

Order without law

JANE GOODALL

P.O. Box 727, Dar es Salaam, Tanzania

Codes that regulate behavior of non-human animals depend on more learning as the brain of the animal becomes more complex. Chimpanzee brains are more similar to human brains than those of any other known animals. Chimpanzees maintain social order by postures, gestures and calls; among the most important of which is a sequence of aggression, submission and reassurance. At puberty young males find a place in the dominance hierarchy by relying on strength and intelligence, specifically with charging displays and challenges directed first to females, then to the lower ranking males, then rising through the ranks. Some are

seriously wounded. There are three types of "possession": territories; females and young; and things gathered, found or made. The "owner" must be prepared to defend all. Examples of killing and cannibalism of infants are given; males responded to the mothers calls for help, but no sanctions against the killers were observed. "

All human groups have certain traditional codes of behavior, deviance from which may result in punishment. These codes are passed down from generation to generation, and it is on such traditional behavior patterns that many of the rules, or laws, of that society are based.

Non-human animals also have codes that regulate their behavior within their social groups. In birds and lower mammals, these are usually very rigid and highly predictable, often conforming to the stimulus-release models of classical ethology—those governing court-ship, competition for mates or territory, and the raising of young. As we progress up the evolutionary ladder of increasing brain complexity, we find that learning, within the individual life cycle, plays an increasingly important role in the acquisition of adult behavior.

When behavior is, to a large extent, "instinctive" there is no need to impose rules or "laws" from *without*—they are built into the animal *at* from its birth and it relies on them for its survival. But as the individual becomes ever more significant in shaping his society, the more may arise the need to regulate his activities.

Chimpanzees are man's closest living relatives. This has been shown biochemically—such as in the structure of the blood proteins and the number and form of chromosomes. In particular, the structure and circuitry of the chimpanzee brain is more similar to the human brain than is that of any other creature. Chimpanzees live 40 to 50 / years and the period of childhood and development is prolonged—an individual is not fully socially mature until 14 or 16 years of age. Thus, it may be of interest to examine the way in which order (without law) / is maintained in chimpanzee society, searching for elements which might be useful in exploring the biological basis of human legal behavior.

GENERAL DESCRIPTION OF THE SOCIAL ORDER

Chimpanzees live in communities that vary in size. There are between 30 and 60 individuals, including infants, at Gombe. Chimpanzees comprising a community recognize one another and may travel in peaceful association, although they do *not* move about as a socially

cohesive unit. Rather, individuals form and re-form in constantly changing temporary associations. The only unit that is stable over long periods of time is a mother and her dependent (up to eight years) young. Bonds between mothers and their grown offspring and between siblings are strong and may persist throughout life. Pairs of non-related adult males may also form very strong supportive relationships lasting for years.

Adult males are dominant over females and youngsters. The males themselves are ordered into a hierarchy so that one male usually emerges as the top ranking or alpha male. Of course, the hierarchy is seldom static for long periods of time since some individuals are becoming older and weaker while youngsters are becoming stronger and more aggressive. However, provided the alpha male is in a strong position, social order within the community is maintained with relatively little aggression. Most of the time each individual knows his (or her) status and disputes can be settled by means of mere threatening gestures without recourse to physical fights.

Females have a much less clear-cut hierarchy. There is almost always a top-ranking female, and there are a number of very obviously highly-ranked females, as well as a number who rank very low. Females spend much less time in each other's company than do males moreover their status, relative to each other, is always changing depending on their reproductive state and the presence or absence of grown offspring-who will support them.

MAINTENANCE OF SOCIAL ORDER

The maintenance of the social order is dependent on a rich repertoire of postures and gestures and calls. One most important sequence is "aggression, submission and reassurance." After an aggressive incident the victim may approach the aggressor and make appeasing gestures, such as holding out the hand or crouching low on the ground, while whimpering or screaming. The aggressor usually reaches out to touch, pat, kiss or embrace the supplicant. This serves to calm, or reassure, the latter. It is this kind of behavior which makes it possible for the chimpanzees to enjoy relaxed and friendly relations, even in a society where violence may erupt suddenly. This sequence, also indicates the importance, in chimpanzee social life of friendly physical contact. Threatening gestures, rather than physical fights, serve to regulate most disputes between chimpanzees. The most significant and the most impressive is the male "charging display"

when he hurtles along, throwing branches or rocks, swaying vegetation, making himself look more dangerous than he may actually be. It is a supreme example of bluff.

In chimpanzee society, almost always, "might is right" and it is the lower ranking of the pair, whatever the context, who must make appeasing gestures. The participants are then able to resume a relaxed relationship, at least to outward appearance. In fact, the subordinate may not be feeling as unruffled as it seems.

High ranking Fifi and low ranking Gilka squabble over food. Fifi attacks Gilka who screams, withdraws, then holds out her hand, which Fifi touches. Both resume feeding. Suddenly Gilka screams and flies at Fifi, hitting her. This coincides with the arrival of Gilka's eldest brother who stands, hair bristling. Now it is Fifi who retreats, screaming.

This kind of incident, where the stronger of a pair of relatives or friends protects the weaker is, common. But do strong chimpanzees ever protect the weak *irrespective* of social relationships?

Adult males are, in general, protective of all infants (and may discipline them too).

Infant Freud pesters a male baboon, kicking at him playfully. The baboon loses patience, pulls Freud from the branch and bites him. As Freud screams a young male chimpanzee, Goblin, charges over and hits the aggressor. Freud soon resumes his pestering of the baboon. Almost at once, Goblin seizes Freud, slaps him hard and leaves. Freud, subdued, goes to his mother!

Since there are no permanent pair bonds between non-related adult males and females, any male can, theoretically, impregnate any female, so that the general protective attitude of adult males to infants can be likened to a father-child relationship. This kind of relationship may not be extended towards infants of other communities. Three times, groups of adult males severely attacked females from neighboring social groups (encountered near the territorial boundary), seized, killed and partially ate their infants.

Sometimes, even *within* the community, the protective attitude of a male towards an infant breaks down. If an infant gets in the way of a charging display, it may be used as a display object, picked up and flailed, dragged or thrown.

: Young adolescent females may transfer, temporarily or permanently,

into a neighboring community. Initially these young females run the risk of persecution by resident females and usually keep close to the big males for protection.

A young male, Figan, is traveling with a transfer female, Sparrow. Figan's mother and sister joined them and began to threaten Sparrow, chasing her as she fled, screaming. Figan, unwilling to attack members of his own family, displayed vigorously between the squabbling females and stopped the aggression.

Sometimes a high ranking male will break up a fight between a lower ranking male and a female. This, however, is not necessarily directed toward "rescuing" the victim: sometimes his display is aimed at re-asserting his rank relative to that of the aggressor. And there are even times when a male may rush over and join in such an attack *against* the female victim. As many as four males may join in an attack in this way. All this suggests that the sense of chivalry is not very far advanced in our chimpanzee relatives.

THE DEVELOPMENT OF INTER-INDIVIDUAL RELATIONSHIPS WITHIN SOCIETY

The infant chimpanzee is born with a repertoire of inherited species-specific behavior patterns. But experiments conducted in captivity, in which infants were raised in social isolation for the first months of life, suggest that they must learn, in social context, when and how to use these communication signals.

In the wild the behavior of the infant is initially molded by the mother. She prevents him from doing harmful things and may physically remove him from the potential trouble or start to play or groom him, temporarily distracting his attention. As the infant grows older, inappropriate behavior is corrected by his mother by more active punishment. For example, she may gently bite him. If he then throws a tantrum she may punish him more vigorously-but she will reassure him, usually by embracing, at the same time.

From the moment that he begins to leave the protection of his mother's body, the youngster starts to learn what he can and cannot do in his society. He learns this mainly by trial and error and by observing and imitating others. He learns quickly that other individuals may not be as tolerant as his own mother. During play with peers he will find that he is stronger than some, yet he must learn to hold his

punches if the youngster's mother is dominant over his own. He " learns, too, that while he can approach most adult males when they are relaxed, he may not be tolerated when they are socially roused. And he finds that behavior which is acceptable to some adults may provoke irritable responses from others.

As he grows older, the lessons are harder. Juveniles learn that they must be more cautious during feeding and keep their distance from others—even their own mothers—to avoid aggression. In the early days, some youngsters respond to reprimands with tantrums, but gradually they adjust to the new state of things and show the appropriate submissive patterns that are necessary for their acceptance in society.

It is during adolescence that some of the hardest lessons must be learned, particularly by the male. Adolescence is not too difficult for females. Although they leave their mothers during periods of oestrus (and may move into neighboring communities) they usually return. They can learn most of what they need to know to function appropriately as adults within the family context. Females learn submissive patterns during infancy and will continue to use them, at least towards the males, for the rest of their lives.

The young male, however, must leave his family in order to learn about such primarily male activities as hunting for meat, patrolling the territorial boundaries, repelling incursions by neighbors and recruiting young females. The young male, from late infancy onwards, becomes increasingly fascinated by the big males. His first excursions away from his mother are almost always in the company of one or more of the adult males. At the same time as his fascination for the males is increasing, so too is his fear of them. Increasingly he is liable to threats and attacks from them. Moreover, he is the ideal 'scapegoat' on to whom adult males can redirect their aggression.

Meanwhile, the adolescent male is growing strong. Around puberty, the testosterone levels in his blood increase rapidly, and he shows a strongly correlated increase in aggressive behavior. Initially he directs this aggression towards the females of his community. He displays at them again and again (provided the big males are not present) until eventually he is able to dominate all of them by the time he is 13 to 15 years old. The one really stable relationship of the adolescent male is that with his mother. He does not try to dominate her and he continues to show respect for her. Again and again, after spending time with the big males, particularly after times of social tension, the adolescent male leaves the group and seeks out his mother and family.

Finally, when the young male is between 14 and 15 years old, he begins to try to establish a place for himself in the hierarchy of the socially mature males. How does he manage this? In most human societies there are some sort of initiation rites to establish the fact that a young man has 'come of age' and has the right to enter the world of men. The chimpanzee male, however, is not automatically treated as an adult just because he has reached full body weight and developed the strong canine teeth of the mature male. He must rely entirely on his own strength or intelligence to make the transition to adulthood though an elder brother may support him during this difficult time. Above all he makes use of the charging display when challenging the lowest ranking of the mature males. The more frequent and the more impressive the charging display of the young male, the quicker he is likely to rise through the ranks of his elders. It is probably the occasional avoidance response of an older male to the tempestuous arrival of a late adolescent male performing such a display (during which inhibitions are, to some extent, lost) that gives him the confidence to actually direct his display towards his erstwhile heroes. The struggle is not easy, and young males may become very badly wounded in their attempts to better their social position. As a result they may drop right back and remain in low ranking positions for several more years.

The transition from adolescence to maturity is easier for the female than for the male. When she is about 10 years old she develops an adult sexual swelling and is accorded mature reproductive status by the big males—who mate her for the first time. One or two years later she gives birth to an infant. Both these events occur without the female having to do anything about it and both, in themselves, are signals to other chimpanzees of her new mature status.

INCEST TABOO

At Gombe, no physically mature male has been seen to mate his mother. Mating between siblings, while it does occur, is at a very low frequency, and three out of four young females tried vigorously to avoid the courtship displays of their elder brothers. As mentioned, young females have a tendency to mingle with neighboring males during periods of oestrus so even if they subsequently return to their home communities their first infants are likely to be sired elsewhere. Young females also show a tendency to avoid the courtship of old males and this provides a mechanism whereby they may avoid incestuous relationships with their fathers.

THE CONCEPT OF 'POSSESSION'

In general, possessions are of three major types.

(1) The oldest kind of possessions, in the evolutionary sense, are undoubtedly those involving the occupation of certain areas of the animal's environment-territories. Some species have individual territories which they protect from invasion .even by a member of the opposite sex except during the breeding season; others maintain a joint territory for family or larger social group.

Those species which roam over large areas of country-hunters and nomads-often select one area within the overall range, which changes from time to time, as a territory to be defended from conspecifics with whom they may share the rest of the range.

(2) One individual may show possessive behavior towards another individual or individuals of the same species. A male may fight and defeat a rival male in order to take possession of a female. Both males and females may show possessive behavior towards their offspring while these are still dependent. This kind of possession is, of course, widespread in the animal kingdom.

(3) Finally we come to possessions that have been found, gathered, or made. The winter food store of a mouse, a nest which has been constructed for sleeping or breeding, an object used as a r tool, clothes, a herd of cattle, or a dog.

In all three categories, possession cannot be inferred unless the 'owner' is prepared to defend what is his or at least shows fear or distress if he is dispossessed by a stronger rival. There may be occasions / when he shares his possessions with others, but we must have evidence that, at least on some occasions, he maintains or tries to maintain exclusive possession. There will, of course, be joint-ownership—a " pride of lions driving competitors from their kill, mother and father fighting together for the lives of their offspring.

Let us briefly discuss these three kinds of possession in chimpanzee society. (1) Chimpanzees are territorial: adult males regularly patrol their boundaries, chasing off or even killing strangers. The main study community at Gombe divided in 1972: over a four-year period the *J* males of the larger, northern group systematically attacked the " individuals of the southern splinter group. Eventually the entire

break-away group was eliminated and the victorious males, and their females and young, once again had access to the area which they had lost after the division.

(2) Male chimpanzees do not form exclusive, lasting pair-bonds with adult females. In some situations a female in oestrus may travel with a group of males and be mated by all with little overt competition. At other times the highest ranking male in such a group may show possessive behavior towards a female in oestrus and, to some extent, can then inhibit other males from mating with 'his' female. If however, there is a diversion, the other males in the group will quickly take the opportunity of stealing a quick copulation. If the possessive male notices he charges towards the mating pair and attacks one of them—usually the female since if he fights the male the female may be mated by a third male.

The most successful reproductive strategy for a male chimpanzee is to form an exclusive consortship with a female during which he leads her away from the center of the community range and tries to keep her away from other males for the duration of her oestrus period. If she tries to escape from him during the early stages of such a consortship, he may attack her quite severely.

Mother chimpanzees are possessive towards their infants, and this is unchallenged by other individuals. Others may look closely at a newborn but seldom try even to touch it during the first few weeks.

Older siblings, usually the first to be allowed to touch the infant, will also show possessive behavior towards the new family member and chase away other youngsters who try to play. If this is not possible, the older child may join in the play session and unobtrusively take the place of the small sibling, thus preventing the undesired contact.

When an infant dies, the mother will continue to show possessive behavior towards the body, usually for three or four days—until it begins to decompose. While she may treat the corpse quite differently from alive baby—slinging it over her shoulder, letting it drop to the ground and so on—nevertheless she does not move without it and she will not allow others to take it away.

(3) Things which have been found, gathered or made including sleeping platforms or nests that are constructed each night (ownership of which is very seldom disputed), food items (including meat) which have been picked up or gathered together, objects such as tools, and objects used as toys in play. These things are very temporary possessions—a nest may be occupied for 12 hours or so and a portion of meat may take five hours or more to consume, but the other things are

usually discarded after minutes rather than hours. This is hardly surprising since the objects referred to are either food, in which case it is eaten, or sticks, leaves, or bunches of fruit that can be found whenever they are needed. It is significant that the 'toy' which was carried about for the longest time was the remains of a pillow that young Figan took from my tent one morning, and was still in possession of, after many tussles with his peers, the following afternoon. Pillows are not part of the typical Gombe environment!

Possession of some of the things listed may be very hotly disputed—in particular, meat. Meat is much less easy to acquire than the more usual vegetable and fruit food items of the chimpanzee diet and the prey killed is seldom large enough to satisfy all those who are present during its consumption.

Immediately following a kill there is much excitement during which those present try to seize a share. After this division individuals who have obtained a share move off to feed. Those who have not been successful usually gather round the lucky ones and beg. They reach out to touch the meat, requesting permission to remove a piece or to join the possessor in feeding. Or they hold out their hands, palm up.

The success or failure of a begging individual depends on a variety of factors: the personalities concerned; the nature of the relationship between possessor and seeker; the amount of meat available; and the degree of satiation of the possessor.

Meat is not only acquired by begging. A male will unhesitatingly, *take* the prey from a female or juvenile. Yet he may beg, patiently, from a possessor who normally ranks below him in the hierarchy. This does *not* mean that he acknowledges the other's 'right' to his meat. Rather it suggests that the usually higher ranking male knows that the other will not easily relinquish such spoils: meat is worth fighting for and he is likely to hang on tightly and crouch over it. Moreover the possessor, who may usually show submissive behavior towards the begger, is concentrated on feeding and is not, perhaps, emitting the appeasing signals which the other has come to expect this could produce feelings of anxiety in the begger.

It is of interest to note that a chimpanzee recognizes that an object is 'mine' or 'his', even when the object is spatially separated from its 'owner'. This is shown very clearly during termite feeding when the chimpanzees push grass stems into tunnels in termite nests, then pick off the clinging insects with their lips. A feeding individual must leave his tunnel from time to time to select new tools. At such times a lower ranking individual may move over and push his own stem into

the temporarily freed passage, but will repeatedly glance towards the 'real' owner as he does so, and will hastily move away when the other heads back. When a chimpanzee is sitting eating a pile of fruits he has gathered, such as bananas, he may discard the skins. A subordinate may reach out towards a skin very cautiously indeed, watching the 'owner's' face carefully. Only if he sees no sign of threat will he actually take a skin. A toy, especially a valued toy such as a piece of cloth, may be laid down by a youngster who is feeding. After awhile another youngster may creep towards the cherished object, keeping a wary eye on the owner. In such situations, the owner is usually well aware of what is going on and will instantly race over to retrieve his or her toy, even if this is out of his sight. One mother, Passion, was feeding on driver ants. She got bitten, dropped her long, peeled stick and retreated to remove the ants from her person. Her adult daughter Pom glanced at her mother, then exchanged her own tool, which was shorter, for the abandoned one. Immediately Passion reached out and touched 'her' stick, Pom handed it over and continued with her own.

In 1975, the adult female, Passion, watched by her adolescent daughter, Pom, seized the newborn infant of a community female, Gilka, killed it and ate it. She shared the flesh with her family. The following year Gilka again gave birth. Passion and Pom, working as a team, jointly attacked Gilka, seized the baby and ate it. It was Pom who killed this victim—biting into the forehead as her mother had done the year before. Two months later, Passion and Pom were watched as they jointly attacked another female, Melissa. After a fierce struggle, mother and daughter managed to seize her newborn infant, which they ate. In mid-1977 and early 1978 three more attempts to kill infants were observed, all of which failed. Subsequently no further incidents of this sort have been seen.

The behavior, more than any other recorded at Gombe, could be regarded (in human terms of reference) as criminal deviance. What was the response of other members of the community? Was any form of punishment meted out to Passion and Pom?

It is important to realize that all the observed attacks by this mother and daughter were made when no chimpanzees, except the victims and their families, were present. The extent to which other members of the community knew about the killings was not clear. One mother, Melissa, was found with a newly dead baby, killed by a bite on its forehead. She was with a number of males and we suspect that this baby had been one of Passion's victims, but that the arrival of male chimpanzees (alerted by Melissa's screams) had prevented the feast. If

so, these males knew about Passion's behavior. Both Gilka and Melissa, after losing at least one infant each to Passion and Pom, were fearful when the killers approached subsequent babies. When adult males were nearby they responded quickly to the screams of the mothers. Twice they displayed towards the killers, and once attacked Passion.

Five different mothers were involved in the observed killings or attempted killings. Two of them (one Melissa) seemed, quite quickly, to lose their initial fear of the killer females. One continued to show anxiety in Passion's presence for over a year after an attempt had been made on her infant's life and another, Gilka, remained very fearful of Passion for the remaining three years of her life.

The behaviour of the fifth mother, Miff is of particular interest. Her first *observed* encounter with Passion was when her infant was a week old. Miff at once screamed loudly and ran from Passion until she encountered two big males. Then, her screams changing to fierce, threatening barks, Miff turned and headed back towards Passion. The two males followed and when they arrived, both displayed at Passion and Pom who fled. At that time, Miff, clearly, was aware of Passion's murderous tendencies. Three weeks later Passion made a determined attempt to seize Miff's baby. However, Porn, heavily pregnant, did not help, and Passion was hampered by her own four-month-old infant. Miff was able to protect her baby during a very fierce fight.

Three months after this, another encounter between Miff and Passion was observed. It was Miff's juvenile son who saw the killers first he gave threat barks and the whole family ran off screaming. When they encountered an adult male, Miff again turned and led him back to Passion: he displayed vigorously and Passion and her family retreated. Miff and her family's fear of Passion and Pom continued, unabated for the next two years.

Thus, while it is clear that the adult males, when available, promptly respond to appeals for help from threatened mothers, only mild forms of aggression have been observed in response to threatening behavior by Passion and Pom. Even some of the victims appear to quickly overlook (or forget) their grudges against the deviant females.

SUMMARY

There is order in a chimpanzee society—an order which is maintained without 'laws' in the human sense of the term. Because so many chimpanzee behavior patterns are so similar to some of our own, we

may see codes of behavior similar to those which have led to laws that are enforced in order to try to maintain 'law and order' in human society. A better understanding of evolutionary factors that have molded human social behavior might suggest why some human laws are widely accepted, while others are more difficult to enforce.

This is a fruitful field for future research, but it can only be meaningfully undertaken when a trained legal mind along with a student of chimpanzee behavior co-operate to tackle the problem involved.