



Theories Regarding Intellect and Instinct; with an Attempt to Deduce a Satisfactory Conclusion Therefrom

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stated by Mr. Charlesworth, "how to prolong life", but "whether there are any artificial means by which it can be prolonged." He (Mr. Harris) had submitted two questions for solution. I. Whether the possibility exists of preventing waste, and so prolonging life by artificial means. II. Whether, although this possibility exists, we are prevented from attaining this end, by the present imperfect state of pathological and chemical science. He had then cited a number of opinions of very eminent authorities on the subject, in order to enable them to arrive at a conclusion. Some misapprehension, nevertheless, appeared to exist as to the mode in which he had treated the subject, and credit seemed to be given to him for advancing views and opinions which were his own, but for each of which he had cited his authority, and referred to it in the margin of his paper; and which, however they might be censured, were those of some of the greatest men who had ever adorned the world of science. All that he (Mr. Harris) had ventured to do, was to make certain suggestions for their consideration. The president said that he (Mr. Harris) had misapprehended the meaning of the term waste, which only amounted to a change in the particles of the particular compound subject, and instanced the case of the consumption of coal by burning. His (Mr. Harris's) meaning appeared however to have been misconceived, as a reference to his paper would prove that he had stated in regard to the vulgar notion respecting the destruction of material objects, that all that occurred was a change in the relation of their particles; and he had even specially instanced the case of consumption by fire. As regards Hunter's imperfect definition of life, to which the chairman alluded, this had been criticised by Coleridge also, who said that Hunter had an accurate conception of it, but that he wanted expressions to convey his meaning. With respect to what he (Mr. Harris) had said about the extraordinary longevity of certain wild animals, this was a notion which had been entertained by many of the old writers on natural history, as also by some modern authorities. The subject of the paper before them was one on which it appeared impossible to arrive at a satisfactory conclusion to which all would agree; but he (Mr. Harris), was gratified that his paper had produced so animated a discussion.

The Author read the following paper :

THEORIES *regarding* INTELLECT *and* INSTINCT; *with an* ATTEMPT *to* DEDUCE *a* SATISFACTORY CONCLUSION *therefrom*. By GEORGE HARRIS, F.S.A.

I PROPOSE here to investigate together two subjects which, however essentially different one from the other, are closely connected together; and although entirely opposite in their nature, are nevertheless calculated each to throw considerable and important

light on the other. Indeed, this very contrariety between them contributes materially to illustrate their various characters.

The entire subject has commanded the attention of the acutest and of the most comprehensive intellects, and the result of their researches it is my intention here to recount, and then to attempt to effect a fair and reasonable deduction from the theories that have been advanced.

As regards instinct more especially, there is probably no subject whatever of deep scientific interest to which the attention of so many men of extensive capacities and profound acquirements has been called. And yet no one complete positive or definite theory regarding it has been established. As early as Aristotle the enquiry began, and so late an authority as Lord Brougham devoted a volume to this topic. On most matters science has advanced with rapid strides. Here, however, it appears to be completely at a stand-still, though certainly from no neglect of effort to progress. The conquests of science have been well nigh universal. In this one region of enquiry it has been completely baffled. And, indeed (more especially as regards some modern speculations), the more closely and carefully the subject is investigated, the more perplexing does it appear. Fresh discoveries here seem merely to involve us in fresh difficulties; and the only result of any new speculation is to overturn theories hitherto regarded as sound and well grounded. Whenever we attempt to run forward, instead of gaining ground in our march, we find that we have rushed into a quagmire, and there lie struggling with less hope than ever of reaching the end of the journey.

Nevertheless, notwithstanding all this, the very perplexity of the subject gives an interest to its investigation. Its towering acclivities and frightful precipices invite daring spirits to scale its perilous heights, by whom the ordinary level is contemned. Moreover, the consideration of the great minds, the giant intellects, who have devoted their attention to this grand topic, proclaims it to be at any rate worthy of investigation by a scientific association. I am not so presumptuous as to hope to effect any triumph where many others of such superior acquirements have been so signally baffled. But it has occurred to me that a recapitulation of their united efforts may be of important service in the farther prosecution of the enquiry, and that the present occasion affords a favourable opportunity for making such an attempt. I have therefore here given a summary sketch of the opinions of the leading philosophers and writers on the subject:—men whose sentiments on any topic must always command attention, however widely in these opinions they may differ one from another, and we may differ as widely from them.

There is yet, however, one other authority to be appealed to,

which, although greater than any of them, and than all of them together, has not always commanded the respect and attention to which it is entitled. In many cases indeed, it has not been consulted at all; and in some of the few cases where it has (as ordinarily happens where ladies take the advice of gentlemen), a course is followed exactly opposite to that in which we were directed. That high, though despised authority to which I allude, is nature herself, the investigation of whose operations and whose contrivances, alone can lead to a satisfactory conclusion here. The opinions of the learned are nevertheless not to be disregarded, although not in the place of, but only as supplementary to the teaching of nature. Their sentiments may serve us as guide-posts to direct us in studying nature, or they may be rendered more useful still, as beacons to warn us against the errors into which so many, and even themselves, have occasionally fallen.

The greatest of these philosophers, Lord Bacon, in all his researches attentively followed nature, and was the greatest because he did so. In the investigation of the subject before us, nature should be studied, not merely closely and accurately, but comprehensively also. The nature of man and the nature of animals should not only both be studied, but both of them compared one with the other. And not only the constitution of both, alike material and spiritual, but the habits also.

Aristotle's "*History of Animals*"* contains some interesting remarks on the habits of animals. He here treats of all the varieties of animals, and of the structure and parts of each. The knowledge displayed is truly wonderful, and his observation was very extensive.

This philosopher held that perception differs from intellect, the former being common to all animals, the latter to a few. The powers of imagination and memory he considered to originate in the senses, and to be common to many animals as well as man. He, however, supposed that animals have not reminiscence, although they have memory, inasmuch as the exercise of reminiscence requires intellect. Animals, he says, have sensitive phantasy or imagination only; rational creatures alone possess the power of deliberating and comparing ideas.

The opinion that animals possess a spiritual being, which exists after the body has perished, and which may be supposed to confer on them an intelligence nearly akin to, if not identical with that of man, appears to have been entertained by Virgil. † The question as to the future existence of animals is raised by Origen. Also, whether human souls can be transferred into the bodies of animals. ‡ St. Augustine is asserted to have believed that animals were endowed with spiritual beings, which would

* B. 9.

† Georg. lib. 4, l. 220.

‡ Vol. 1.

exist in a future state. And that famous father of the Church Lactantius, allowed to animals everything in common with man, even a reasonable soul, except a sense of religion.*

The French writer, De la Chambre, who was counsellor and physician in ordinary to the King of France, in his ingenious "Discourse of the Knowledge of Beasts", written in 1657, expresses it as his opinion, that "beasts reason, but that their reasoning is formed only of particular notions and propositions, wherein it is different from that of men, who have the faculty of reasoning universally; and that this faculty is the true difference of man, which marks the spirituality and immortality of his soul."† He remarks on the evident calculation and contrivance and apparent reasoning evinced by dogs, and also by wild animals in hunting.‡ He refers, also, to the dreaming of animals, as evidence of their possessing both memory and imagination.* As regards the language of animals, he contends that their cries and accents are by the institution of nature, as well as the speech of men.§

Des Cartes, however, held animals to be not only destitute of reason, but probably of all thought; and he considered that they performed their various functions as mere automata, excited to motion only by means of animal spirits, which act upon the nerves and muscles. But when he alludes to the sensations of pain, hunger, and thirst, in the case of man, proving the intimate union between the soul and the body;¶ it appears difficult, consistently with his theory, to dispense with the existence of some immortal spiritual being in the case of animals also.

Hobbes remarks, that animals demur in their proceedings, in the same way that man does, who deliberates according as he is influenced by the hope of good or evil.**

The famous Dr. Willis, in his very celebrated work, "*De Animâ Brutorum*" (on the souls of animals), observes that the Platonists and Pythagoreans believed the souls of animals to be an incorporeal substance, part of the universal world, and that they were imprisoned in bodies as in sepulchres, and that the souls wandered from one body to another.†† He also asserts that the soul of the animal, as the inferior soul of man, is material and divisible, and coextended with the whole body.‡‡ He, however, infers that the souls of animals consist of particles of the same matter out of which the body is formed, but that they are choice, most subtle, and highly active.§§ In another part of the same

* "*Pensilwood Papers*," vol. 1.

|| P. 150.

§ P. 279.

† P. 7.

‡ Pp. 84, 85.

** "*Of Liberty and Necessity*."

¶ Part 6.

†† *Ibid.*, c. 2, p. 4.

‡‡ "*De Animâ Brutorum*" (Pordage's translation), c. 2, p. 6.

great work, he contends, that if the souls of animals are immaterial, they are also rational; and he goes on to remark—"After what manner in brutes, perception, or discerning, or discrimination of objects, appetite, memory, and other species or kinds of inferior reasons, as one may say, are performed, seems very hard to be unfolded." Therefore, he says, some have attributed to animals immaterial souls existing after their bodies.*

It may here be observed that the opinion entertained by some, of there being two distinct souls in man, the rational and the corporeal, appears nearly to correspond with the opinion which Willis expressed of man being endowed with both reason and instinct.† This writer, however, expresses a doubt whether we ought to assign souls of the nature of fire to bloodless animals inhabiting the waters.‡ Indeed, as animals differ greatly one from the other, as regards their manifestation of instinct, so it may be concluded that they differ correspondingly as regards their manifestation of it, and consequently as regards the vehicle or principle possessed by them in which it essentially resides.

Sir Matthew Hale remarks, in his famous work "On the Primitive Origination of Mankind", that it is impossible to resolve perception, phantasy, memory, the sagacities and instincts of brutes, the spontaneousness of many of their motions, into a principle that this proceeds from the modification of matter; and that they are not explicable without supplying some active determinate power of a higher extraction than the bare modification of matter, or disposition of organs.§

Dr. Henry More and Dr. Cudworth both held the opinion that animals are animated and directed by an incorporeal soul, not differing in kind from that of man, but only in degree.

Locke, in his renowned "Essay on the Understanding", holds, that animals to some extent compare ideas, that is, are able to reason as man does, although but very imperfectly.||

Sir Isaac Newton, in his "Principia", lays it down that "all sensation is performed, and also the limbs of animals moved in a voluntary manner, by the laws and actions of a certain subtile spirit, that is, by the vibrations of this spirit, propagated through the solid capillaments of the nerves, from the external organs of the senses to the brain, and from the brain into the muscles."

Dr. Priestley, in his "Disquisitions on Matter and Spirit", contends that if man be actuated by a principle distinct from his body, every brute animal must have an immaterial soul also.¶

The great naturalist, Buffon, in his renowned "Histoire Naturelle", considered that animals have in common with man an

* *Ibid.*, "De Scient. Brut." c. 6, p. 32.

† *Ibid.*, c. 6, p. 40.

‡ "De Animâ Brutorum" (Porl. trans.), c. 3, p. 13.

§ S. S., c. 2, p. 49.

|| B. 2, c. 11, s. 5.

¶ P. 62.

interior as well as an exterior sense, but that in animals the interior sense is entirely material. Man has also this material sense, but he possesses besides one of a nature highly superior, which resides in the spiritual substance, and which animates and guides him. He deemed that animals have neither ingenuity, understanding, nor memory, because they are denied the power of comparing their sensations. Animals and idiots, he concluded, possess memory only so far as it consists in the renovation of our sensations, and not of the ideas. In particular animals, he considered that particular senses predominate, and that animals in general enjoy that of taste in a more exquisite degree than man does. In animals, whatever relates to their appetites strongly agitates their interior sense. He considered that all the actions of animals may be explained without allowing them either thought or reflection, the internal sense being sufficient to produce all their movements. Satisfying the appetite he asserts to be the principal pleasure of animals.*

Mr. Dean in his "Essay on the Future Life of Brutes", observes that the word soul, according to the doctrines of the ancients, has a three-fold meaning or distinction; and that it is considered alike as a spiritual, a sensitive, and a vegetable principle. That man is possessed of it in all three senses, animals in the two last, and trees, herbs, and plants have the vegetative soul only.† He contends, that if animals have souls, and in consequence may exist hereafter, we may superadd that they have ideas and a power of communicating them. Every species, says he, has a language peculiar to itself, by means of which all the individuals that compose it are able to converse with each other, to impart their pains and pleasures, their fears and dangers, their desires and intentions. And he asks, what can all this arise from, but an intelligent principle residing within them?‡

The celebrated navigator, Captain Cook, who had peculiar opportunities for making observations of this kind, remarks on the instinctive sagacity displayed by many wild animals, and particularly on the extraordinary capacity in this respect of the bears of Terra del Fuego, as observed by the natives, in discovering the properties of certain medicinal herbs, and both applying them to their wounds, and for the cure of internal disorders. ||

The great mental philosopher, Dugald Stewart, in his "Philosophy of the Human Mind", lays it down that brutes are under the more immediate guidance of nature, while man is left to regulate to a great degree his own destiny, by the exercise of his reason. Instinct, he says, is distinguished from reason by two circumstances. 1. By the uniformity with which it proceeds in

* Barr's "Buffon," vol. v, pp. 17, 18, 23, 24, 28, 30, 33, 47. † P. 62.

‡ Pp. 111, 112. || "Voyages Round the World," vol. 6, p. 2170.

all individuals of the same species. 2. By the unerring certainty with which it performs its office, prior to all experience. Animals, however, he observes, make some small acquisitions by experience, as appears from the sagacity of the old, when contrasted with the ignorance of the young; and from the effect which may be produced on many of them by discipline and education.

Mr. Smellie, in his "Philosophy of Natural History", asserts, that "the natural superiority of man over the other animals is a necessary result of the great number of instincts with which his mind is endowed."*

In that remarkable work, "Vestiges of the Natural History of Creation", it is laid down that, "the difference between mind in the lower animals and in man, is a difference in degree only; it is not a specific difference."†

And, Sir William Lawrence, in one of his "Lectures on Comparative Anatomy", asserts, that "we cannot deny to animals all participation in rational endowments, without shutting our eyes to the most obvious facts."‡

According to Mr. Smee, in his work "On Instinct and Reason", "man only differs from the dog inasmuch as he has a higher organization."§

And as regards the future being of animals, alluded to, Mr. Isaac Taylor, in his "Physical Theory of Another Life", observes: "It must indeed be confessed that the argument of the immaterialist, as sometimes conducted, if pushed to its consequences, would go near to imply the immortality of birds, beasts, and fishes, of insects, and of zoophytes!"§

Mr. Herbert Spencer, in his "Principles of Psychology", says, that "instinct may be described as compound reflex action."¶ And he concludes, that "the commonly assumed *hiatus* between reason and instinct has no existence;"** asserting, "the impossibility of establishing any line of demarcation between reason and instinct."††

Mr. Darwin, in his "Descent of Man" says, that "few persons any longer dispute that animals possess some power of reasoning."‡‡

Professor de Quatrefages, in his "Rapport sur les Progrès de l'Anthropologie", (Report on the Progress of Anthropology), goes still further, in remarking that to this extent domestic animals may even be regarded as religious beings, in that they readily obey those who correct or indulge them. And that animals fly to man for protection, as a believing being does to his God.¶¶¶

* C. 17, p. 435.

‡ P. 220.

†† *Ibid.*

† Smith's edit., p. 253.

§ C. 20.

‡‡ Vol. i, p. 46.

¶ Vol. i, p. 432.

‡ Sect. 4.

** *Ibid.*, p. 453.

¶¶¶ *Ibid.*, pp. 85, 87.

The late Dr. Darwin, in his "*Zoonomia*", and Tupper, in his "*Sensation in Vegetables*", attribute irritability to plants. And the late Professor Sir J. E. Smith, in his "*Introduction to Botany*", suggests, that as vegetables possess life, irritability, and motion, the exercise of the vital functions may be attended with some degree of sensation, however low.* He also suggests that, as a consequence of this, vegetables may experience "some share of happiness."

Such is, I believe, a fair summary of the leading axioms enunciated by the leading minds who have devoted their great powers to the investigation of the subject before us. Other authorities might be cited, but I believe that all that is important in them is comprehended in the opinions which I have adduced. On a cursory view they may rather appear to throw sudden corruscations or flashes of light, than to afford any steady illumination to guide us in our career. Be this as it may, the irregular glare which they cast is so far valuable, however inferior it may be to a clear and steady light. It is folly to refuse availing ourselves of the lamp at night, because we cannot then have the light of the sun. The differences and even apparent contradictions as regards their conclusions, will also, in many cases, be found more apparent than real; more extensively varied than actually irreconcilable. But they may all alike, if comprehensively considered and liberally viewed, aid us in arriving at a correct conclusion. We may not agree entirely with any of them. But still less shall we entirely disagree. So also with regard to each other, they do not absolutely contradict, however they may qualify each other's conclusions. If none of them are entirely right, none of them are entirely wrong. The principles enunciated by each may suggest something that is valuable for our guidance. And as is the case with regard to certain substances in nature, although very opposite in their respective qualities, they may together amalgamate into, and each contribute to form a valuable and indeed essential ingredient in the same compound.

The two provinces of intellect and instinct appear to me to resemble two different countries, which in many of their main features and productions bear a close similarity and affinity one to the other, while in certain other respects they are strikingly and totally dissimilar. Instinct boasts of some productions, and bears some precious fruits which intellect or reason is totally unable to bring forth; while, on the other hand, the nobler products of intellect are incomparably richer and more luxuriant than anything which instinct can rear, and whose lofty heads tower into the regions of celestialty, while the ramifications of instinct only run upon the ground.

* Page 3.

Intellect and instinct differ moreover in two essential respects—as regards the topics which they embrace, and as regards their mode of dealing with those topics. With respect to the first of these points, intellect embraces the consideration of abstract as well as substantial or material topics; those which are moral and intellectual as well as those which are material, but which latter only are within the scope of instinct. As regards the essential difference between intellect and instinct, with respect to the mode of dealing with various topics; while instinct merely takes cognizance of them so far as sensation proceeding from them conduces to accomplish this end, intellect not only takes cognizance of them in this manner, but proceeds to certain other operations of various kinds, founded indeed upon this cognizance, but carrying on those operations much further, and which are effected by the action of those various intellectual faculties and capacities with which man only is endowed.

That animals possess a certain amount of intellect or intelligence, resembling and in several respects approaching to that of man, it appears on many accounts reasonable to infer. In this respect, as we have seen, Locke, Hobbes, Willis, De la Chambre, and the more modern authorities, Sir W. Lawrence, the author of "*Vestiges of Creation*," and Mr. Herbert Spencer, substantially agree. They differ mainly, but perhaps not very essentially, as to the extent to which animal intelligence may be carried or applied. That the limit of their capacity is very inferior to that of man, none of them would I believe deny; while, on the other hand, the authorities cited would agree with Sir Matthew Hale and Captain Cook, as to the wonderful sagacity sometimes displayed by animals, in certain respects far exceeding that of man.

An interesting question might here be raised, whether intelligence to any extent is essential to instinct, and whether all the various operations effected by instinct might not be accomplished through the aid of sensation alone, independent of any intelligent direction. That the sensation of animals, especially those in a wild state, whose senses become considerably blunted by domestication, is vastly superior to that of man, few observers of animal nature, from Aristotle to Captain Cook, will entertain a doubt. It appears also obvious that they are to a large extent here impelled by the acuteness and power of their senses. This is probably what Des Cartes meant when he speaks of them as mere automata, though, as we have seen, he qualified his meaning in another passage. Nevertheless, the extraordinary uniformity with which animals act, resembling the uniformity of a machine or of an automaton, justifies Des Cartes in the comparison which he made of them. Thus, all birds of the same species build their nests exactly alike, provided of course that they have all access alike to

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the same materials; nor do they improve by practice, as in the case of reasoning beings who act irregularly and uncertainly.*

In certain cases, nevertheless, as remarked by Locke and Hobbes, animals doubtless exercise deliberation with regard to their actions. In addition to this, certain old animals, more especially horses, and dogs, and hares, and probably others also, although we have not so attentively observed them, display a great deal of cunning, and that in various ways.† Now cunning implies calculation to a certain extent, and calculation to a certain extent intellect, or reasoning power. Hence, although animals in many of their instinctive operations, particularly in the choice of food and the provision for their young, and more especially as regards their migration, appear to be actuated by a sort of blind irresistible instinctive impulse, which has caused them to be considered as mere machines, as is done by Des Cartes, and their unerring precision in which they owe I believe mainly to their very perfect sensitive organs, far superior to those of man; yet in certain of their actions, such as those which imply calculation and also memory,‡ it would seem that they must necessarily be directed by some principle or endowment independent of, and quite beyond this, and which would lead to the conclusion, by no means inconsistent with the foregoing theory, that there exists in animals some being which, though very limited in its capacities, is of a spiritual intelligent nature, analogous to the soul in man, as held by Virgil and Willis, and certain other philosophers to whom I have referred.

I may here passingly remark, that we have no right to object to animals being endowed with an immaterial principle, merely because such an argument may be supposed to weaken, though I believe it contributes to strengthen, the proof of man possessing a soul. Half the errors, both in philosophy and theology, have arisen from the attempt to distort facts, so as to prevent them from squaring with the obvious consequences to which they lead.

Not only, however, several distinguished philosophers, but some eminent divines have attributed to animals not merely souls, but a future state of being. In addition to the ancient fathers of the Church, whose opinions on this subject I have already cited, the famous Archbishop Tillotson remarked that "the most common and general philosophy of the world hath

* "A man has to learn his work by practice; a beaver, on the other hand, can make its own dam or canal, and a bird its nest as well, or nearly as well, the first time it tries, as when old and experienced."—Darwin's "Descent of Man," vol. i, p. 39.

† See Leroy, "On the Intelligence and Perfectibility of Animals," pp. 105, 122, 123.

‡ *Ibid.*, p. 115.

always acknowledged something in beasts besides their bodies, and that the faculty of sense and perception which is in them, is founded in a principle of a higher nature than matter. And as this was always the common philosophy of the world, so we find it to be a supposition of Scripture, which frequently attributes souls to beasts as well as to men, though of a much inferior nature." The Archbishop further remarks, that "immortality imports that the soul remains after the body, and is not corrupted or dissolved together with it. And there is no inconvenience in attributing this sort of immortality to the brute creatures."*

That language to a certain extent, and of a certain kind, is possessed by animals, we all know, and that language appears to me to be exactly correspondent with, and is precisely reflective of the extent of their intelligence. They can communicate to each other their physical wants and emotions by this means, but are unable to carry on any conversation relating to abstract topics, such as man can effect. Their language is all sufficient for their wants, and for the notions that they are capable of receiving, but does not extend beyond this. It is in fact language simply, but does not amount to articulation, or as Professor De Quatrefages well expresses it—"Animals have voice, man only speech."† Here Locke, and Hobbes, and Willis, and De la Chambre, and modern writers, appear to coincide. The only language of animals is, moreover, oral. But, although they have no artificial written language, in the place of this, outward visible objects may to some extent serve as a natural symbolical language.

I would suggest therefore, as a deduction from what I have advanced, that instinct may be correctly defined to be an impulse implanted in each animal, and to a limited extent, and in a certain mode, in many if not in all vegetables also, which is in some cases originated, and in all cases is directed by sensation, or, a certain sensitive impulse or irritation. The exquisite nature, peculiar character and relative extent of the sensitive organs and endowments in the beings so excited, are what mainly determine the quality and amount of their instinctive powers, although these powers may be exercised through the aid of some immaterial, and to a limited extent, intelligent being, or principle implanted in or annexed to the animal. Instinct, however, not only varies in each creature according to its nature and organization, form, and condition; but in each creature it varies so as to adapt itself to the particular exigencies in which it is placed. These instinctive powers moreover stimulate, and also regulate the propensities and habits and actions of each particular animal. But inasmuch as not only

* Sermon 122.

† "Rapport sur le Progrès de l'Anthropologie." See also Leroy "On the Intelligence and Perfectibility of Animals," pp. 72, 73.

animals of every variety, the lowest as well as the highest, are endowed with and guided by instinct, but vegetables also evince proof of being to a certain extent thus gifted and thus directed: an evidence is thus afforded, that there is no necessary connection between intelligence and instinct.

Instinct, indeed, never arrives at, although it may appear sometimes nearly to approach intellect, as in the case of animals exercising memory, hesitation, and calculation, already referred to; inasmuch as instinct does not at all or in any respect qualify the beings endowed with it to deal with any of those high abstract and moral topics in which intellect alone is capacitated to engage. Intellect is, in fact, to instinct, what flying is to walking. Animals without wings can no more hope to soar in the air, than animals without intellect or reason can be expected to attain any one of the sciences, to read, to write, or even to talk. But as animals without wings are much better fitted to traverse the earth than those who can fly; so the instinctive power of animals enables them to perform many of their functions far more perfectly than reason directs man in the same operations. Instinct appears to be perfect as regards the ends for which it is adapted, but it is limited to those ends. Intellect has a far greater sphere extended to its range, but it is far less perfect and unerring as regards the operations which it effects. Intelligence and instinct, like two parallel lines, run very near together, but they can never by any possibility meet. Although they greatly resemble one another, they are totally and essentially different. Instinct is the highest development of animal being. Intellect is the lowest manifestation of a wisdom which is divine.

DISCUSSION.

Mr. SERGEANT COX.—Instinct is one of the many words which we are said to use to conceal our ignorance. Nevertheless, it imports something whose existence we recognize, and of which he had hoped to hear a definition. The only approach to it was that it was an unreasonable impulse. But animals are not mere machines. They exercise an intelligent choice, as we do. It is not true, as usually asserted, that animals are led by instinct, man by reason. Animals have reason as well as instinct, as all who observe them will admit. Man has instinct as well as reason. The difference between them is not in kind, but only in degree. His contention would be that instinct was the result of brain structure, adopting the Darwinian theory of evolution and progression. The newly-hatched chick pecked its food and knew its mother; why? because its brain by a long succession of breeding was constructed in the same manner as our brains become shaped by education, and thus without education the brain receives impressions and performs consequent actions which otherwise could be attained only by experience. There are three mental conditions, instinct, experience, and

reason. When the brain thus acts by force of its own structure, anterior to experience, it is what we call instinct, and we do this or that, we know not why, only that we are prompted to do it. Then comes experience, and we make a choice between actions, because we have learned by trial that one is preferable to the other. Lastly, we have the aid of reason, which is nothing more than putting two experiences together and deducing from them a probability. For instance, we have learned that a certain thing has certain qualities, and that those qualities have done certain services. We find another thing having the like qualities. Then reason concludes that, having the like qualities, it would probably produce the same effects. However long the chain of reasoning, it is nothing more than a repetition of the same simple process. He then related instances of reason shewn by animals, as also of their instinctive acts. He attributed the similarity of their nests in birds, not to the presence of instinct, which would make them exactly alike, nor to the absence of reason, for they certainly adapted them to surrounding circumstances, but to a deficiency in the faculty of imagination. Man varies his dwellings because by his imagination he is enabled to construct in his mind habitations of various forms. Wanting this, birds can build only according to experience, modified by surrounding circumstances. The general structure of their nests is the result of instinct and of inherited brain structure, but reason enables them to adapt the external form to the locality; while they have not imagination to picture in their own minds, and consequently to construct, an entirely different structure.

Dr. RICHARD KING, Mr. EDWARD CHARLESWORTH, and Mr. PARK HARRISON also joined in the discussion.

Mr. G. HARRIS said that he was gratified to see Mr. Sergeant Cox, who had only lately joined the Anthropological Institute, taking so active a part in the discussion, and felt sure that he would prove a great acquisition to the Society. Mr. Cox, however, complained that he (Mr. Harris) had given no definition of instinct. He had, nevertheless, given definitions in abundance from all the first authorities on the subject, although the conclusions at which he endeavoured to arrive might not be satisfactory. And indeed, as the president had remarked, the matter was almost insoluble. Mr. Cox thought that the nearest approach to a correct account of instinct was given by Mr. Darwin, for whom he (Mr. Harris) had the highest admiration as a naturalist, without venturing to subscribe to all his particular theories. The president had stated that the most satisfactory definition of instinct is that afforded by Mr. Herbert Spencer, and which was one of those quoted in the present paper. The subject before them was one peculiarly suited for discussion, and he (Mr. Harris) was gratified that his paper had been the means of calling forth the expression of so many various sentiments as it had done. Agreement with him was not to be expected, and he was not so unreasonable as to desire it. Debates of this character, when fairly conducted, cannot but conduce to the attainment of truth; and to promote this end was perhaps the most successful result which any paper, on so uncertain and speculative a subject, could be expected to attain.

The meeting then separated.