Of course, facial expression is not an isolated independent unit of expression. It is built into the total expression structure. This shows up most strikingly in the connection between ear placement and head posture. In head posture - exactly as with the glance - orientation in respect to the social partner plays an important role; direction has high ranking significance in these expression phenomena. Hence, head posture is a part of the level of deliberate expression actions which, as high ranking behaviour patterns, preempt non-deliberate expression occurrences and peripheral structures. (P. 98)

With regard to an outlined description of several possibilities of head posture and ear position, it should be expressly noted that they arbitrarily define limited segments of the total body posture (compare, also, Figs. 22 to 38!), and, again, the latter is only a temporal excerpt of deliberate actions, an excerpt to be sure, which is detached from "true" actions by an especially dynamic characteristic - namely the "building up" of the flow of movement towards its taking shape in the form of an "action".

As peripheral optical expressions, special mention should be made of the rump colouring and the structure of the back fur. The milky to light brown ground colour seems to be tipped with black because of the black

coloration of the tips of the guard hairs (in the larger race). The shading effect varies with the local hair length and is strongly influenced by activity of the hair bristle muscles and body posture. The shoulder and withers hairs are longer than the hairs of the middle back. Should the back hairs be raised in battle excitement or while giving demonstrations - phenomena which are absent in repressed or frightened animals - a very striking back line is evident (Figs. 28 a and b).

We have already acknowledged that the anal region is the most important expression centre and we have established that its - doubtless more primitive - olfactory expression function is equally preempted by the - higher - optical expression function.

In optical regard the tail is the most dynamic (compare hereto: MENZEL, 1937, p. 30). Its function of covering up, and, contrari-wise, placing-on-exhibit of the olfactory-optical "anal face", and its sexual and social significance has already been mentioned (Figs. 29 a & b). We became acquainted with the extent of width variations respecting holding the tail and, likewise, "tail height"; a great variety of transition steps may be observed in keeping the tail raised and in keeping it pulled in. (P. 99)

The self-assured wolf does not carry his tail

high[1]. under conditions with no social tension (e.g. drinking, observing the environs), rather, it is raised at the base and from there it hangs loosely (Fig. 30f), or it may hang from the base with the upper half forming a concave curve (Fig. 30d). On the

[1]. As deviations in relation to wolves, two circumstances respecting certain species of domestic dogs are striking:

1. The development of tails which are curled upwards.

2. The very frequent holding high of curly as well as wolf-like tails from the base up.

These deviations cannot altogether be accepted as being merely outward organic constructions. Especially with holding high of the tail base, the leading role might more frequently be played by such central factors as - endrocrinological, certainly also, psychological. To my knowledge, in domestic dogs in general, the tail, at least at the base, is pressed downward with fear of the enemy and during severe social limitations, and in addition, it hangs loosely in a depressed condition following unsuccessful social attempts.

The infrequency of enemy experiences and rare deep-rooted social suppression while under the protection of man may well be considered to be a part of environment in the above mentioned phenomenon. Doubtless, however, constitution is also of great significance. In support of this, several varieties of coursing dogs may be mentioned: Even under the best of keeping conditions, some coursing dogs are inclined to pull in their tails, and this phenomenon must be viewed as having some connection with constitutional physical properties (social sensibility, inclination to social passiveness).

other hand, with social differences as well as during friendly scenes, the superior individual distinquishes himself by high carriage of the tail. The shape of the tail indicates certain attitude-conditioned differences. With threatening, for instance, it may be described as being actually "notched". Fig. 30 illustrates several cases of tail carriage and tail shape.

With wolves as well as domestic dogs sideways sweeping and circling tail movements occur. Liberal swinging of the tail in a sideways manner (wagging) with a free movement signifies friendly relations with individuals of every status, with respect to tail elevation. Individuals of low status frequently conduct these swinging motions with lightly pulled in tail and movement of the whole hindquarters. In periods of great liveliness and playful attitudes, this friendly wagging may end with tail circling.

Very abrupt and quick sideways wagging with an outstretched tail, or with the end of the lowered tail, may occasionally occur in battle attitudes; it reminds one, especially in the latter form, of the tail movements of foxes and cats (Fig. 31).

When wolves of highest status meet, the vertical tail is at times in trembling motion. "This tension-trembling" gives the impression of being energy laden and is actually also an expression of the highest social potential. (P. 100)

Finally, in mock attacks, which take the form of pushing past one another with snarls and threats to bite, a type of beating of the tail towards the body of the individual being attacked is not uncommon (Fig. 32). This motion is similar to the "balance or steering motion" which may be seen in dogs and wolves at the instant of sudden veering away from their directional motion. Whether these tail motions, as the above-mentioned beating of the tail, could be diverted from "ritualized" (see IV.B.) (preliminaries) introduction towards a direct attack remains to be established.

In order to illustrate the link between the previously described optical expression elements more or less clearly, the pencil sketches Figs. 33 to 38 show ear position, head carriage, backline and tail combined. It becomes immediately evident here that these are only the showy elements of the whole body carriage. This itself, however, is deliberate and is related to a social partner or an environmental component - which is generally true for the higher, more comprehensive expressive accomplishments of the wolf. Already the momentary aspect of total expression achieves the characteristic of "self-representation", and this characteristic becomes particularly impressive when one regards the scenes of social ceremony in their temporal extent and the whole life behaviour in general with all its social conditions.

Again, it should be expressly confirmed that the elementary optical expression structure in wolves does not provide for a certain number of clearly isolated possibilities of form - as one might assume because of the very limited choice of sketches - but rather an absolute wealth of nuances, displacements and combinations.

IV. DELIBERATE EXPRESSION ACTIONS

A. The role of deliberate expression

Deliberate expression actions have already been mentioned incidentally as being the highest, most inclusive level of expression phenomena. They are motions which are part of the "animal personality", which may be seen both inwardly and outwardly, not merely automatic reaction mechanisms and limited organ-groups of the body surface.

The whole subject of deliberate expression in wolves has many aspects and is difficult to grasp. It is easiest to fix the limits of certain courses of behaviour which are distinguished by their locked-upness and by their more or less established behaviour-course forms. It would not do to describe them as "instinctive actions" within the meaning of LORENZ (1935, 1937 a and b); their behaviour course as well (P. 101)

as investment with subordinate expression phenomena is far too interlocked, i.e. rich in variety. (As indicated in the introduction, the behaviour of birds, which is the research area preferred by LORENZ, is very much simpler and easier to understand than the behaviour of mammals.)

Obviously, the indefiniteness of deliberate expression actions in wolves is nothing else than their diverse orientation - in respect to direction, quality and intensity - to changing social conditions.

In his expression actions the wolf actively tests his social partner all over - and thus his partner's reactions - and so he lives up to the limits of his own social behaviour freedom.

This self-orientation to the partner is especially evident with all status altercations and arguments over rights.

The fitting in of socially significant action to social situations may, under certain circumstances, be carried to the extent that one cannot limit any, even of the more or less continuous and closed behaviours or conducts. Naturally, however, every behaviour element is "truly wolfish" and the total accomplishment is never "orientation reaction" alone.

If we compare these findings with those which have become known for fishes, reptiles and birds, we obtain the impression that social conditioning or the social structure of behaviour in wolves is associated with the "decomposing" of instinctive behaviours. Therewith - it seems to me - the true character of this - and perhaps all - "higher" behaviour patterns is indicated; they are given direction by a higher, i.e. more capable of adaptation, psychical organization. Behaviour is not merely opened up by "key stimuli" and runs its course in accordance with inborn behaviour laws, rather it consistently actively adapts itself to momentary situations - naturally within the framework of inborn possibilities. (The ambiguous definition of "intelligent action" should be avoided).

It may be assumed that in wolves the highly developed (P. 102)
psychical "apparatus" of adaptation does not merely become a function within the social life, but quite generally it raises the standard of life of the individual and the species decisively.

In the following description of the more important phenomena of deliberate expression, the established courses of behaviour will not be covered. There are, nevertheless, a few behaviour actions which have fewer variations in wolves as well; but they are not socially

significant, i.e., wholly subordinate in expression function and they give the impression of being rudiments. For examples may be mentioned:- scraping after urinating, circling around before lying down in cold weather. Contrasted with these, are the quickly changing, predominantly optical-acoustical expression actions of living-together in close proximity, which are the actions which will especially concern us here. Here, the behaviour forms are not firmly established in detail; and yet in certain situations they are movements which may be recognized repeatedly, and they are distinguished by a certain similarity or relationship of form, of dynamics and of subordinate expression.

Possibly one comes closest to the truth when one speaks of "attitudes" and their related "form groups".

We now direct our attention to these form groups of expression and the characteristic form relations which exist between them and other behaviour patterns of the species.

B. The form groups of the deliberate expression

So to speak, a pure demonstration of the occurrence of orientation is found in reception behaviour, primarily in looking, but then too in snuffling, and to a certain degree also in listening. We have already accepted

smelling and looking as controls, as invasions into the sphere of the social partner, and as social prerogatives. Generally, the look of the subordinate wolf is unsure and he avoids the stare of the wolf of higher status; his ears are laid back in a "resigned position", and he does not venture into the olfactory-optical control of the anal part of his partner. In the presence of a male of higher status, weaker males do not even possess the privilege of genital checking of a female.

Every steady, penetrating control, in particular the looking control, brings forth a feeling of restriction in wolves of low status (Fig. 39); where there is very little status difference on the other hand, this control is rejected by "protest" (Fig. 40).

The sensory organ which registers all control activity of the partner is the eye; the control of social behaviour itself is optical. Here, it is evident again how much (P. 103) the higher optical expression behaviour also controls the social life of the larger race of wolves. In confirmation of this, communication between humans and dogs proves this relatively easily.

Freedom and restriction of the sensory activity may be observed with every mood. The activity of the sensory organs cannot therefore be divided into form groups. That applies, on the other hand, to the greatest variety of forms of demonstration.