player, a subtle shift in incentives has occurred. Now, both players put a premium on cheating. That is, if Player 1 can deceive Player 2 into believing that he has not moved but stands with Player 2 exactly on the Pareto point, while in fact not standing there at all, he can show a gain by moving up-contour on his own hill. That may seem an impossible accomplishment in this highly abstract two-player game but it will often be found employed and successful in the real world. So we see that the Pareto point as a steady-state is a nervous one and is dependable only with constant vigilance. (Now we are indeed getting close to the real world!) Notice here that deception pays only if it is not detected. Once the misinformation is picked up, the other player immediately returns to the Nash point, inflicting a cost on the deceiver. In other words, if not well done, deception is costly. (One does not want to be caught lying either in animal species behavior or in human social behavior.) The shaded area, including the Pareto point, represents those behavioral alliances frequently found among many animals that the sociobiologists call "reciprocal altruism" (Trivers 1971:35ff). The chief characteristic of this concept is that it represents strategies that are no longer zero-sum and allows for a far more sophisticated cooperation between players.

These two types of equilibria are important in understanding any type of species development. They are particularly relevant as a guide to interpreting the role of deception in both animal and human behavior. The reasoning proceeds in the following way.

Our problem is to analyze a number of behavioral traits that are frequently found together in a given taxonomic grouping. In this case the "suite of traits" involved will be fairly representative of an expected organization in mammals which includes the primates

and humans. The specific traits are a cluster of behaviors related to *social dominance.* Specialists continue to debate the exact role that dominance plays in animal social organization but it would seem a safe generalization to say that the strong tendency toward heirarchical dominance found among mammals serves at least two ends. One, it allows individual differences in behavioral ability to be expressed in the environment which is directly related to individual and group fitness. Two, it pre-organizes behavior in a way that tends to lessen conflict; a condition that promotes group solidarity and therefore species fitness. In other words, dominance as it occurs in animals, including humans, is usually expressed as some sort of ranked hierarchy that distributes the ability to access and control resources while integrating social behavior; with humans this tendency is usually accomplished by the acquisition of power, status, and authority. It should be noted that most of the characteristics related to dominance ultimately concern *control.* With animals this control is unconsciously built into the behavioral repertoire of the species. Among humans the same probably applies but rational benefit-cost judgments related to systems of consciously rational *social control* are also involved.

Excluding the area of predation, it is apparently the case that deceit is most often employed by animals in relation to dominance behavior (Barash 1982:270ff). And also apparently, that is true of human social behavior as well (McGuire and Troisi 1990:"Background"). What I envision is a *process* found in the behavior of both animals and humans (but at different levels of rational complexity) wherein deceit is utilized to accomplish dominance (and ultimately fitness) ends. This process, I believe, is best portrayed on both levels as evolutionary problem-solving of the type I have earlier introduced. The "problem" here is *control*; or, in human behavior, *social control.* Succinctly stated, how does nature (adaptive processes) fashion behavioral tendencies to be successful in the environment? The most general answer would seem to be that nature utilizes various control mechanisms. In the case of humans, these mechanisms function primarily to socially integrate the behavior of individuals. If this is true then the next step is to isolate these social control mechanisms.

Social control among humans occurs in a variety of ways. The two primary expressions of this control, however, are thought to involve two related but quite different methods of self-regulation. These are *shame*, which is more nearly an external control, and *guilt*, which is more nearly an internal control. Shame is an external control in the sense that the individual monitors his or her behavior in accordance with the expectations of social others. That is, shame reactions are generated in front of the eyes of the community. Numerous behaviors support this external shame control: gossip, nicknaming, and public censure are good examples. Guilt, which has been characterized as largely internal in origin, involves the transgression of an internalized absolute standard of behavior. Although it is highly probable that all human social groups utilize both shame and guilt, some groups appear to heavily depend on one or the other of these two control mechanisms. But all of this is vested in a universal institutional arrangement known as religion. That is, the most effective social control organizations in human behavior are the religious systems that govern every human social group.

Now, every major religion, regardless of the socio-economic system it is associated with, or whether animistic, polytheistic, or monotheistic, has at its very center--an *improbable species.* Not only that but in all cases the existence of this improbable species is made possible, i.e., becomes socially validated, by *cooperative deceit.* As to the first of these, one only need look at the near-universal practice of totemism among pre-literates and their creation and descent myths to see the unusual status of beavers, eagles, bears, or what have you, to recognize this dependence on improbable species. Species, here, because these are animals; Improbable because no one in the history of humanity has ever produced objective evidence that beavers, say, create anything but dammed streams.

William Howells says of totemism that "[it] is an association of human groups with animal groups, in both a social and religious way...Thus, most of a native's affiliations are reflected and expressed in totemism" (1962:179, 190). Here we have the two elements of religion and behavioral control. In other words, totemism may well be one of the earliest forms of religious control which is exactly the view expressed by Emile Durkheim (1947:126ff).

Among more rationally abstract religions (e.g. polytheism and monotheism) which fashion deities or a deity to dispense social control and intercede on the behalf of individuals, we essentially find the same conditions. Subdeities and saints are anthropomorphic representations and therefore species members. The same is true of all-powerful monotheistic gods, some of which we must remember even have sons! These creatures may be in an animal class with only one member but they are species nonetheless. As to their improbability, not one instance of their supernatural capacities has ever been produced that can pass the test of objective analysis.

All of this points to the fact that religion as the major social control organization in every social system uses improbable species for behavior control and, in the normal course of events, is almost always supportive of a dominance hierarchy and its attendant control ideology. Among pre-literates, animistic practices (witchcraft, sorcery, the reading of oracles, etc.) provide a strong incentive not to disturb the existing social order. That is, they tend to limit, for example, stealing, adultery, incest, etc. Otherwise one fears retributive animistic powers. The same is also true with more abstract religious organization; doctrine regulates behavior and, most of the time, supports the *status quo*. Religion, therefore, is about *control*. It is about control as it relates to the distribution of resources and status. As a social control system religion becomes the great social integrator no less than the controls found inherent in the rest of the animal world. The tendency is to view these control systems as very different as indeed they are. But they may well be much less different in origin and purpose. Both are concerned with behavior control and both utilize deceit to accomplish their problem-solving objectives. This brings us to the second of these points--deceit.

It is obvious that a clear definition of deceit needs to be given that is compatible with the behavioral ecological understanding of both animal and human behavior. From this perspective deceit is the transmission of information from one animal to another, whether through behavior or symbols, which describes a condition that has no empirical counterpart. For humans this would include the sending of symbolic meanings, whose content is an empirical object for which there is no empirical referent. A deception differs from a fiction in the sense that while a fiction refers to objects and events that are in part or wholly nonempirical, a deception represents the nonempirical by design and therefore accomplishes a specific end. With animals nature creates the deception through adaptive processes. It is my claim here that, although human deception often involves rational calculation and therefore self-awareness, some important institutionalized human deception is also the product of adaptive processes or that evolutionary ends are accomplished. In such cases the human, like most of the rest of the animal world, will not necessarily be aware of the deception. In other words, humans may choose to deceive because of a perceived advantage or they may deceive because of an advantage brought about by evolutionary processes related to increased reproductive fitness. We can look to our two-player game for instruction on these points.

The analytic relation given in the graph as the Nash point is understood to represent the sort of self-interested equilibrium known as an Evolutionary Stable Strategy. These are the unconsciously rational strategies employed by animals to maximize their fitness in relation to other animals and the environment. The Pareto point represents reciprocal altruism which results from strategies that increase a recipient's fitness while at the same

time increasing the fitness of the initiator. One is a stability created by simple self-interest; the other by enlightened self-interest which rests directly upon cooperation.

Among more consciously rational creatures the Nash solution also holds in situations where an institutional arrangement is created by competitively independent moves on the part of an individual seeking only their own interest; in which case we might label it a cultural stable strategy. The Pareto solution similarly applies by describing a relationship that accrues to two individuals who see that their benefit-cost ratios favorably increase if they cooperate with the other's strategy. This solution only works, however, if cheating is not detected by either party.

Let us consider these relationships when applied to a religious social control system--at whatever level. Some person, or persons, is able to convince some other person or persons that some improbable species (or member thereof) is real and stands in a certain relationship, beneficial or otherwise, to the individual. In the context of objective analysis it is safe to assert that these symbols have no empirical referent and these claims no empirical existence. This is, by our new definition, an act of deception. Notice here that the deceiver need not be aware of his deception. What is important is that the deception requires the cooperation of both parties. It is in the interest of both not to acknowledge the misinformation if both stand to gain by the deception. The superordinate(s) in this exchange, e.g., the shaman or priest, is given the authority to use the power to control scarce resources and to furnish or support the rationale that justifies the distribution of those resources. The subordinate(s) benefits from the social control that integrates his behavior with that of social others. In other words, both benefit as long as the deceived accepts the misinformation upon which this institutionalized system is built.

What is at stake here may be very important. We are referring to the establishment and/or maintenance of dominance hierarchies which, beyond the level of hunters and gatherers, are associated with all successful human social behavior. The most important form of social control for any social group is its religious system. All religions utilize improbable species. Insofar as a dominance hierarchy or other expression of social control depends upon an improbable species it depends upon deception. Deception then becomes a primary mechanism of social control. An additional suggestion is that the deception utilized in human social control functions in a similar way to deception in a two-person game--which is itself descriptive of the way deception functions among animals generally. That is, deception requires the cooperative support of both the deceiver and the deceived.

Important consequences may well follow from these requirements. From the beginning of recorded history and even beyond, anthropologists have puzzled over the collapse of various historically long-lived, socio-political organizations. As an example, three that immediately come to mind are the classic Maya of AD 250 to 900 in Yucatan, the native American Mississippian cultures of AD 900 to 1600 in the Mississippi and Ohio valleys, and the Anasazi of AD 800 to 1100 in the American Southwest. The reasons given for most of these social collapses are usually some type of environmental event such as drought or the orogenic uplift of a coastline, etc. I do not wish to second guess these specialists. Environmental factors may well have been involved in all of them. I do wish to point out that environmental changes are not in any way necessary for large scale social dissolution. All that is needed, as we can see from our model, is what amounts to a move from the Pareto point to the Nash point for a social system to come unraveled insofar as the system depends on effective social control. That is, when individuals cooperate in supporting the deceit that is used in social control institutions, the individual is in effect cooperating socially; his behavior is regulated and well integrated. When an individual can no longer believe in the deceit, he moves back to an individualistic interest that is much less socially oriented.

As this is being written the socialist countries of Eastern Europe are undergoing the most dramatic political changes to have occurred on the world's political scene in the last fifty years. I would argue that the ruling Marxist-Leninist ideology expressed by state socialism is in essence a secular religion. As such, it should exhibit the same dynamics that we have earlier discussed. Namely, that these systems are able to maintain political authority as long as a significant number of people cooperatively uphold the deceits demanded by the ideology. And deceits are exactly what they are. The major one being, I suggest, that a social system can almost entirely suppress individual initiative (self-interest) and maintain itself, much less prosper. This is a deception because it constitutes a claim to reality that does not conform to any empirical situation ever objectively witnessed; not merely a fiction, notice, but human motivation symbolically aroused to accomplish an end. Of course, State socialism as secular religion has made it a point not to allow any social control ideas to be expressed by an improbable species. Yet, "the New Socialist Man and Woman" may well belong to the most improbable species of all!

It is too early to know how all of this will play out but at present one finds all of the external trappings of a national state, e.g., borders, military power, bureaucracy, etc., and virtually no internal belief. In the terms of our discussion there has been a widespread move from the Pareto point to the Nash point which has left very few true believers. It can be predicted that in very short order there will be a remaking of the political structure including the creation of a new set of deceits.

What does this have to do with a creature as improbable as the sasquatch? To begin with, the sasquatch is itself used directly and openly as a means of social control by the Northwest Coast Native American groups who originated this creature (Suttles 1979:45,55,60,68). Here it is a convincing animal that hides in the woods and is very often associated with water. Among these people it would not be uncommon for several individuals to be away from the village in the woods or wherever and remind each other not to stray far from the group because a sasquatch may be lurking nearby. These warnings are apparently particularly effective in the lives of women and children. It takes little imagination to see that the existence of such an awesome creature would tend to keep people within all sorts of boundaries--physical and social. Confidence in paternity, for instance, would be increased if women were afraid to wander out alone or cross rivers and streams.

But many people report and believe in the existence of the sasquatch who have never lived under these cultural influences. What I believe is happening in these cases is still related to social control but constitutes a primitive, fragmented process of social problem-solving where the meanings involved are vague because of its very incipiency. In other words, I suspect that most humans have an inordinate need for social control and the processes by which this control is normally acquired constitutes virtually an unlearned response. After all, most behavior that is essential to animal life is strongly reinforced. Animals must eat to live; pleasure accompanies the satisfaction of hunger. Animals must reproduce; the pleasure reinforcer here is strong indeed. Many animals, and this is quintessentially true of humans, need social control. Without it the sociality of the social system does not work. I suspect this interest in improbable species provides emotional satisfaction for a very ancient need and that humans engage in such behaviors because of their emotional attractiveness. It may be that deceiving and believing in improbable species feels right.

I have personal evidence that this is in fact the case. I have engaged in conversation with intelligent, well-educated, scientifically trained individuals who objectively and outwardly reject all improbable species as fictitious while at the same time the desire to believe that exudes from their skin is palpable. These people want to believe in this

mysterious and wonderful creature; they really *want* to--it is only their training in rational control that suppresses such belief.

When one analyzes almost all improbable species one can see a whole complex of motivations that are implicated in social control. Such professions of belief, whether from reporters or believers (deceivers or deceived), are by their very nature unverifiable and represent a claim to knowledge by one individual that is not possessed by another. If I tell you that I know of the existence of a wild and wonderful and mysterious animal that few have ever seen, I know something that you do not. This is knowledge beyond that of ordinary people and beyond that of ordinary expertise. Among symbol-using humans such a claim to knowledge is also a claim to personal power because the mystery can be yours only if you deal through me. And the mystery *can* be yours. All you have to do is support the deception I am offering. Then we have a collusive pair of true believers. The benefits to me are obvious. So are the costs. Each will come to me depending on how well I can deceive. But, fortunately, with something as wonderfully unimportant as the sasquatch, a move from the Pareto point to the Nash point only gets me labeled as a "kook."

Not so with other more important improbable species games-- those played by people with real social and political power. Historically, most rulers have claimed knowledge about and influence over the unknown, and in fact unknowable, forces of the universe. It is for this reason that the ruling elite in all early socio-political organizations, e.g., chiefdoms, kingdoms, etc., engaged in this peculiar conspiracy of true believers. The rulers *know* the gods. The rest of the social body must depend upon this elite as an intermediary to the unknown. It is no incidental matter that the gods always validate the power and status of those with whom they are most intimate. That is why one should pay particular attention to such knowledge claims. They have played a major role in the development of virtually all social systems.

The suggestion here is that humans need social control as much as they do any other important functional requisite such as food or sex; that the "improbable species-deception-social control" behavioral complex is an *Evolutionary Stable Strategy* that integrates the individual with others and makes sociality possible.

References Cited

Alcock, John
1979 *Animal Behavior: An Evolutionary Approach*. Sunderland, MA: Sinauer.

Barash, David P.
1980 Predictive Sociobiology: Mate Selection in Damselfishes and Brood Defense in White-crowned Sparrows. In *Sociobiology: Beyond Nature/Nurture?* 9th edition, edited by G. W. Barlow and J. Silverberg. Boulder: Westview.

1982 *Sociobiology and Behavior*, 2nd edition. New York: Elsevier.

Beeson, R. W.
1986 The Conceptual Foundations of Sociobiology. *International Journal of Contemporary Sociology*, 23(3/4):123-162.

Brower, C. P.
1971 Prey Coloration and Predator Behavior. Topics in *The Study of Life: The BIO Source Book*, section 6, "Animal Behavior," edited by V. G. Dethier. New York: Harper and Row.

Durkheim, Emile
1947 *The Elementary Forms of Religious Life*, reprinted from 1915 edition. Glencoe, IL: The Free Press.

Fairchild, L.
1981 Mate Selection and Thermoregulation in Fowler's Toads. *Science*, 212:950-951.

Green, John
1978 *Sasquatch, the Ape Among Us*. Saanichton: Hancock House.

Hamilton, W. J.
1963 Success Story of the Opossum. *Natural History*, 72(2):17-25.

Howells, William
1962 *The Heathens: Primitive Man and His Religions*. New York: Doubleday.

Jolly, Alison
1985 *The Evolution of Primate Behavior*, 2nd edition. New York: Macmillan.

Krebs. J. R., and R. Dawkins
1984 Animal Signals: Mind Reading and Manipulation. *Behavioral Ecology*, edited by J. R. Krebs and N. B. Davies. Sunderland, MA: Sinauer.

Lewontin, R. C.
1978 Fitness, Survival and Optimality. *Analysis of Ecological Systems*, edited by D. Horn and others. Columbus: Ohio State University Press.

Sibley, G. C.
1955 Behavioral Mimicry in the Titmouse (*paridae*) and Certain Other Birds. *Wilson Bulletin*, 67:128-132.

Simmons, K. E. L.
1951 The Nature of Predator-reactions of Breeding Birds. *Behavior*, 4:161-171.

Smith, John Maynard
1972 *On Evolution*. Edinburgh: University Press.

Smith, W. John
1977 *The Behavior of Communicating: An Ethological Approach*. Cambridge: Harvard University Press.

Suttles, Wayne
1979 On the Track of the Sasquatch. In *The Scientist Looks at the Sasquatch (II)*, edited by R. Sprague and G. Krantz, pp 39-72. Moscow: University of Idaho Press.

Trivers, Robert L.
1971 The Evolution of Reciprocal Altruism. *Quarterly Review of Biology*, 46:35-57.