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THE MEMOIRS OF THE South African philosophical Society

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THE MEMOIRS

OF THE

South African Philosophical Society.

I. NOTES ON ANIMAL INTELLIGENCE.—By C. LLOYD MORGAN,
F.G.S., Assoc. R.S.M.

[Abstract of paper read February 22nd, 1882.]

The author took for his text a saying of Carlyle's: "To Newton and to Newton's Dog Diamond, what a different pair of Universes; while the painting on the optical retina of both was, most likely, the same."

He began by pointing out that to no two human beings is the mental representation of the same object quite the same. In the thought called up by the sight of the simplest object we give far more than we receive; and what we give is a special resultant of inheritance and individual acquisition. No two of us give the same in amount or in quality. It is not too much to say that for no two human beings is the world we live in quite the same. How different, then, must be the world of man from the world of the dog. It is difficult or impossible for us to think ourselves into the mode of thought of the savage. And yet the *ratio of the senses* is the same or much the same for savage and civilized. For both sight and touch are the dominant senses; hearing, smell and taste being subsidiary. But in the dog the ratio is by no means the same, smell and hearing, especially the former, taking a more prominent place. The difficulty in putting ourselves into the mental position of the dog is proportionally more difficult.

The dictum of Prof. Max. Müller, "that according to the strict rules of positive philosophy, we have no right to assert or deny anything with reference to the so called mind of animals," was then considered; and the author contended that a belief in the existence of mind in the lower animals is a legitimate scientific conclusion based on the doctrine of evolution. If the doctrine of evolution be rejected the author failed to see any basis for this belief.

The author then rapidly passed in review the lower psychological strata of the canine mind, incidentally stating that he regarded as mental all those processes which are effected by the nervous arc, (afferent nerve, ganglion, efferent nerve), whether such processes were accompanied by consciousness or not. It was pointed out that the

reflex actions effected by means of the spinal cord, and those more important and intricate reflex actions effected by the medulla oblongata (heart-pulses, variable supply of blood to different bodily organs, respiration, swallowing, &c.)—that all these seem to go on in much the same way in dog and man.

Instincts were then considered. The difficulty of drawing any hard and fast line between instincts and reflexes was adverted to, the complexity of the action constituting the main difference. The want of definition of the word "instinct" was commented on, the word being used in a broader and a narrower sense. "In the broader sense instinctive action is automatic action, action performed without any consciousness of choice. In the narrower sense instinct is habit, which through inheritance comes natural to a species."

Some instances of instincts were then given, and attention was drawn to the fact that the connate mechanism was much less developed in the pup than in the pig or the hippopotamus, an instance of the escape of a newly-born hippopotamus from Hottentots who had shot the mother the moment she had given birth to it, being cited from Shunberg, the South African traveller. The fact that many instincts do not make their appearance for some time after birth was then pointed out and attributed to the fact that the neural mechanism required time or complete development.

The difference between habits consciously acquired and habits unconsciously acquired was alluded to, and instances were given of instincts having the one origin or the other. But the author maintained that, with the aid of intelligence or without that aid, all instincts have been formed under the guidance of natural selection and under the more general influence of the uniformity of Nature. (To prevent misapprehension the author noticed that the *conception* or the uniformity of Nature is one of very late development and is obviously impossible for the brute under any circumstances, but the *influence* of the uniformity of Nature is dominant in every mental as it is in every physical process, mind being throughout its development moulded in conformity with an orderly sequence of events.) But in the dog, owing to the canine race having been so long under domestication, instincts originally acquired under the guidance of natural selection may be more or less completely replaced by instincts formed under the guidance of artificial selection (pointing, retrieving, shepherding, &c.).

This modifiability of instinct by artificial selection was dwelt on as a fact of the highest importance, implying nothing less than the alteration of the whole character. What was before pleasurable becomes distasteful; pleasure is associated with an altogether new mode of action. For pleasure and pain are the normal incentives to action. And the whole complex process of evolution has been accompanied by the association of pleasure with such actions as tended to the preservation of the individual and the race, and the association of pain with such actions as were harmful to the individual or the race. It is only in this way that evolution could be furthered by individual action. Without this association of pleasure with right action and of pain with wrong

action the natural selection of conscious creatures would be impossible. There is a natural selection of *structures* and a natural selection of *actions*. The two must proceed in harmony and they must be studied side by side. Every structure is or has been *of use*. It has been developed for the furtherance of right action. But right action if it is to be persisted in by a conscious creature must be associated directly or indirectly with pleasurable feelings. Nay more, if it is to be persistently persevered in, its non-performance must be associated with that dull form of pain which we call dissatisfaction. Only under these conditions can that form of conduct which leads to the survival of the individual and the race be evolved. The principle of greatest happiness has its roots firmly embedded in the evolution of conduct throughout the whole realm of conscious existence.

The author then summed up the first part of the paper and said "that, first, there are a number of unconscious reflex actions connected with the maintenance of bare life, which can only be called mental in the most extended sense of that word: that, secondly, there are processes hardly if at all to be separated from reflex action, which are performed, perhaps unconsciously, immediately after birth, such as the processes connected with the instinctive act of taking the breast: that, thirdly, there are processes which have not to be specially learnt but come natural at a certain age, such as the act of swimming and the instincts connected with the maintenance of the species, these being evolved under the guidance of natural selection: that, fourthly, there are the instinctive habits of pointing, retrieving and so forth, which also come natural to certain breeds of dogs, and which have been evolved under the guidance of human selection, whereby a radical change of dog-character has been produced."

The author then brought forward a number of instances of animal intelligence which had come under his own observation or that of friends on the accuracy of whose observation he could rely. He regarded the *modification of action to suit special circumstances* as the test of intelligent action.

The question how far such an animal as the dog has the power of forming abstract ideas was then taken up, and the following statement of Mr. Romanes was commented upon. "Give a cat or a dog some kind of meat or cake which the animal has never before met with, and the careful examination which the morsel undergoes before it is consigned to the mouth proves that the animal has properly abstract ideas of sweet, bitter, hot, nauseous, or, in general, good for eating and bad for eating, *i.e.* abstract ideas of quality as apart from the object examined—the motive of the examination chiefly being to ascertain which general idea of quality is appropriate to the particular object examined." The author drew attention to the difference between a generalized conception of things good for eating (which he believed were within the range of canine intelligence) and an abstract idea of "good for eating." The formation of an abstract idea involved, he maintained, the power of *divorcing in thought qualities inseparable in experience*; for example, "good for eating" from a tangible something good to be eaten. This

isolation of qualities he regarded as an outcome of the use of language—a process accompanying the conversion of adjectives, such as sweet, bitter, &c., into abstract nouns such as sweetness, bitterness, &c. He therefore believed that the formation of abstract ideas—that is, *ideas of completely isolated qualities*—was altogether beyond the power of the dog or any other of the lower animals. At the same time he believed that the lower races of human beings were also unable to form truly abstract ideas, though they, like the higher animals beneath man, were perfectly competent to form general conceptions.

The author stated that, after some consideration, he was unable to find *any one faculty which all men possess and which no brute possesses*. At the same time he regarded the gap between the highest brute intellect and the lowest (sane) human intellect as *enormous*, the vast difference being due to the fact that the brute has to be contented with the experience he physiologically inherits or individually acquires, while man, through language spoken and written, profits by the experience of his fellows.

Finally, after speaking of the emotional part of canine character, the author drew attention to what he considered as the exaggerated language that was sometimes used in speaking and writing on the subject of animal intelligence. He instanced the alleged “sense of justice” and “conscience” or the current phrase “the dog knows when he has done wrong.” He contended that the look of “conscious guilt” often seen in a dog’s demeanour is due, not to the fact that he knows he *has* done wrong, but to the fact that he thinks it exceedingly probable that he *will* “catch it.” It is the expectation of a reproof or something more, that gives rise to the look of “conscious guilt.” In the same way the look of “conscious rectitude” we often see in some dogs is due to the anticipation of a word of commendation. And in general the association in an animal’s mind is between the performance of a given act and the occurrence of certain circumstances. When the association becomes definite it probably draws after it a dislike of such actions as have been accompanied by evil consequences and a delight in those actions which have been accompanied by pleasant consequences. And eventually this dislike or delight is transferred from his own actions to the similar actions of others. Hence the cat punishes its kitten that steals. Hence the baboon punishes another for an act that may result in evil consequences. Similarly the so called “sense of justice” (as in the case of a dog which the author had seen in Rio de Janeiro, and which on a merely verbal reproof for an act of theft that he had not committed, absented himself for several days and returned in a pitiable condition), this sense of justice arises from the mental confusion due to a breach of association—certain consequences (a reproof, &c.) not having been preceded by any such act as was usually associated with them. At the same time the author expressed his belief that the love of a faithful dog for his master is such that to disobey him in itself gives rise to a sense of dissatisfaction which may be said to foreshadow the pinch of conscience, and that to please him in itself gives rise to a sense of pleasure which may be said to foreshadow the approval of conscience.