



Rear view of young tiger to show conspicuous ear-spots.

Communication among the higher animals

Second Instalment in a series

Visual Communications

M. KRISHNAN

Visual efficiency varies considerably among the mammals. Most of them, as said already, do not have our colour-sensitive eyes, but have only monochromatic vision. Some are sharp-sighted and can make out objects from far away—blackbuck, monkeys and members of the dog family, for instance. Such acute distant vision is of little use to forest dwelling animals

whose outlook is circumscribed by the density of the cover they inhabit, and it is the animals of the open country and of the tree-tops that usually have it.

It is unwise to generalise about such things, but most animals lack the human ability to pick out static objects clearly when looking at them, though they are quick to

make out anything that moves; a few like the greater cats, can also make out immobile objects. To a predator looking for prey, as well as to prey species on their guard against enemies, the instant spotting of movement is of far greater survival value than, say, the ability to read fine print.

This truth must be appreciated to know how vital vision is even to those animals, like elephants and gaur, whose primary sense is smell. Such animals are apt to overlook a perfectly immobile man so long as they have not been apprised of his presence already by some other sense, provided his garments blend with the surroundings—even elephants and gaur will notice a man standing stockstill in a forest clearing dressed in spotless white. However, what is much more interesting is the fact that even when they have been warned by smell or hearing of the near presence of an intruder, such animals usually turn round to stare at the intruder to seek visual confirmation of the warning already received through more sensitive perceptions.

In fact, vision is quite as important to many forest-living animals, like sambar, gaur and elephants, whose sight is not too keen, as to beasts whose primary sense is sight, in the communication of intraspecific signals, warnings and personal approaches, for such signals & announcements are usually apprehended visually. Neither the existence of vocal and other means of communication, nor the comparatively poor vision of some animals detracts from the free use and importance of intraspecific visual communications.

Displays and expressive attitudes and actions that catch the eye and serve to communicate social warnings, or leads, or more personal announcements, are common among most mammals, especially those that are gregarious or which live in groups rather than by themselves. These cannot be classified strictly into social and personal communications, since the same or similar displays or signals are used at times for both purposes, but we may consider them in that order.

Most social alarms are communicated vocally, but some are also conveyed visually. Many animals lift their tails up at the moment of flight from any apprehended danger; hares, chital, gaur and elephants, for instance, do so. When the tail is short and its under surface is conspicuously white or light coloured, as in hares and most deer, this sudden erection of the tail is most effective as a hoisting of flags of alarm and serves to warn of danger as well as to direct flight. A large herd of chital, coming upon something that frightens it suddenly, does not sound shrill alarm calls in unison, but scatters in flight with the tails suddenly elevated; usually the herd splits into parties in flight, when the upraised, conspicuously white tails serve to guide the animals in the rear of each party.

The quick raising up of the tail in a party or herd of gaur galloping away from what alarms them serves a similar purpose: further, the sudden outflinging and raising of the tail warns the other gaur, around the one that perceives the alarm, instantly of the danger.

Wishing to secure a photograph clearly showing the panic elevation of the tail at the moment of flight, I crept along the ground through the tall grass bordering a stream towards two cow elephants on the other bank, drinking at the water, taking care to keep the wind right, and when I stood up and walked on to a clearing and they saw me unexpectedly, I got the picture reproduced here.

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Flight, *per se*, is an effective and immediate visual alarm. Animals in a herd are instantly alerted when one of them bolts. A rather remarkable visually communicated warning I have observed in gaur and elephants, when the danger is not immediate, is what may be termed the deliberate recall. A bull gaur grazing by himself on a knoll above the herd (which was in a meadow below a tree forest), spotted me crawling through the cover towards the herd: he came down to the herd, stood broadside on to it, and then climbed up to the tree cover, when the rest followed him into the forest. I have observed many similar recalls among gaur and elephants.

When a herd is browsing or grazing strung out, and one of the socially dominant members wishes to move on to new ground, it just walks on along the line it wishes to take, as conspicuously as circumstances permit, and in due course the rest follow; it is usually an old female that gives this lead, but it may also be the dominant male in the herd or party. This may be observed among monkeys, elephants, gaur, deer and gregarious antelopes.

Before going on to visual intraspecific personal communications, the utilisation of special pelage patternings in social and familial life may be mentioned. These, unlike alarm and threat signals, are not actively displayed. In most of the greater cats, the dorsal surface of the ear is heavily rimmed with black, with a central light-coloured spot; these ear-spots are specially conspicuous in the tiger. When a tiger is following another, creeping through cover, as when cubs are following their mother, these ear-spots, seen from behind, must be useful in sighting the leading animal.

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Most mammals are coloured darker on their upper surfaces (as on the back and sides), and are much lighter below, so that when they are lying down or crouching in cover, they are less easily seen; it should be realised that being colourblind, most animals go

more by tonal contrasts than by colour contrasts in sighting other animals. The lighter colour of the underside of the tail (mentioned already), pale-coloured rump patches, and the tassel of hair at the tip of the tail, as also the lighter colour of the limbs below the hocks, are all no doubt of use in sighting the leading animals when a herd or party is on the move, as also the conspicuous movements of the tip of the tail.

Intraspecific threat displays can be more pointed than something visually apprehended—a lioness or a tigress may rebuke her cubs with a cuff, or a big gaur cow prod a lesser member of the herd shrewdly in the hindquarters with her horns to convey some pointed direction. Nevertheless, most such attitudes and displays of threat, dominance and subordination are visually communicated. Snarling, apart from the vocal

production of a threat, results in an unmistakable visual threat-expression, by the retraction of the lips to expose the teeth and the the ridging up of the nose, and is commonly indulged in by animals of the cat and dog families; further, among all cats, a rapid, sparring pass with a paw is frequently directed at the adversary, a gesture strikingly similar to the display of a clenched fist among us. Horned animals lower their horns or antlers in a sweeping pass at the adversary in a very similar threat-gesture, and sambar hinds run at some subordinate in the party they wish to direct with their mouths open and the teeth on the lower jaw exposed in a bite-threat. Note that all these intimidatory displays are obvious in their hostile intent and stop short of the actual infliction of the threatened punishment.

Elephants elevating their tails in panic flight.





Chital brocket rolling eyes (observe attitude and rolling eye of the animal to the left).

Among deer, the raising of the neck and body in a stiff, stilted manner, with the head pointing up or down, results in dominance or threat displays which have been elaborately described. An aspect of such threats that may be mentioned here is purely ocular, the rolling of the eyes to display the whites. A pointed long stare, a regular glare, is also used by some animals as an intimidatory expression.

Placatory and suppliant expressions, which so often serve the important function of warding off actual combat and injury, are usually through displayed attitudes rather than actions. Among the

greater cats, the suppliant animal may lie down on its back, belly upside, and roll on the ground with its paws in the air. Among members of the dog family, the passive exposing of the neck to the threatening jaws of the adversary inhibits aggression, and among monkeys the presentation of the hindquarters to the dominant aggressor serves to placate it through a symbolic submissiveness that is sexual only in its symbolism and not in fact. There are many other displays of submissiveness among mammals, and other placatory attitudes.

Courtship displays among mammals are apprehended more

through other senses (notably, the sense of touch) than sight, and through behaviour-patterns—the running away or receding by the female and the running after or the following up by the male is a familiar behaviour-pattern in courtship. However, certain bodily attitudes are also visually communicative in courtship.

The attitude of an animal is also often indicative of its mood. It is not only men who sit slumped in dejection—most depressed and sick animals also do so. Further, elation or excitement is often conveyed by a prancing gait, and suspicion by tense alertness.

(To be continued)