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Some aspects of aggressive behaviour in a group of free-living chimpanzees

Jane van Lawick-Goodall

Chimpanzees are nomadic within a fairly large home range (which may be thirty square miles or more for an adult male) and they follow no regular routes in their daily wanderings in search of food. Moreover, unlike many primate species, chimpanzees do not move about in stable, or fairly stable groups, but in small temporary associations, the membership of which constantly changes. The only stable association, over a period of years, is a mother and her younger offspring: such a sub-group freely joins up with and leaves other temporary associations.

In 1963 I established a feeding area where chimpanzees could get bananas and, for the first time, it became possible to make fairly regular observations on a number of individuals. By 1964 some forty chimpanzees were visiting the feeding area, some regularly, others infrequently. I took on research assistants trained in my observation methods and recording techniques. Since 1964 observations on the chimpanzees have been kept up on a daily basis.

It is sometimes possible to follow a group of chimpanzees for hours as it wanders through the forest without observing a single aggressive incident. At the artificial feeding area, however, where the chimpanzees compete for a favoured food which is in comparatively short supply, disputes, including fighting, occur more often, giving an opportunity to study the mechanics of aggressive behaviour.

Threat and attack

Those aggressive behaviours which do not involve physical conflict, but which merely elicit submissive behaviour, avoidance or flight in the individual to whom they are directed, may be termed threat; and chimpanzees, like most animals, solve more disputes by means of threat than by actual fighting. A dominant chimpanzee may fix his subordinate with an intent and prolonged stare, he may slightly jerk his chin upward whilst uttering a soft bark, he may raise his arm rapidly, or he may run towards an opponent in an upright position, waving his arms in the air whilst uttering loud yells. These patterns are of interest since they closely resemble some of the aggressive repertoire of man himself. The chimpanzee has other threat patterns too, of course, such as hitting out towards another with the back of the hand, swaggering and swaying from foot to foot in an upright position, and running towards another chimp stamping and slapping on the ground with feet and hands.

When actually attacking an opponent a male chimpanzee often tries to jump onto his victim's back and stamp hard with his feet. A small chimpanzee may be actually raised from the ground and slammed down repeatedly, or it may be dragged along by one limb. Other attack patterns include biting, hitting, grappling, pulling out hair and scratching. Female

COMMUNITY SCALE		i	ii	iii	IV	V	VI	VII	VIII	IX	X	XI	XII				
EKISTIC UNITS		1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	
ELEMENTS	NATURE																
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Dr. Jane van Lawick-Goodall began the study of wild chimpanzees in 1960 and subsequently set up the Gombe Stream Research Centre in Tanzania, of which she is at present Scientific Director. This article is abstracted from the International Social Science Journal, Vol. XXIII, No. 1, 1971, published by UNESCO.

chimpanzees are more likely to clinch, rolling over and over on the ground together, or to pull out each others' hair or to scratch.

Most attacks last no more than half a minute and even those which appear, to a human observer, to be extremely vicious, seldom result in injury to either the aggressor or his victim — other than the loss of a handful of hair perhaps, or a slight scratch.

Most adult male chimpanzees hurl rocks or branches, usually at random, during their «charging displays». (These displays are usually performed on arrival at a food source, when two groups meet up, at the onset of heavy rain and so on.) However, in addition to this random throwing, many male chimpanzees and some females deliberately use objects as weapons in aggressive contexts. Most of our adult males, for instance, throw rocks or other objects at baboons during competition for bananas at the feeding area. Chimpanzees sometimes hurl things at each other and sometimes at human observers (Fig. 1).

Response of chimpanzee who is threatened or attacked

The response of a chimpanzee who is threatened or attacked varies with respect to the relative social status of the two concerned, the relationship between them, the cause of the dispute, and the violence of the aggressive act. Thus if one chimpanzee mildly threatens another of only slightly lower rank than himself who, for instance, approaches his food too closely, the recipient of the gesture may seem to ignore the threat or, at most, slightly withdraw. If the threatened chimpanzee is much lower in status, the same gesture may elicit rapid withdrawal, loud screaming, submissive behaviour — or all of these behaviours. A chimpanzee is likely to direct a more violent form of threat at another who tries to take away some of his share of bananas than at one who merely wants to sneak off with a discarded peel, and the more vigorous the threat, the more frightened or submissive the recipient is likely to be.

Once a subordinate has been attacked it may either crouch to the ground screaming until the attack is over, or it may struggle to escape and rush away. The closer the social status of the victim to the aggressor, the more likely it is that the former will turn and attack in self-defence.

Some contexts in which aggression is likely to occur

Some major causes of aggression amongst our chimpanzees are as follows: At the artificial feeding area the most frequently observed cause of aggressive incidents was, of course, competition for bananas (Fig. 2). Under more normal conditions, however, aggression over food is comparatively rare since most chimpanzee foods are present in abundance.

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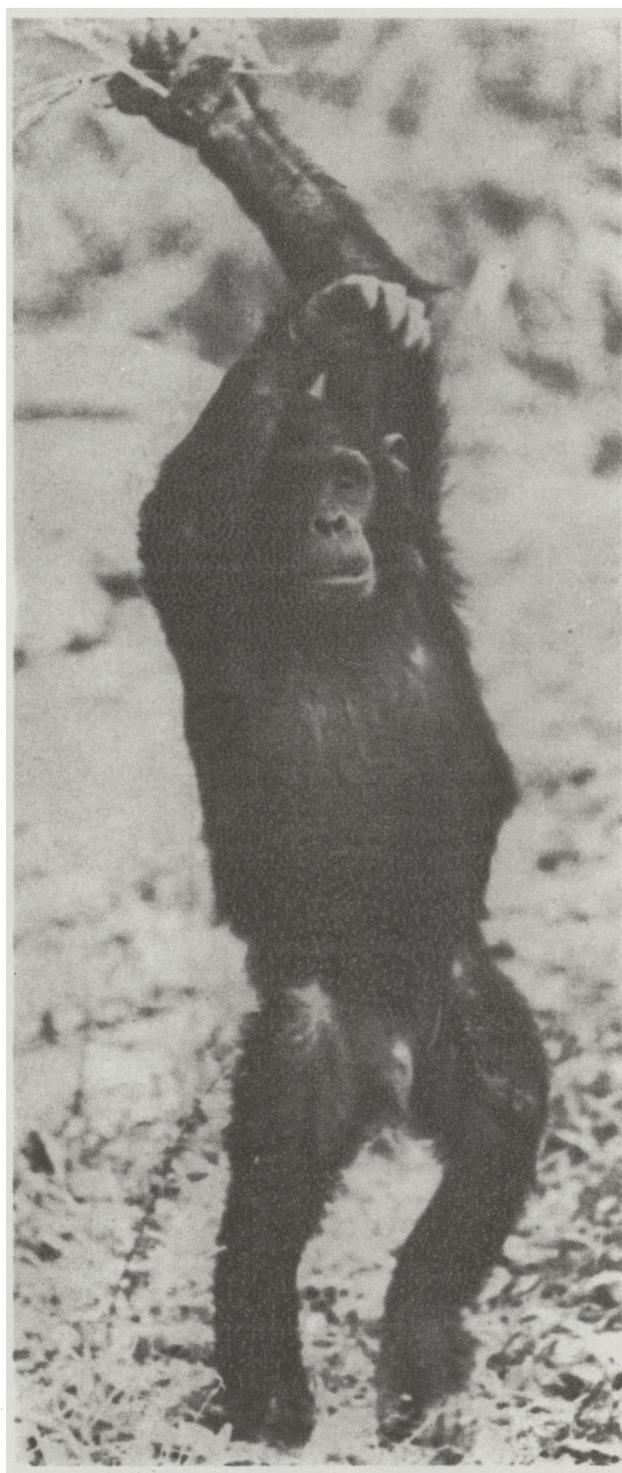


Fig. 1: Male infant, about 3 years old, preparing to throw stone at photographer.



Fig. 2: Baboon, who came into the feeding area, threatened by adult male chimpanzee

If a chimpanzee is frustrated in achieving some goal — if, for instance, he is attacked or threatened by a higher-ranking individual and dare not reciprocate, he frequently redirects his aggression at a lower-ranking animal. Alternatively he may rush off in a charging display, which includes many seemingly aggressive acts such as stamping, shaking branches, hurling rocks and so forth. Such a display often seems to calm a frustrated chimpanzee: afterwards he appears relaxed and at ease.

Sometimes a chimpanzee threatens or attacks a subordinate who has failed to respond correctly to some social signal. For instance, sometimes a male «forces» a female to follow him about: if she does not hurry to his side when he shakes branches at her, he may then actually attack her. One male threatened another who went to sleep instead of reciprocating during a social grooming session.

At times adults appear to be «irritated» by noisy inferiors.

Strong bonds of affection or friendships may develop between pairs of chimpanzees, particularly between mothers and their offspring (including adult offspring), and siblings. As would be expected, a mother will rush to the defence of her infant, often threatening or attacking the chimpanzee responsible for hurting or frightening her child. She may do the same for her offspring when he is a fully mature male, and he will hurry to her defence in the same way.

Sometimes female chimpanzees join together to threaten, attack or chase away a female from a different area if she arrives at the feeding area. Males have not been observed to show this sort of deliberate aggression towards «strangers» of either sex.

It sometimes happens that when one individual is attacked, other chimpanzees who were not apparently involved in the original dispute hurry over to join in, attacking the victim when it escapes from the original aggressor. Fear sometimes seems to spark off aggression.

A good deal of aggression occurred during interactions between two individuals which I have termed «dominance fights» although, in fact, such encounters only rarely involved actual attack. Two young males, for instance, each holding an approximately equal position in the dominance hierarchy, may commence to show off in a vigorous manner, swaggering about in an upright position and violently swaying branches at each other. Such incidents are sometimes sparked off by causes which may not be at all clear-cut to the human observer. It is in connexion with the dominance status of a male that his charging display appears to play a vital role: in principle, the more frequently and the more vigorously he displays, the higher in the social ladder he is liable to climb.

Submissive and reassurance behaviour

After being threatened or attacked, a subordinate then often approaches the aggressor and directs towards him submissive, or appeasing behaviour. This includes such gestures and postures as turning the rump towards the aggressor, crouching on the ground in front of him, holding out a hand towards him, touching or kissing him. The dominant chimpanzee, in many cases, responds by gestures such as reaching out to touch the subordinate (Fig. 3), holding its hand, patting it gently on the head, back or other part of the body, kissing it, briefly grooming or embracing it. Such behaviour, on the part of the aggressor, serves to reassure the subordinate: a youngster who crouches screaming and tense on the ground gradually relaxes and quietens under the soft patting of a male who, a few moments before, was pounding him up and down on the ground.

Some individuals, particularly juvenile and young adolescent males, show a definite need for such reassurance: if the aggressor ignores their approach and submission they may maintain their appeasing gestures and postures, whilst screaming and whimpering, until he does respond. One youngster used to throw temper tantrums, screaming and hurling himself about on the ground, if his submissive behaviour was ignored.

Reassurance behaviour is undoubtedly of great importance in maintaining the relaxed relationships which are normally apparent between most of the different individuals of a wild chimpanzee group. It is of interest that so many of the gestures and postures in-

involved in chimpanzee submissive and reassurance behaviour so closely resemble our own, not only in appearance but, more importantly, the contexts in which they occur.

Aggression and the rise to dominance

As I have already mentioned, the charging display of the male chimpanzee plays an important role in bettering, or at least maintaining his social status. Whilst most displays are not deliberately directed towards another individual, they do, nevertheless, serve to impress other chimpanzees present.

The best examples of the apparent significance of the male charging display relates to the sudden rise in status of the mature male, Mike. Mike was fully mature when I first got to know him in 1962. He was then among the lowest ranking of all the socially mature males, and at times was threatened and even attacked by nearly all the others.

Early in 1964 Mike, during one of his charging displays, seized hold of an empty four-gallon kerosene can that was lying in his way and dragged it behind him as he ran. The can made a loud noise as it bumped along the ground and the other chimps present at the feeding area rushed out of the way. After this, Mike began to use cans more and more frequently during his displays. Other males had also dragged or hit paraffin cans during their charging displays, but only Mike, it seemed, was able to take advantage of such artificial props. After displaying several times with them, presumably because they simply happened to be to hand, Mike began to hunt deliberately for the cans prior to displaying. After a few weeks he learned to keep up to three of them ahead of him, hitting or kicking them, whilst rushing at top speed across the ground. He made a tremendous noise in this way, and the other males became increasingly fearful.

An example will serve to illustrate Mike's tactics. One morning Mike was sitting by himself, staring at a nearby group of males. The other males were engaged in a social grooming session. After a while Mike got up and walked very calmly over to my tent, selected two kerosene cans, and returned to his place. He continued to stare at the group and then began to rock to and fro, almost imperceptibly (a sign of frustration or unease in a chimpanzee). As his rocking became more vigorous, so his hair gradually began to stand on end (autonomic behaviour associated with almost any violent emotion in a chimpanzee). Finally he began the series of hooting calls which typically precede and accompany a charging display, and then he charged straight towards the other males, each of whom fled. Mike and the cans vanished down a track and, after a moment, the group reassembled and recommenced grooming. A couple of minutes later, however, Mike's hooting began again and he reappeared, charging towards the group, hitting and kicking his cans. Again the group fled. After displaying thus for a third time Mike stopped and sat, breathing

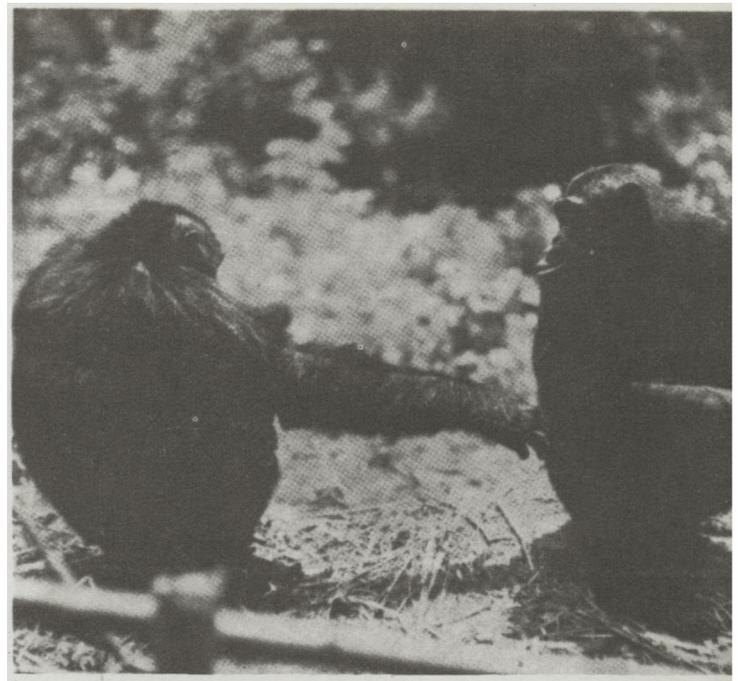


Fig. 3: Adolescent male, who was crouched flat on the ground screaming, beginning to relax as a consequence of reassurance gesture by dominant male

hard, his hair still erect, in the spot where the males had been grooming earlier. One by one the others approached, grunting nervously, reaching to touch or kiss him in submission. Eventually Mike was the centre of the grooming group.

Four months after his first display with a kerosene can Mike had achieved a top-ranking position in the group, usurping the position of the former dominant male, Goliath. Shortly after this we hid all the cans, for not only did we dislike the noise but we were sometimes hit by one of them during a display. By then, however, Mike's position was assured. For almost a year Mike himself nevertheless seemed uneasy in his top-ranking position. He displayed very frequently and very vigorously, and he was constantly attacking his subordinates, particularly the females. Often it seemed he attacked another over the merest trifle, or for no obvious reason at all.

Several times during the months subsequent to Mike's new position we observed spectacular «dominance fights» between him and the previous top-ranking male, Goliath. At no time did we see either male actually touch the other during such an encounter, save occasionally with the ends of the branches which they swayed vigorously at each other. Each time it seemed that after a while Goliath's nerve suddenly broke, and he thereupon hurried towards Mike with submissive gestures. The two then engaged in long social grooming sessions which served to calm the tensions that had built up between them.

During those first uneasy months of Mike's supremacy, we twice observed groups of five adult males «gang up» on Mike; but though he rushed away screaming at first, when he was finally cornered up a tree he turned and displayed: his aggressors broke ranks and fled.

As Mike became more secure in his position he became increasingly less aggressive and more and more tolerant of his subordinates. He is still top-ranking male today, although two young males, both of whom often ignore Mike's charging displays instead of running out of the way, are obviously giving the old male cause for concern.

Discussion

The chimpanzee is very close to man in many ways. Recent biochemical research suggests that, in some respects, the chimpanzee is biochemically as close, or closer, to man than he is to the gorilla. Again the communication patterns of chimp and man, on the emotional non-verbal level, together with the contexts in which they may occur, are often remarkably similar. Thus an understanding of the aggressive behaviour of chimpanzees may be of help in understanding some of our own.

In the chimpanzee, actual fighting, as compared with the use of threat and bluff is, under normal circumstances, relatively infrequent. When we introduced an artificial element into the life of the Gombe chimpanzees, namely a feeding area (where many chimps gathered together more regularly than they would have done otherwise and where they competed for a food in relatively short supply), this resulted in an increase of all types of aggression, including physical attack. Even so, whilst some fights looked vicious, they seldom resulted in serious injuries to either aggressor or victim, and no chimpanzee has been observed to kill another.

Humans, for the most part, also make use of threat and bluff, including verbal aggression, far more than physical fighting. However, when people do fight they are far more likely to harm one another than are chimps. This, of course, is principally because men so often use weapons: it is ironical, in a way, that the forms of attack most likely to kill involve the least strenuous physical exertion — such as shooting. It would almost seem that, in the evolutionary sense, man has not yet adjusted behaviourally to the comparatively recent acquisition of weapon use in intra-specific fighting.

Sometimes the causes of aggression seem quite similar in man and chimp. A mother, whether chimp or human, is likely to feel aggressive towards anyone or anything which threatens to harm or does harm her baby. Two individuals, whether chimp or human, may become aggressive when competing for a particular object which each wants, whether this be a bunch of bananas in the case of chimps, or an attractive girl in the case of humans. Also many chimpanzees, like

many humans, are constantly alert for a chance to better their social position, and sometimes this leads to aggression in both species.

However, whilst the biological roots of aggression may not be too dissimilar in man and chimp, the expression and causes of ill-feeling and anger in man have been immeasurably complicated by his development of self-esteem and pride, the acquisition of moral values, the hunger for material possessions and the development of a spoken language.

Chimpanzees usually settle a dispute immediately. The subordinate simply approaches his superior with appeasing gestures, irrespective of whether or not he was attacked for some misbehaviour. The aggressor responds with reassurance gestures and the victim is calmed. This does not mean that, even when a dispute appears to be over, the subordinate may not try and retaliate subsequently, if he sees a good chance. But it does mean that, for the most part, high- and low-ranking individuals are able to coexist peacefully and enjoy relaxed relationships with each other for much of the time. There are no individuals, so far as we know, who live in constant terror of retribution at every turn.

Human relationships, however, are necessarily far more complex. Often pride prevents a person from making an apology after a dispute, even when he knows he was in the wrong. Thus two individuals, normally friends, may avoid each other for days: indeed, some quarrels are never made up. Sometimes differences of opinion over a moral or religious matter can only be solved by the persons concerned shaking hands and «agreeing to differ»; but only too often they do no such thing and part with feelings of animosity, each feeling certain that *he* is «right».

The development of man's superior intellect has complicated his patterns of inter-individual communication in all respects, and this is, of course, particularly true of the development of a verbal language. In so many human interactions words have largely taken over from gestures. Words are a fairly recent acquisition in the evolution of our species, and they can so easily be misinterpreted. When one chimpanzee gestures to another, and if the individuals belong to the same community, there is no misunderstanding: the recipient of the signal interprets the message correctly. In most cases, no doubt, even chimpanzees from different areas would have no difficulty in understanding each other's signals. Indeed, some chimpanzee gestures, particularly those relating to threat and submission, can be correctly interpreted even by naive human observers and by baboons. When we turn to humans, however, there may be misunderstandings even at the family level as to the meaning of verbal signals, let alone when people of different nations and different cultures are trying to communicate. How much human aggression, I wonder, is the result of simple misinterpretation: how often do words serve to rouse aggression in man when the speaker means to do no such thing?