

With free play, secondary principles, which are determined by inward and outward factors, may result. This witness to the lack of establishment of the expression phenomena in certain monkeys is very worthwhile.

In the form elements of expression, to be sure, WÖRNER sees inherited abilities, which remain locked up to broader understanding, excepting for the physiognomical-dynamic similarity with thought-out behaviour. Although he acknowledges their limitation in numbers and the variable occurrence of some of them in plastic areas of expression behaviour courses; apparently, however, he is not aware of the fact that the action forms of expression in general may be ascribed to deflected motions, - or "distortion products" of behaviour without expression functions - arising out of battle action, sexual behaviour, food intake of the infant, etc. The following types of distortion were already mentioned:

- (a) Limitation to behaviour components with intentional character;
- (b) Ritualization, i.e. shaping (through subordinate expression phenomena) in the sense of showy impression.

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These expression values now may either, -

a* be preliminaries to "source accomplishments", or

b* show up as displacement-activity phenomena with completely different functional relationships. (Whether or not TINBERGEN'S expression of "behaviour aroused from without" should be modified for wolves is debatable.)

The previously described expression behaviours and actions have now been set up in table form which also designate "origin" and function. The suggestion of function is given in a completely inadequate manner so far as causal analysis is concerned. In the whole behaviour structure of wolves, it is however hardly possible to suggest the effect of an expression phenomenon (within the meaning) in the sense of a solution. As already mentioned actual behaviour is conditioned by a very complex social situation; here again, not only do numbers of individuals but also "personality values" play a decisive role.

We may take from the accompanying table that propagation is guided by a ramified expression system, which is related to inwardly and outwardly stimulated expression accomplishments. However, the "chief customer" of expression actions is obviously social life. Even pair formation and pairing is subordinate to social relations and they have a social expression function along with their expression values.

It is not an exaggeration to say that in wolves the whole behaviour storehouse - which is unconsciously enriched with the aid of reduction to intention movements,

ritualization and manifold possibilities of variation and combination - is opened up, by the (modified) displacement principle, for social expression, or in itself possesses an expression function. The expression phenomena described heretofore may be used as a temporary guide in this connection.

The described results of the investigation bring to mind an historical development process, namely the higher development of the social life - and with it also the enrichment of expression - in the course of life of the wolf. Associated with enrichment of expression, I believe I may also deduct that there is a tendency towards "degradation" (and also "symbolization"; compare ANTONIUS, 1939) of the individual expression accomplishments; a decline in the ever-increasing hierarchy of expression values. In my opinion, the behaviours of baring of teeth, snapping, anal presentation and anal withdrawal, anal control, snout thrusting, etc., may be so considered; as original deliberate actions, namely, those, which, by the progressive process of expression-created "distortion", have broken away from their origins and have become little more than deliberate behaviours with very general expression functions. The superior expression action gave way

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*P. 110 is the table.

to mere "decoration", i.e. to a subordinate level of expression, and this change indicated both the specialization of and for the expression function.

The previously listed form groups of deliberate expression actions are not in any sense altogether complete. Recently several striking cases were brought out, primarily with a view to a closer understanding of the deliberate expression actions of the wolf. In any investigation, even if it is only more or less inclusive, the interplay of expression accomplishments in the environment of wolves, in particular within the society, must be considered as a matter of course. Here, for the first time, at the highest level of expression, the actual "social actions" can really become effective.

In this paper, a description of the social relationship ceremonies in their broadest meaning has not been given, it shall, however, form the main consideration of the already mentioned sequel (II) of this expression study.

V. SUMMARY

It is hoped that this paper will be an introduction to and the start of an orderly description of observed expression phenomena of wolves in captivity.

First, it was necessary to develop the bases of this order and to establish the limits of an area which seemed to be blurred. On the basis of several years of continuous observation and occupation with this subject, the functional limitation of expression came to the fore as being the most useful: expression as a function of living together!

So considered, expression must have the closest possible relation to species-typical sociological laws. Following a sketchy biological survey, it is therefore attempted to understand functionally the expression accomplishment beginning with the structure of the society. Here it is worthwhile to bring out the fact that social relationships leave an imprint on life conduct in all its aspects, and that the form of life of each individual itself adds to the shaping of the social situation, and thus has expression functions.

If the limits of expression are extended thus far, then the hierarchial structure of the sum total of expression should not be overlooked. The superior "social actions" following the introduction of the "animal personality", in the other extreme, (serve as a contrast to) oppose phenomena which may be seen as mere "decoration" in order to sharpen the effect of expression. Deviation (P. 112)

from these extremes is impossible. Hence, it is not desirable to reserve the designation of "expression" for those subordinate phenomena which were given closer study under olfactory and optical expresssion. We are concerned with a co-ordinated hierarchy of expression values.

In this hierarchy the deliberate, psychological, "primitive" olfactory tendencies are, of course, partly of great significance (for propagation purposes), but at the same time they are overshadowed by higher optical expression accomplishments of actual social relationships. The subordination of propagation to the social sphere is in harmony with this theory.

By delving into the higher levels of expression, we come upon the deliberate expression actions. These expression actions indicate their characteristic as being real actions primarily in that they follow the introduction of "personality" and fit into the momentary social situation at all times. They do not in any way conform to a rigid form of behaviour course.

The study of these forms indicates that they are comprised of a limited number of species-typical "original forms". The manifold capabilities of interposing these forms and of combination and of transformation, create an expression system on these bases with seemingly unlimited possibilities of nuance.

Consideration of this whole expression phenomenon brings up the question of its historical development progress. The creation of expression is part of the higher development of social life. First, it indicates an enrichment of expression by including ever-increasing areas of life into the social sphere, and later it indicates a reversal to the more exclusive expression phenomenon. This functional specialization, which may also be called "symbolization", is also a "degradation" of the functional hierarchy of expression values.

LITERATURE CITED.

- ANTONIUS, O. (1937). Concerning formation of herds and pairing peculiarities in perissodactylous animals. - Z. Tierpsychol. I, p. 259-289; II, p. 115-117.
- , (1939). Concerning symbolical actions and relations in mammals. - Z. Tierpsychol. III, p. 263-278; V, p. 38-42.
- CARPENTER, C.R. (1934). A field study of the behaviour and social relations of howling monkeys. - Comp. Psych. Mongr. X, No. 2, Ser. 48, p. 1-168.
- DARWIN, C. (1877). The expression of the emotions in man and animals. Trans. by J.V. Carus, 3rd ed. Stuttgart.

- LORENZ, K. (1935). The Kumpan in the environment of the bird. J. Ornithologie LXXXIII, p. 137-213, p. 289-413.
- , (1937a). Concerning the formation of the concept of instinct. - Naturwissenschaften XXV, p. 289-300, p. 307-318, p. 324-331.
- , (1937b). Concerning the concept of instinctive action. - Fol. Biotheor. II, p. 17-50.
- , (1939). The pairing of jackdaws. Z. Tierpsychol. III, p. 278-292.
- MENZEL, R & R. MENZEL (1937). The whelp and its environment. - Z. Hundeforsch., N.F., III, p. 1-65.
- SCHMID, B. (1936). On the psychology of canines - wolf - domestic dog - fox. - Zentr. Bl. Kleintierk. Pelztierk. Heft 6, p. 1-77.
- TINBERGEN, N. (1940). The displacement activity. - Z. Tierpsychol. IV, p. 1-38.
- UEXKÜLL, J. von & E.G. SARRIS (1931). The scent field of the dog. - Z. Hundeforsch. I, Heft 3/4, p. 55-68.
- WÖRNER, R. (1940). Theoretical and experimental contributions to the expression problem. - Z. angew. Psychol. Charakterk. LIX, Heft 5 und 6, p. 247-318.
- YOUNG, S.P. & E.A. GOLDMAN (1944). The wolves of North America. - Washington.