ON LOCOMOTORY MOVEMENTS IN BIRDS AND THE INTENTION MOVEMENTS DERIVED FROM THEM

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(With 39 figures)

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CONTENTS

I Introductory .................................................. 48

II Locomotory movements of the hind extremities ............. 50

   The hop .................................................. 50

   Walking .................................................. 52

III The intention movement .................................. 56

   Intention movements of walking or hopping ............... 56

   Intention movements of flight .......................... 66

IV Ritualised forms of intention movements .................. 66

   Principles of secondary change ......................... 66

      Exaggeration ......................................... 68

      Shifting thresholds of component elements ........... 68

      Loss of coordination ................................ 68

   Review of instances .................................... 71

      Sexual display and threat postures derived from the bow... 72

      Display flights ..................................... 91

      Begging movements ................................. 92

V Summary .................................................. 94

I INTRODUCTORY

As all observers of animal behaviour know, many activities may occasionally be performed incompletely. This is especially true of locomotory movements. Walking, for instance, in a bird, may be seen in numerous degrees of intensity, arrangeable in a sliding scale from full intensity down to an almost imperceptible indication of it. HEINROTH seems to have been the first to have called attention to these low intensity movements; he called them "intention movements" because the trained behaviour student can derive from their study a knowledge of what the animal is intending to do in the next few moments.
It has become clear to me that intention movements are, at least in birds, of much more common occurrence than is usually realised, and that a better knowledge of them could promote our insight into the factors underlying behaviour to a considerable degree. In order to recognise intention movements however it is imperative that the full intensity of the corresponding movements should be well known. A close study of locomotory movements, therefore, is the first step in a study of intention movements.

In this paper I want first to give a description of various types of locomotion in birds, especially of the start, as it is these first phases that are usually found in the intention movement. Most attention will be given to the movements of the legs, and less to those of the wings, because I am better acquainted with the phenomena of jumping and walking than with bird flight. When I have had to consider particulars of flight, I have mostly drawn from the extensive observations of Lorenz (1933) and Stolpe & Zimmer (1939).

Following upon the chapter on locomotion I will present a number of descriptions of more or less easily recognisable instances of intention movements. This will be followed by a chapter tending to show how such intention movements may have undergone certain changes or may have merged with other movements as a result of which it may be difficult to recognize them as derived from intention movements.

Although I have tried to study as great a variety of species as possible, I am quite aware of the limited scope of my study. Circumstances prevented me from studying birds more closely in Zoological gardens. Further, my observations are concerned with the mechanics of locomotory movements, and many anatomical and physiological aspects are ignored, being irrelevant to the present problem. Further, my use of the literature has been limited to papers in which full attention is given to this special aspect of locomotion. Lastly, I must stress the tentative nature of many of my interpretations. An intention movement can only be recognised as such with certainty after a thorough study of the behaviour pattern of the species concerned. I naturally desired to draw my examples from a great variety of species: therefore I was led to include observations, the interpretation of which still contains elements of uncertainty.

In spite of these limitations I think it justified to present this paper as a sketch of the probable origin of a number of hitherto little understood behaviour elements.

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Behaviour III