# The Expression of Emotion in Man and Animals.

From a review in the *Independent* of Mr. Darwin's new work under the above title, we make the following extracts:

Mr. Darwin's objects in this discussion are several. One of these is the demonstration of the fact that the emotional expressions of man are similar to those of some animals, differing only in their greater variety and complexity. Another object is to show how the modes of expression have originated in man or his animal progenitors. In order to do this, he analyzes them, tracing the movements to which expressions of the face and body are due, to their appropriate muscles, nerves, and ganglia. The larger portion of the work is occupied in showing that all expression of emotion, bodily and facial, has had its origin in two ways in accordance with which he classifies them as follows:

"I. *The principle of serviceable associated habits.*—Certain complex actions are of direct or indirect service under certain states of the mind in order to relieve or gratify certain sensations, desires, etc., and whenever the same state of mind is induced, however feebly, there is a tendency, through the force of habit and association, for the same movements to be performed, though they may not then be of the least use. Some actions ordinarily associated through habit with certain states of the mind may be partially repressed through the will, and in such cases the muscles which are least under the separate control of the will are the most liable still to act, causing movements which we recognize as expressive. In certain other cases the checking of one habitual movement requires other slight movements; and these are likewise expressive.

"II. *The principle of antithesis.*—Certain states of the mind lead to certain habitual actions, which are of service as under our first principle. Now, when a directly opposite state of mind is induced there is a strong and involuntary tendency to the performance of movements of a directly opposite nature, though these are of no use, and such movements are in some cases highly expressive." This is simply a part of principle I.

"III. *The principle of actions due to the constitution of the nervous system, independently from the first, of the will, and independently to a certain extent of habit.*—When the sensorium is strongly excited nerve-force is generated in excess, and is transmitted in certain definite directions, depending on the connection of the nerve-cells and partly on habit; or the supply of nerve-force may, as it appears, be interrupted. Effects are thus produced which we recognize as expressive. This third principle may, for the sake of brevity, be called that of the direct action of the nervous system."

As the simple example of the first mode of expression certain movements of the eyes are noticed. Thus we naturally raise the eyebrows when endeavoring to remember something, as we do when looking all round to try to discover some object. We turn the face partly away, and often close the eyes more or less, when rejecting a proposition, as though we do not wish to see an object. Persons sometimes close their eyes from a similar cause, when decribing a painful or horrid sight.

Among lower animals a few points illustrate the proposition very clearly. Thus, every one knows how a cat pushes with its expanded fore feet when pleased by caresses. This is evidently the persistent habit of the kitten which presses the mother's breast when sucking. A dog in creeping on its prey lifts its feet slowly for the purpose of avoiding noise; and when listening attentively to any sound or observing an object of mere curiosity a dog will often from mere habit, stand with a foot elevated in the air. Dogs scratch themselves with their hind legs. It is familiar to everyone that the motion is repeated in the air when the back is being scratched by a man. "Dogs, when they wish to go to sleep on a carpet or other hard surface, generally turn round and round, and scratch with their fore paws in a senseless manner, as if they intended to trample down the grass and scoop out a hollow, as no doubt their wild parents did when they lived on open, grassy plains or in the woods. Jackals, fennecs, and other allied animals in the zoological gardens treat their straw in this manner."

The second class of expressions, or the antithetic, is illustrated as follows: the dog, when approaching an enemy or when filled with a hostile intent, depresses the head, erects the ears and the hair of the back, carries the tail stiffly elevated, and maintains a rigid position as he walks slowly toward the object of his dislike. When, on the other hand, he meets his master his movements and attitudes are remarkably the reverse. Thus the whole body is thrown into flexuous movements, the tail is lowered and wagged from side to side, the hair is no longer erect, and the ears are depressed. The countenance displays plainly the gratification which he feels. This is a case of true antithesis, the flexuous movements having no meaning of themselves, in relation to the occasion of displaying affection and friendship, but being apparently adopted as the extreme reverse of the expression of hostility. The latter are readily explained in accordance with principle first, the positions assumed by the dog being a consequence of muscular contractions, preparatory to an attack on the enemy.

The expressions of the higher animals under emotion are shown by Mr. Darwin to be identical with those of man. In the expression of hostility the object is to strike terror into the enemy by harsh sounds or threatening looks in all animals. In the endeavor to attract the opposite sex the voice and manners assume as much of beauty as possible. In the extremity of suffering the sounds are particularly violent and piercing.

Animals and men erect the hair when much alarmed. This has been often observed in the case of monkeys, where the hair rises over the whole body. The same phenomenon is exhibited by enraged animals. The gorilla, for instance, erects and throws forward his crest of hair, his nostrils are dilated, and under lip thrown down; at the same time he utters his characteristic yell, designed, it would seem, to terrify his antagonist. In dogs the hair is erected through anger and fear, and in cats through fear alone. In the same way birds erect their feathers; and Mr. Darwin gives, in illustration, characteristic figures of the hen and the swan, with expanded wings, tail, etc.

Baboons threaten each other by displaying their teeth by yawning, and not, as the carnivora do, by elevating their lips. Some of them display their anger by striking the ground with one hand, as an angry man strikes the table. Some monkeys grow red in the face when angry, and others pout their lips, just as human children do. An amusing cut of a pouting chimpanzee illustrates the fact. When endeavoring to thread a needle or perform some little action which requires precision, men naturally compress the lips, probably for the purpose of avoiding a disturbance of the object by breathing. Mr. Darwin records his observation of the same movement in a young orang which was sick. It was amusing itself in trying to kill the flies on the window panes with its knuckles. This was difficult, as the flies buzzed about; and at each attempt the lips were firmly compressed and at the same time slightly protruded.

The last eight chapters of the work are devoted to the explanation of the complex expressions of the human face, in accordance with the three principles laid down at the outset of the argument. His explanation of the origin of the expression denoting sorrow is highly curious. In infants almost all forms of discomfort and dissatisfaction are expressed by loud screams and contractions of the muscles of the face. The eyes are tightly closed, so that the skin round them is wrinkled, and the forehead contracted into a frown. The mouth is wide open and the lips retracted in such a manner as to assume a squarish outline. These contractions had already been explained by Sir Charles Bell, by saying that "this is a provision for supporting and defending the vascular system of the interior of the eye from a retrograde impulse communicated to the blood in the veins," under the influence of the violent expirations accompanying laughter, weeping, coughing, or sneezing. For the same reason, a man closes his eyes when blowing his nose. Shedding of tears Mr. Darwin accounts for as follows: "At the same time the spasmodic pressure on the surface of the eye and the distention of the vessel within the eye, without necessarily entailing any conscious sensation, will affect, through reflex action, the lachrymal glands. Finally, through the three principles—of nerve-force readily passing along accustomed channels, of association which is so widely extended in its power, and of certain actions being more under the control of the will than others—it has come to pass that suffering readily causes the secretion of tears without being necessarily accompanied by any other action.

We must pass over his interesting explanations of the expressions denoting high spirits, love, determination, hatred, contempt, guilt, surprise, etc., and pass to his description of blushing. He remarks that "blushing is the most peculiar and the most human of all expressions. Monkeys redden from passion; but it would require an overwhelming amount of evidence to make us believe that any animal could blush. The reddening of the face from a blush is due to the relaxation of the muscular coats of the small arteries, by which the capillaries become filled with blood; and this depends on the proper vasomotor center being affected. No doubt, if there be at the same time much mental agitation, the general circulation will be affected also; but it is not due to the action of the heart that the network of minute vessels covering the face becomes, under a sense of shame, gorged with blood." . . . "We cannot cause a blush by any physical means; . . . it is the mind which must be affected. Blushing is not only involuntary; but the wish to restrain it, by leading to self-attention, actually increases the tendency." Infants never and idiots rarely blush, and women blush much more than men. Blushing is chiefly to be observed on the exposed regions, the face and neck and to some extent the upper part of the chest; hence it is thought that exposure has accustomed the vessels of these regions to more ready contraction and expansion.

All people with light-colored skin blush more or less; while black races exhibit traces of the same trait, and there is reason to believe only differ from others in consequence of the obscurity of the color of the skin.

Blushing is usually accompanied by peculiar movements, especially the aversion of the head or eyes, and also by confusion of mind. On many accounts Mr. Darwin is led to believe that the immediate cause of blushing is a disturbance of the cerebral circulation. The remarkable sympathy between the internal and external capillary circulations renders this explanation highly probable. The mental trait which leads to this disturbance is *self-attention* in its various forms. This attention, he thinks, has had reference in the beginning to personal appearance, and not to moral conduct. He says of it: "Our self-attention is excited almost exclusively by the opinion of others. . . . Every one feels blame more acute than praise. Now, whenever we know or suppose that others are depreciating our personal appearance, our attention is strongly drawn toward ourselves, more especially toward our faces. The probable effect of this will be to excite into activity that part of the sensory nerves of the face, and this will react, through the vasomotor system, on the facial capillaries. By frequent reiteration through numberless generations, the process will have become so habitual, in association with the belief that others are thinking of us, that even a suspicion of their depreciation suffices to relax the capillaries, without any conscious thought about our faces."

Of other expressions of face and body which are evidently purely reflex, and not under control of the will, Mr. Darwin cites sweating and trembling under mental excitement, increased secretion of glands, and non-retention of its contents by the alimentary canal from similar causes.

How completely facial expression is a result of muscular contraction (where color is not an element) is demonstrated by experiments cited, where Dr. Duchenne produced the expressions desired by passing galvanic currents through the appropriate muscles. The muscle of fright is the thin subcutaneous *platysma* of each side of the neck, and the strong downward traction of the whole lower part of the face characteristic of terror may be readily produced by galvanism. At the same time, the eyebrows are elevated by muscular contraction produced by another current, and the expression of horror is so complete as to be recognized by every observer.

—Builders in Paris utilize old sardine boxes by filling them with mortar and using them as bricks to build houses with