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OF

PSYCHOLOGY AND PHILOSOPHY

I.—THE PSYCHOLOGICAL ACCOMPANIMENTS OF INSTINCTIVE ACTION.

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IN a previous article on this subject I attempted to make some suggestions about the proper method of approach to the problems of Instinct and instinctive action. And in the course of that article I referred to the views of those who hold that every kind of activity which we can call instinctive is necessarily accompanied by some kind or another of conscious experience, and that one way, perhaps for the psychologist the only way, of defining instinctive behaviour is to state the particular form of conscious experience by which it is accompanied. I propose now to attempt an examination of this point of view, and to ask whether every kind of instinctive behaviour is necessarily accompanied by some one kind of conscious experience, and if so, by what kind.

At the outset we must distinguish between two different questions. It is one thing to ask whether all instinctive behaviour, in particular, instinctive bodily action, is necessarily accompanied by one kind of conscious mental process, and quite another to ask whether certain kinds of conscious mental process should be properly described as instinctive in the same sense as certain instinctive bodily actions, even though the two forms of activity, the conscious mental processes and the bodily actions, are not always or necessarily found together. Our opinion on the latter point will largely depend on how much we include in our definition of Instinct and instinctive. If, for instance, anything that proceeds

from our innate psycho-physical structure is to be called instinctive, we shall probably not have much difficulty in applying the term at any rate to many of our conscious mental processes. If we mean more than that by the use of the term 'instinctive,' it will be a matter for investigation in each particular case whether the conscious mental process in question resembles the instinctive action to such an extent that we are warranted in applying the same term 'instinctive' to both of them. Some of the precautions suggested in my last article might possibly be found to bear on this investigation. But in any case, that is not the question which is being discussed in the present paper, which deals only with the former question. What, if any, are the conscious mental processes which always and necessarily accompany instinctive behaviour?

It seems to me that any discussion of Instinct must start from an examination of instinctive bodily action, because it is to this kind of behaviour that the term 'instinctive' is universally and unquestioningly recognised to apply. And no definition of the term could possibly be accepted unless it could be applied to the bodily actions which are admitted by everyone to be properly called instinctive. But before we ask what are the conscious accompaniments of this kind of action, there is one other preliminary consideration that we must bear in mind. We, like many at any rate of the other animals, are conscious beings. And therefore any kind of action, instinctive or otherwise, taken while we are conscious must have some kind of conscious accompaniment. But that would not warrant us in putting the conscious accompaniment that we found in any particular case of instinctive action into the definition of "instinctive," unless we had reason to believe that there was some necessary connexion between the action and the conscious accompaniment, so that we could not have one without the other. It is possible that, in ourselves for instance, instinctive action might be accompanied by some form of consciousness without being necessarily connected with, still less conditioned or affected by this consciousness. In such a case it would be clearly wrong to give the conscious accompaniment in our definition of instinctive action.

One more principle of method may be suggested. It seems likely that a good deal of the difficulties and differences of opinion upon the subject arise because investigators have started the consideration of it from a complicated particular instance or a border-line case, where instinct was clearly mixed up with a good deal else or where it was uncertain

whether the behaviour in question should properly be called instinctive or not. As a general rule it seems preferable, if we are to start with an investigation of a particular instance at all, to start with an instance which unquestionably belongs to the class of things which we are discussing, and where there is as little as possible of any other element. Then in the light of what we have learned from that we may consider the border-line cases. Thus in the case of Instinct it seems to me advisable to start, not from the behaviour of man and the difficult question exactly how much of this behaviour we can call instinctive and how much is due to other factors, nor even from moorhens diving and a discussion of the exact point of time at which their behaviour becomes modified by experience, but rather from certain actions of insects where we seem to get as close as possible to purely instinctive action.

Take any typical instances of insect behaviour. We find a series of actions, often very complicated, performed with extreme precision, and the whole admirably adapted to fulfil a certain purpose, the preservation of the insect itself or the preservation of its offspring. The *Ammophila* wasp seizes a caterpillar, stings it in the exact places where the sting will paralyse it without killing it, places it at the end of the burrow it has dug, lays an egg on it, and then seals up the end of the burrow.¹ Thus it secures that the larva will be hatched out of the egg in safety, and will have the supply of fresh meat which is needful for it to grow to maturity. Here is an action which, if performed by a human being, could only be explained by a great amount of acquired knowledge and skill, a clear foresight of the end to be attained, and an understanding of the exact means necessary to attain it. But we know that the insect cannot have learnt or acquired this knowledge, and cannot have any foresight of the result which it never sees or has seen. We may say further that it shows no interest in the result. And it is clear, also, if we consider experiments like those of Fabre and Captain R. W. G. Hingston, described in his fascinating book, *A Naturalist in Himalaya*, that there is no understanding of the situation and of what is happening, and no capacity for analysing and distinguishing the elements of the situation or for modifying the action to suit changes artificially produced.

Thus the *Ammophila*, if her burrow is broken open while she is collecting material to seal it up, and the caterpillar and

¹ I am aware that the experiments of the Peckhams threw some doubt on the alleged infallible skill of the operation. But the exact degree of accuracy displayed by the wasp is immaterial to the present argument.

egg extracted and laid outside the door, will make no effort to repair the burrow nor to replace the caterpillar and the egg which are lying in full view, but will calmly proceed to seal up the burrow as if nothing had happened. The Mason Bee builds cells of mortar and fills them with honey. If the cells are broken down before they are completed she builds them up again. But once they are completed she must go on to put the honey in, and if they are broken down after this, she makes no effort to repair them, but goes on putting the honey in, cheerfully oblivious of the fact that it is all running out again before her eyes. The spider builds her wonderful web in a certain order; and if the work she has already done is cut or broken, she does not turn back to repair it, though she has all the resources necessary for that purpose, but goes on in the fixed order, irrespective of the fact that the web is getting into a worse and worse tangle all the time, so that it would be almost useless for her purposes.

It is clear from these and many other instances, both from the character of the action and from the conditions under which it takes place, that these actions of insects are certainly not caused or accompanied by anything remotely like the state of mind from which a similar action would proceed in the case of a human being. But from what state of mind do they proceed? What conscious experience necessarily accompanies instinctive action? Let us consider the possibilities.

(1) There may be the consciousness of movement, the feeling in the muscles or the rest of the body when any part of the body moves or is moved. This consciousness must be thought of rather as the result of the movement than as its cause: it does not, by itself, affect or modify the movement in any way. To describe it in terms of our own experience, we should say that we feel the body moving without being able to control or check the movement; as when we blink our eyes in response to a sudden and unexpected feint of a blow. (2) There may be foresight and desire not of the ultimate result but of each particular movement. We can find this, too, in our own experience. We may want to get up and stretch ourselves; we may, if we are young and active enough, want to jump or run, not with any thought of any results that may be produced, but simply, as we say, for the mere pleasure of jumping and running. This may be desire in the full sense, involving a previous idea of the movement and a desire to realise that idea. Perhaps, therefore, the Mason Bee desires to go through in this order each of the particular actions involved in building her cells and filling

them with honey, though she may have no desire at all that the cells should be built and filled with honey. (3) Mr. Shand says that the invariable conscious accompaniment of instinctive action is 'a feeling of impulse.' I confess to finding this phrase ambiguous. It may be applied to either of the two previous experiences. But I cannot find in my own experience a third thing, different in kind from either of these two, to which the name could be properly applied. (4) It might be, as Dr. McDougall suggests, that instinctive action is always accompanied by an emotion, each kind of action being bound up with a particular emotion. (5) Finally, there is Dr. James Drever's suggestion that instinctive action is invariably accompanied by a feeling of interest. But this phrase by itself is obscure, and may mean several different things. It might, for instance, refer to an interest in the external stimulus, the situation or that factor in the situation which is the occasion of the instinctive action. Thus it might be argued that, if the sight of a caterpillar stimulates the wasp to seize it and sting it in a particular way, the wasp must have had a feeling of interest in the caterpillar to make her notice it in all its surroundings. This would be a preliminary feeling of interest, necessary to set the action going. But that is quite a different thing from an interest in either (a) an idea of the movements, which is in consciousness before the movements take place, (b) the results, immediate or remote, produced by the movement, or (c) the actual movements themselves, while they are going on. And there is a further distinction to be borne in mind. If we say that there is a feeling of interest in the movements themselves, that is by no means the same thing as saying that the feeling of interest causes or determines the movements. We can see the difference in our own experience of reflex action. If a doctor tests our reflexes, we may be very keenly interested in the movements that we make, but it is obvious that we cannot say in any sense that our interest determines or causes the knee-jerks, which would occur just the same whether we were interested or not. So that a 'feeling of interest' may mean several different things, any one of which may be present without the others.

Perhaps as a representative instance of the views which assign the maximum amount of conscious accompaniment to instinctive action we may take the account given by Prof. Stout in the last edition of his *Manual of Psychology*. Any statement from such a source comes to us with particular weight and authority, and we are not likely to find an abler statement of the views in question anywhere else. It may,

therefore, be worth while to give a somewhat detailed examination of the account there put forward. It is to be found in Book III., Chapter I. of the third edition of the *Manual*, and more especially in various passages on pages 343-357.

Prof. Stout is concerned to distinguish instinctive action sharply and definitely from reflex action, with which it is so often identified. 'Reflex action,' he writes (p. 343), 'is of a nature fundamentally different from instinctive conduct. The difference is that instinctive conduct does and reflex action does not presuppose the co-operation of intelligent consciousness, including under this head interest, attention, variation of behaviour according as its results are satisfactory or unsatisfactory, and the power of learning by experience.' This is clearly not a mere arbitrary statement of the kind of behaviour to which he proposes to apply the term 'instinctive,' for he asserts the presence of these elements in action to which the term 'instinctive' would be applied by universal agreement, including instances of the behaviour of insects such as those described above.

The first difficulty that I find in this account lies in the distinction on which it is based between instinctive and reflex action. A good deal of the argument seems to me to be vitiated by being based on a comparison between an experience of reflex action in ourselves and instinctive action as shown, say, in insects. Because reflex action in ourselves is comparatively simple and limited, Prof. Stout seems to argue that the behaviour of insects, which does not display this simplicity and these limitations, must therefore be accompanied by conscious and intelligent processes which are not present in the case of reflex action. But that is surely to beg the question. For the point at issue is just this, whether it is not possible for reflex action, as we know it, to be developed in other species to a very much higher pitch of complication and elaboration.

Further, a good many of Prof. Stout's arguments about instinctive action would, it seems to me, apply with equal force to reflex action. In our own case reflex actions, of course, may be accompanied by a considerable amount of intelligent consciousness. And, owing to the presence of this intelligent consciousness in us, we may sometimes to some degree check, control or modify the reflex action. Thus we may suppress or partially suppress a sneeze or the blinking of our eyes at the feint of a blow. We say that the resultant action in such a case is not entirely reflex, but that part of it is intelligently controlled, thus still retaining the sharp distinction between what is due to the reflex and what

is due to intelligence. But why should we not speak in the same way of instinctive action? The question is not whether animals which act instinctively may or may not sometimes modify their behaviour under the influence of intelligence. It is rather whether instinctive action is necessarily bound up with and determined by intelligence, whether it is from the beginning, as Prof. Stout says (p. 357), 'essentially conditioned by intelligent consciousness'. Prof. Stout's argument that subsequent modifications of behaviour by intelligence prove that the behaviour must have been determined by conscious intelligence from the beginning, would surely, then, apply with equal force to reflex action. For that also, as in the case of the suppressed sneeze, may be modified by intelligence. And, so far as it is based on such considerations, the distinction between instinctive and reflex action seems to fall to the ground. And there seems so far no reason why we should not say of instinctive action, as we do of reflex action, that it is *qua* instinctive essentially different from and undetermined by intelligence, though in any particular case the behaviour, which would otherwise be purely instinctive, might be modified by intelligence.

But we must examine further the case for the influence of intelligence in behaviour which is usually regarded as instinctive. I may be unduly sceptical, but I confess that I am still not perfectly convinced by any of the evidence I have yet seen for the actual occurrence of intelligent action in insect behaviour. The great difficulty, I suppose, in assuming its presence is that, if it is there, its action seems extraordinarily fitful and erratic. Some of the very few alleged cases, if due to intelligence at all, seem to argue a relatively high development of that faculty. And yet in other cases which do not seem to call for any greater exercise of it, the same insect will fail so conspicuously to show the slightest signs of its presence. Of course, the same thing may strike us at first sight in the behaviour of certain human beings. But in such cases a very little inspection will probably show us some ground or principle of these limitations in the application of intelligence. But it is difficult to find any such intelligible principle in these instances of insect behaviour.

But apart from that the instances themselves seem to lack decisiveness. A good many of those which are commonly quoted do not seem to necessitate an ascription of them to intelligence at all. When a physical hindrance to the performance of the actual movements calls forth a response which did not show itself when the movement was unhindered, it seems just as natural to say that a difference in

the stimulus produced a different reaction as to suppose an intelligent appreciation of the situation. There is no difficulty that I can see in supposing some such kind of alternative mechanism in the animal's structure which could vary the action in response to a perceptible difference in the surrounding circumstances. Such a case would be that of Dr. Peckham's wasps who tried to drag into the burrow spiders which were too large and stuck in the entrance or half-way down, whereupon they brought the spider out and enlarged the burrow before taking it in again. The single instance which he reported where a wasp on one occasion enlarged the burrow before finding that the spider stuck in it is on a different footing. There, certainly, the most natural explanation of the action would be an intelligent appreciation of the situation. But such a case is almost unique. And there is this to be noted about it and the one or two other cases which stand on the same footing. So far as I know, they are all isolated cases observed under natural conditions. I do not think that any such cases were found under experimentally controlled conditions, which seem to have given uniformly negative results. That, at any rate, is Fabre's conclusion.

In spite of these considerations, I would not demand of others that they share my scepticism. It may possibly be a personal reaction against an earlier tendency to anthropomorphise unduly the behaviour of animals. And it is certainly not in any way essential to my argument to maintain that insects never show any intelligent modification of behaviour. But I do maintain that a great deal, if not most of their behaviour shows no signs of intelligence at all, and is, indeed, such that it is very difficult to suppose its presence or its influence.

We have not yet come face to face with the question, What do we mean by this intelligent consciousness about which we are arguing? How much do we include in it? Prof. Stout answers (p. 354) that the minimum that we must include in it is, '(1) attention selective and prospective, making possible the guidance of motor activity by complex and variable groups of sensory data; (2) appreciation of relative success and failure, making possible persistency with varied effort.' Let us consider these points.

(1) Is all attention necessarily intelligent? It seems to me difficult to apply the term to cases, for instance, of involuntary attention aroused by the intensity of the stimulus, such as a sudden bright light or loud explosion, or to the attention that we give to the stimulus of a reflex action, such as the blow aimed at our face which makes us flinch and

blink our eyes. Strictly speaking, I should have thought that intelligence could only be asserted of attention which is due to some previous process of thought, and that it involved some kind of knowledge of what it was that we were looking for. But this is clearly not the case with the wasp who attends to the caterpillar the first time that she catches one as intensely as the last. I do not see any evidence that there is anything resembling our voluntary and conscious selective attention. The wasp does not know what she is looking for, and we do not even know that she is conscious of looking for anything. She may just as well feel simply impelled to fly about until a caterpillar crosses her field of vision, when the impulse to further action follows at once.

And what is her awareness of the caterpillar like? What does it mean to her? It seems to me that the caterpillar means to the wasp simply a certain action with regard to it and nothing more. It certainly cannot mean food for her offspring. And it seems equally evident that it does not even mean a well-stocked burrow with an egg on the top, or she would not regard both caterpillar and egg with such complete indifference as she did in Captain Hingston's experiment, when the burrow was broken open and the caterpillar and egg laid in full view outside the entrance. And, as this and similar experiments show, the caterpillar only means this action to her at a certain stage in the whole instinctive process. At other stages it seems to mean nothing at all to her. As Fabre repeatedly points out, there seems no capacity in insects for going back over any stage in a process once completed and repairing damage or doing over again what has once been done. So that it seems natural to say that the action is not determined by the consciousness of the object but rather that it determines the consciousness, if indeed there is anything that we could call consciousness at all. For if the object simply means a certain action to the wasp and nothing more, I should even question whether we can properly speak of a conscious awareness of it at all. I would rather say that the attention is part of the action, and as such conditioned by the innate structure of the animal just as the rest of the action is, not that the attention causes or conditions the action.

(2) But it is the second of Prof. Stout's conditions which is the real crux of the question, the appreciation of relative success and failure, and the consequent power of varying effort. A good deal here obviously depends on the degree of qualification implied by the term 'relative'. It might so cut down the meaning of success and failure as to leave nothing

but the consciousness of whether the action was proceeding smoothly unhindered by immediate physical obstruction. It is natural to believe that there is this amount of consciousness, though it would obviously be impossible either to prove or disprove it. But that by itself would hardly amount to intelligence. And Prof. Stout clearly means more than that. For he speaks (p. 351) of the animals being 'continuously interested in the development of what is for them one and the same situation or course of events,' and of their 'trying again when a certain perceptible result is not attained'.

If this were indisputably shown to be present, it might or might not be a proof of intelligence. But it seems to me that these are just the features which the behaviour of insects under experimental conditions does not show. I should have thought that a 'continuous interest in the development of the situation' involved at the very least a realisation of the connexion between the different stages in the process, and an interest in the preservation of the perceptible results already attained. But it is difficult to claim this either for Captain Hingston's wasp, or for Fabre's Mason Bees, who went on filling their cells with honey after they had been visibly broken open. It might be said that the Mason Bees showed an interest in the process of building their cell until that task was completed, and then transferred this interest to the filling of them with honey. But what sort of 'interest' can this be which is thus divided up into absolutely water-tight compartments, so that it can suddenly stop short at one point in a continuous process and, as it were, start afresh? For the process is obviously continuous and the latter stages are closely connected with the former. I find it difficult to believe in this continuous interest, and impossible to believe that there is any intelligent appreciation of the process as a whole. As for the 'perceptible result,' surely a spider's web would afford an illustration and a test case of this, if anything did. And yet in Captain Hingston's experiment, already referred to, the perceptible result was conspicuously not attained, and yet the spider seemed quite undisturbed by this. She only altered her behaviour when the cutting of the web went so far that her freedom of movement in the path marked out by her routine was checked. And this seems the characteristic of nearly all the reported cases of modification of behaviour: it only occurs when the actual physical movement is interfered with. And this makes it difficult to believe that in ordinary insect behaviour there is any interest or appreciation of a perceptible result beyond the actual action itself.

If the foregoing argument is correct, it follows that a great

deal of insect behaviour, at any rate, is not conditioned or caused by intelligent consciousness at all. It may, no doubt, give rise to consciousness, the consciousness of the movement itself, such as we experience ourselves in the case of reflex action. That can hardly be proved or disproved, because consciousness of this kind does not, of course, directly affect the movement itself, and therefore cannot be inferred from any characteristic of the movement. With regard to the consciousness of the stimulus object, the caterpillar which the wasp seizes, for instance, there may be consciousness of that, of a sort. But it does not rise to anything that we can call intelligent consciousness. And it does not seem absolutely necessary to suppose the presence of consciousness at all. The facts are equally consistent with the view that the physical action of the visible object on the sense-organ of the animal translates itself at once into the appropriate action, without the accompaniment of the psychological experience which we call awareness of the object in our own case. The one kind of consciousness which it does seem most natural to ascribe to the insect is a vague feeling of uneasiness and dissatisfaction when the action, once started, is checked or hindered by some physical obstruction. And it might be possible to work out a view on this basis, developing a hint of Bergson's, according to which consciousness would only arise when instinctive action failed to complete itself. But such a view would, of course, be pure hypothesis.

In the light of all these considerations, what are we to say about Dr. McDougall's view that the essential conscious accompaniment of instinctive action is emotion, each kind of instinctive action being correlated with a particular emotion? As thus simply stated, this view seems to me to have been too thoroughly riddled with criticism by writers like Mr. Shand, Dr. Rivers and others, to be any longer accepted. Obviously, it would be very difficult to assign a special emotion to each of the very complex kinds of action performed by insects. But even if we consider the higher animals the view is hard to maintain. It has often been pointed out that we find different emotions accompanying the same action and different actions accompanying the same emotion. But the criticisms of the view go deeper than this. For they raise the question whether actions and emotions necessarily accompany one another at all, and whether in many cases at any rate, they do not appear as alternative and even mutually exclusive reactions to a particular situation. In our own experience, as Mr. Shand suggests, we find that the emotion of fear, for instance, is felt less intensely the more quickly we

are able to meet the dangerous situation by action, and may even not be felt at all at the time. It is when we think of the situation afterwards, or, one may add, when we are prevented by physical circumstances from acting, that we feel fear. And Dr. Rivers suggests that a strong emotion of fear would rather hinder the performance of the instinctive actions of escape, especially if they demanded a series of difficult and delicately adjusted movements.

I cannot help feeling that there is possibly in this view a certain confusion between instinctive actions of the kind we are discussing and the bodily expression of emotion which we really feel as part of the emotion. These bodily expressions of emotion may perhaps be properly described as themselves instinctive: they certainly share many of the characteristics which we ascribe to instinctive actions. But instinctive action in the strict sense is almost certainly independent of emotion and need not be accompanied by it at all. And when we are speaking of these bodily expressions of emotion it is entirely misleading to speak of the emotion and the instinct as being correlated or connected, or to use any expression which implies that there are two different things with a relation between them. In cases of emotional expression, if we speak of instinct at all, the emotion is the instinct. There are not three different things, the emotion, the instinct, and the action to which the instinct leads, but two only, the emotion and the action in which it expresses itself. In one of Dr. McDougall's instances—the emotion of fear and the instinct of flight—if flight follows immediately on fear as the expression of it and has that felt connexion with it that, for instance, the visceral sensations and the trembling of the body have, then the emotion of fear is the instinct of flight. But, as we have just seen, it seems probable in most cases that the instinctive action of flight is entirely independent of the emotion of fear.

The whole question of the emotions of animals is a difficult and interesting one. It is, of course, beyond question that many animals do feel emotion. But it is equally certain that in many situations where we should naturally ascribe emotion to them further investigation raises doubt. Is, for instance, the care that some insects display for their offspring accompanied by the tender emotion which we usually suppose to characterise the maternal relation? Prof. Washburn relates the story of a wasp feeding a wasp grub, who finally cut off one end of the grub and offered it to the other end to eat. As she truly says, it is difficult to suppose the presence of tender emotion towards the grub in the mind of the wasp.

And cases not so far removed from this may be found even among higher mammals. What evidence are we to accept for the presence of emotion in any particular case? I would suggest very tentatively some such test as this: If all the visible actions of the animal can be explained as being part of or having some bearing on a whole course of action leading up to a result, then there is no evidence of the presence of emotion. If, on the other hand, in cases where we might reasonably expect emotion to be felt, there are any actions which seem to play no part in such a definite course of action, these may be taken as possible expressions of emotion and therefore a sign of its presence. Such would be the movement of a dog's tail, indicating affection or pleasure, and the similar movements of a cat's tail, indicating anger or excitement. Of course, the strength of such evidence becomes much greater when the expression of a suspected emotion in an animal resembles in some degree the expression of a similar emotion in human beings.

A whole flood of light is thrown on all these questions by the experiments on animals, such as those of Schrader, Goltz and Sherrington, on which Prof. Lloyd Morgan, in *Instinct and Experience*, bases his theory of instinct as the work of the sub-cortical centres. In these experiments it was found that animals, from whom had been removed that part of the brain which is usually supposed to be the seat of consciousness and intelligence, were yet capable of movements which were far more developed and complicated than anything that we should normally call mere reflex action. The decerebrate pigeon, for instance, could fly and avoid obstacles in doing so, could eat, could peck, clean its feathers and so on. And yet, as far as we can tell, it was, in Prof. Lloyd Morgan's words, 'a mere unconscious automaton'. Unless we are going to throw overboard the whole of the physiology of the brain, the conclusion seems inevitable that instinctive action is independent of any kind of consciousness, in the sense that it can take place equally well without it, and is not caused or conditioned by it in any way. This is, of course, in flat contradiction of the views that we have been considering, and takes us, indeed, very much further than our criticisms of these views have so far enabled us to go. And yet it is difficult to see how it is possible to avoid this conclusion, which takes us straight back to the old view that instinctive action is simply more complicated reflex action.

Finally, we may perhaps gain some light on the question by a consideration of our own experience of habitual actions, say, the adjustments of balance that we make in riding a

bicycle, or various little bad habits, like biting the nails, etc. Here we have actions, sometimes fairly complicated, which take place just as well, or perhaps better, when our interest or attention is concentrated on something else altogether. There is certainly no feeling of interest either in the actions themselves or the stimulus which leads to them. They are at the very margin of consciousness, and probably in some cases sink below the level of consciousness altogether. Certainly they are not, at the moment of action, caused or controlled or conditioned by consciousness in any way.

This is not a proof that instinctive actions are necessarily of the same nature, unless we adopt the view, to me untenable, that instinctive actions are historically derived from habitual actions. But it does afford an illustration of the kind of thing that our argument so far seems to show instinctive actions to be. And at least, if we find these characteristics in habitual actions, it does afford to us a sufficient refutation of those who say that it is impossible that instinctive actions should show similar characteristics.

If we adopt this conclusion, we shall clearly have to modify some of our ordinary modes of speech about Instinct. As applied to our test case of instinctive bodily action, Instinct must be thought of as a general characteristic of certain forms of behaviour. We may describe this characteristic biologically by its origin, *i.e.*, by saying that it is inherited or innate, and by its results, and we can describe it physiologically in terms of the particular kind of bodily and nervous structure which conditions it. But if we are taking the strictly psychological point of view and asking what is its connexion with conscious experience, we can only describe it negatively by asserting its independence of any form of this. Nor must we speak of Instinct being modified by intelligence or experience or habit. Such a way of speaking implies that the behaviour is affected by one or other of these factors, and yet still remains instinctive. Whereas on our account just in so far as the behaviour is affected by these it loses its characteristic of being instinctive. Behaviour, of course, is modified by intelligence and experience. But it is a contradiction in terms to say that Instinct is. We must not, on the other hand, say that an animal is necessarily unconscious because it acts instinctively. We can only say that, as far as the animal is acting instinctively, its action is not affected by the presence of consciousness. If the animal is endowed with consciousness, it will be conscious of the instinctive action as we are conscious of our reflex movements. The consciousness, that is to say, will be of the action and follow from it.

There will also be some kind of immediate consciousness of the stimulus, but only as that which causes the action. There *may* be more consciousness than this, there may be, for instance, reflexion and intelligent interest. But if that ceases to be a mere onlooker and modifies the action, then the action so far ceases to be instinctive. And there *need* be no more consciousness than we have described. That is, assuming that the animal is endowed with consciousness. But the mere presence of instinctive actions does not by itself necessitate the belief in the presence of consciousness at all.

These are the characteristics of instinctive action. It is obvious that no other form of behaviour, no thought or feeling, for instance, can share in all these characteristics. A thought or feeling, being a form of consciousness, cannot be described as independent of consciousness. It might, however, be independent of other forms of consciousness, it might be due to an innate mental structure, it might be unaffected by previous experience or by foresight of any end. If we start, then, from instinctive action as the limiting case, we can see how far any of its characteristics are shared by other forms of behaviour, and then decide whether they approach near enough to it to have the term 'instinctive' applied to them as well.