

## NEW PUBLICATIONS.

## DARWIN ON EXPRESSION.

THE EXPRESSION OF THE EMOTIONS IN MAN AND BEAST. BY CHARLES DARWIN, F.R.S. AND L. H. SPENCER, ESQ.

The scientific exposition of the subject to which the present volume is devoted was first given to the world in the celebrated "Origin of Species," in the "Anatomy and Physiology of Expression," published in 1868 and subsequently in 1864. His treatise, according to Mr. Darwin, is one of great value and importance, abounding in graphic descriptions of the emotions, with admirable illustrations, and fully establishing the intimate relation between the anatomy and expression and the emotions. He did not attempt, however, to carry out his views to their full extent. He does not explain why different muscles are brought into action under different emotions—why, for instance, the inner ends of the eyebrows are raised, and the corners of the mouth depressed by a person suffering from grief or anxiety. Different writers have since treated the subject with more or less completeness and accuracy, especially Mr. Herbert Spencer, who, in the opinion of Mr. Darwin, has suggested the true theory of a large number of expressions in seeing the fact that the external signs of passion are the consequences of the necessary voluntary movements that must ensue in the structure of the human body. The palpitations and tremblings that are called forth by intense fear, for example, are the signs that would accompany an actual experience of the evil feared. The destructive passions, in general, are manifested by the same acts that accompany the killing of prey, as the activity of the muscular system, the raising of the teeth and the protrusion of the claws, the million growls and the dilated eyes and nostrils.

With the exception of Herbert Spencer, the writers on expression have taken it for granted that the various species of the animal kingdom, including man, have come into existence in their present condition. Thus, for example, it is assumed that many of our facial muscles are a special provision for the purpose of expression. But, according to Mr. Darwin, the fact that the anthropoid apes possess the same facial muscles as man, makes it improbable that these muscles in our case serve exclusively for that purpose. No one can believe that man has been endowed with special muscles solely for the purpose of expression. Nature, indeed, can be assigned for almost all the facial muscles, with no reference to expression. But the belief that man alone existed in a lower condition, explains many forms of expression, such as the bristling of the hair in extreme terror, or the uncovering of the teeth in furious rage. These could hardly be accounted for on any other theory. The proximity of the emotions to the instinct, the allied species, as in the movements of the same facial muscles during laughter by man and by various monkeys, is rendered intelligible by the supposition of their descent from a common progenitor. The doctrine of evolution, in fact, places the whole subject in a new and interesting light.

In unfolding the philosophy of expression, Mr. Darwin makes use of three principles which, in his view account for most of the acts and gestures exhibited by man and the lower animals under the influence of various emotions and sensations. First, the principle of servicable associated habits. Certain actions are of service under certain states of mind in order to relieve or gratify certain sensations or desires. Whenever the same state of mind is induced, the force of habit, or association, leads to the performance of the same movements, although they may then not be of the least use. Second, the principle of antithesis. Certain states of the mind, as indicated under the first principle, lead to certain habitual actions, which are of service. But when a directly opposite state of mind is induced, there is a tendency to the performance of movements of a directly opposite nature, although these are of no use. Such movements are some, however, are highly curious. Third, the principle of actions due to the constitution of the nervous system.

The first principle is illustrated by the well-known force of habit. The most difficult movements come in time to be performed without the slightest effort or consciousness. Actions, sensations, and modes of feeling which occur together, or in close succession, induce in such a way that when one of them is induced to the mind, the others are brought up in time. There are some actions commonly performed which obtain certain circumstances that seem to be the initiation or sympathy. Thus persons cutting another with a pair of scissors may be seen to move their jaws simultaneously with the blades of the scissors. In learning to write, children often twist about their tongues as their fingers move in a trifling fashion. When a stranger in public suddenly

becomes a little hoarse, many of those present try to be heard to clear their throats. As long as matches are the performer makes his spring, many of the spectators move their feet.

There are also other actions, which take place without any sensation or consciousness on our part. Some of these can scarcely be distinguished from habitual actions. Coughing and sneezing are familiar instances of this kind. Respiration is partly voluntary, but mainly reflex, and is performed without the intervention of the will. A vast number of complex movements are reflex. If a drop of acid be placed on the lower surface of the thigh of a doctored frog, it will rub off the drop with the upper hand, or familiar instance of the kind. Another familiar instance of a reflex action is the involuntary closing of the eyelids when the surface of the eye is touched—A similar winking movement is caused when a blow is directed towards the face. "I may mention a trifling fact," says Mr. Darwin, "illustrating this habit, and which is very common. I have seen a dog look at the glass plate in front of a paddler in the Zoological Gardens, with the firm determination of not starting back if the snake struck at me; but, as soon as the blow was struck, my resolution went for nothing, and I jumped a yard or two backward with astonishing rapidity. My will and reason were powerless against the impulsion of the reflex action." The violence of a start seems to depend partly on the vividness of the imagination, and partly on the condition of the nervous system.

The lower animals present an abundance of curious movements, which were originally of use, but are now purposeless. The dog that wishes to go to sleep on the carpet turns round and round, smothering with his forepaws in a servicable manner, as if he intended to turn down the grass and sweep away the dirt, was done by his will, associations when they lived on grassy plains, or in the woods. Jackals, and other animals of the kind in the Zoological Gardens treat their straw in the same manner. Many carnivorous animals, as they crawl towards their prey, lower their heads, partly, as it would appear, to hide themselves, and partly to get ready for the attack. This habit becomes hereditary in pecking and setting traps. When two strange dogs meet in an open road, the one which first sees the other lowers his head, begins to crouch, and perhaps lies down. This is to take the attitude for concealing himself and for making a run or spring, although the road is quite open, and the distance great. Dogs of all kinds, when walking their prey, often keep one of their fore legs doubled up for a long time, as if to get ready for the next easiest step. Dogs and jackals take much pleasure in rubbing and rubbing their necks and backs on carmen. This is not the case with wolves. The larger dogs, which are probably descended from wolves, do not like to roll in carmen so much as the smaller dogs which are probably descended from jackals. A little dog, when he is asked by the author, when a piece of biscuit is offered to her, will lick it about and waver it, as if he were a rat; she then rolls on it as if it were a piece of carmen, and at last eats it. It would appear that a hungry relief has to be given to the distasteful morsel. The same dog acts in the same way after killing a bird or mouse. Dogs scratch themselves by a rapid movement of one of their hind legs. Beavers scratch themselves when they are rubbed with a stick, they cannot help scratching the air or the ground in a ludicrous manner. Beavers scratch themselves by nibbling their parts of their bodies which they can reach with their teeth, but more commonly one hand shows another where he wants to be scratched, and they then nibble each other. It has been observed that when a horse's head was rubbed, he protruded his head, uncovered his teeth, and moved his jaws as if nibbling another horse's neck. When a horse is carried, his wish to bite often becomes so strong that he will dash his teeth through an iron ring. He will also bite his feet. Cats, as is well known, dislike wetting their feet, owing, Mr. Darwin suggests, to their having originally inhabited the dry country of Egypt, and when they wet their feet, they shake them violently. When some water was poured into a glass close to the head of a kitten, it immediately shook its feet in the usual manner, showing an instance of an habitual movement being excited by an associated idea. Another example of an habitual movement without purpose is furnished by the sheldrake. The wild bird feeds on the seeds left uncovered by the tide, and when a worm-hole is discovered peeps the ground with its feet which make the worm come to the surface. Now the tame sheldrake has been noticed when they come to seek for food, to peck the ground in a rapid and impatient

manner, making the movement their expression of hunger. The sheldrake and other birds when anxious to be fed beat the ground with their feet in the same odd manner. The kingfisher when they catch a fish always makes it evident to the birds in the water in the Zoológico Gardens always beat the ground with which they are sometimes fed before devouring it.

Now, as we have seen that certain states of the mind lead to certain habitual movements which were originally of service, but are now without purpose, it is also true that, when a directly opposite state of mind is induced, there is a tendency to the performance of movements of a directly opposite kind, though they have never been of any service. When a dog, for example, approaches a strange dog or a man in a hostile frame of mind, he walks upright and very stiffly. His head is raised, and the tail is held erect and quite rigid. The hair bristles, the pupils are dilated, the ears are drawn forward, and he has a fixed stare. As he proceeds to spring with a savage growl at his enemy, the canine teeth are uncovered, and the ears are pressed backward on the head. But let us now suppose that the dog suddenly discovers that the man whom he is about to attack is not a stranger, but his master. His whole frame of mind is instantly reversed. He ceases walking upright, the body crouches, and is thrown into servicable movements. His tail is lowered, and wags from side to side. His hair at once becomes smooth. His ears are depressed and drawn backward, but not closely to the head. His lips hang loosely. The eyelids become elongated from the drawing back of the ears, and the eyes no longer appear inclined to fight. The stare is gone, and there is in an excited condition from fear, and nervousness is generated in excess, which naturally leads to some kind of action. None of the movements described, so clearly expressive of affection, are of the least direct service to the animal. Their explanation is to be found in the fact that they are in complete antithesis to the movements which were originally of service in order to fight, which consequently are expressions of anger. "I will here give," says the author, "one other instance of antithesis in expression. I formerly possessed a large dog, who, like every other dog, was much pleased to go out walking. He showed his pleasure by trotting gravely before me with high steps, head much raised, mouth constantly open, and tail curled up and waving in the air. Now far from it, he became a path breaker off to the right, leading to the hot-house, which I used often to visit for a few moments, to look at my experimental plants. This was always a great disappointment to the dog, as he did not know whether I should continue my walk; and the instantaneous and complete change of expression, which came over him, as soon as my body arrived in the house towards the hot-house, sometimes tried this as an experiment was laughable. His look of dejection was known to every member of the family, and was called his hot-house face. This consisted in the head drooping much, the whole body sinking a little and remaining motionless; the ears and tail falling suddenly down, but the tail was by no means wagged. With the falling of the ears and of his head, however, the eyes became much changed in appearance, and I fancied that they looked less bright. His aspect was that of pitious, hopeless dejection; and it was, as I have said, laughable, as the cause was so slight. Every detail in his attitude was in complete opposition to his former joyful yet dignified bearing; and can be explained, as it appears to me, in no other way, except through the principle of antithesis. I should have attributed it to his lowered spirits, affecting, as in the case of man, the nervous system and circulation, and consequently the tone of his whole muscular frame; and this may have been in part the cause."

In the explanation of the third principle, namely, that many expressions of certain states of mind result from the constitution of the nervous system, Mr. Darwin refers to the loss of color in the hair which is sometimes the consequence of extreme terror or grief. Another instance is that of the trembling of the muscles, which is common to man and the lower animals. This is of no service, often of great disservice, and cannot have been at first supplied by association with any emotion. Young children do not tremble, but go into convulsions under the circumstances that would induce excessive trembling in adults. Trembling is caused not only by fear, but occasionally also by anger and joy. Mr. Darwin remembers once seeing a boy who had just shot his first snipe on the wing, whose hands trembled so much as to drop the snipe from his hands, but could not be seen to tremble. The music often causes a shiver to run down the backs of some sensitive persons. When animals suffer from an agony of pain, they generally writhe about with frightful contortions. These which habitually use their voices often utter cries or groans. Almost every animal of the body is brought into strong action.

