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DARWIN ON EXPRESSION.

* The Expression of the Emotions in Man and Animals. By Charles Darwin, M.A., F.R.S. London: Murray. 1872.

[illegible] published in German, we [illegible] that it would have borne the [illegible] Expressionstheorie"—an expression—for it is the mouth [illegible] Darwin is an ardent admirer [illegible], and together they are the [illegible] doctrine of evolution; yet [illegible] more different than the tone of their [illegible]. Mr. Darwin, it has been said, lays down [illegible] for the [illegible] solution of a Kosmos so confi[illegible] as he would give a recipe for making a rice [illegible] without interrupts the confident [illegible] of his [illegible] except that mysterious Un[illegible] with which he will permit no one to be acquainted than himself. But Mr. Darwin [illegible] has the [illegible], and nowhere more conspicuously than in the present book, to say, "I do not [illegible]." Here, in treating the genesis of subtle and [illegible] expression, he constantly confesses that he is standing in the presence of that [illegible] he cannot explain. He has laid down [illegible] which we shall speak presently, [illegible] account for much, and in [illegible] of time may prove to be the key to unlock [illegible] mysteries; but he admits, over and over [illegible], that in his own hands at least they are far [illegible] powerful. Probably tells his readers that [illegible] book is only a first approach to a difficult and [illegible] subject by the way of the evolution theory—[illegible] collection of observations which may one day [illegible] the basis of a more exact and exhaustive [illegible] than he is now able to construct. It is the [illegible] theory over again. Your scientist is the man who [illegible] is sure that his new calculus will untie every [illegible] while the true philosophic modestly and [illegible] lays bare his head before the infinite subtlety [illegible] and uniformity of nature.

Mr. Darwin's observations on this interesting subject go back to the year 1838; but it is only at a comparatively recent period that it occurred to him [illegible] complete and methodical his researches. He has [illegible] had for information, in many quarters; he has [illegible] studied the expressions of infants, in whom simple [illegible] and natural and unrestrained vent, and of [illegible] people, who likewise are under no artificial [illegible] of mind in this respect. He has collected opinions [illegible] with regard to photographs of faces, in which facetitious [illegible] impressions had been produced by galvanism. The [illegible] of great painters and sculptors he has found [illegible] be of little use, the strength of expression in [illegible] works being modified by a regard to principles [illegible] beauty. He has sent out a string of queries to [illegible] in all parts of the world with a view of [illegible] ascertaining how far expressions common to civilised [illegible] persons are also to be traced in savage races. And [illegible] has paid minute attention "to the expression of [illegible] several passions to some of the commoner [illegible] animals. And this," he goes on to say, "I believe [illegible] to be of paramount importance, not of course for [illegible] telling how far in such certain expressions are [illegible] characteristic of certain states of mind, but as [illegible] affording the safest basis for generalisation on the [illegible] nature or origin of the various movements of expression. In observing animals we are not so likely to [illegible] be misled by our imaginations; and we may feel [illegible] sure that their expressions are not conventional."

We have in these last words the point of contact between this book and Mr. Darwin's [illegible] researches. He not only believes that the [illegible] of expression can be satisfactorily accounted [illegible] for only by the theory of evolution, but that, [illegible] conversely, they may be fairly adduced as a buttress [illegible] to that theory, if indeed it needs any. In a passage [illegible] which we have already extracted, he says, "All [illegible] authors who have written on expression, with [illegible] the exception of Mr. Spencer—the great expounder [illegible] of the principle of evolution—appear to have been [illegible] firmly convinced that species, man of course included, came into existence in their present condition." Sir C. Bell, being thus convinced, maintains that many of our facial muscles are 'purely [illegible] instrumental in expression,' or are 'a special provision' for this sole object. But the simple fact [illegible] that the Anthropoid apes possess the same facial [illegible] muscles as we do, renders it very improbable that [illegible] these muscles in our case were exclusively for expression, for no one, I presume, would be inclined [illegible] to admit that monkeys have been endowed with [illegible] special muscles solely for exhibiting their hideous [illegible] grimaces. Distinct uses, independently of expression, can indeed be assigned with much probability to almost all the facial muscles" (p. 20). We [illegible] not a word to say in this connection against [illegible] the evolution theory as applied to the origin of [illegible] the uses for which is certainly strengthened [illegible] by many of the facts and arguments of this [illegible] book. But we confess that we hardly see the force [illegible] of Mr. Darwin's argument in the passage which we have quoted. "We cannot," he observes, "agree with Sir Charles Bell's statement, that the facial muscles in man were specially made for purposes of expression; and we think the great anatomist was wrong in saying that they were solely made for that purpose, as it is always a mistake to suppose that we can exhaust the whole meaning of an organ or a natural contrivance. But how does Mr. Darwin mend the matter by saying that "distinct uses, independently of expression, can indeed be assigned with much probability, for almost all the facial muscles?" Is it not as ideological to say that the muscles of the mouth were meant to masticate food, as to express rage? May not each of these functions have a similar, though unequal, relation, to the preservation of the species? And has any evolution philosopher a right (unless indeed, which we believe to be the case, he cannot help it) to talk of uses at all, whether of the purely material or the more intellectual kind? As to whether the facial muscles of monkeys were partly intended to enable them to make hideous grimaces is a question, the settlement of which we must postpone till we can look at it with monkeys' eyes. What a philosopher calls hideous grimaces, a chimpanzee, if it could speak, might designate by another name. Nothing is more certain than that animals understand little more than the simplest elements of human expression, and that we are equally ignorant in regard to them.

It is impossible to give an analysis, within the limits to which we are confined, of a book which is made up of innumerable acute observations, applied with more or less confidence to explain the methods in which the more delicate emotions find expression. But Mr. Darwin himself lays down three general principles, under one or other of which he strives to bring all his facts. These principles we proceed to state, adding to each explanatory instances of as characteristic a sort as we can find. So rich is interesting remark, in curious observation, in acute criticism, is Mr. Darwin's book, that our only difficulty will be that of choice.

"The first of these principles," says Mr. Darwin, in the summary with which he concludes his book, "is, that movements which are serviceable in gratifying some desire, or in relieving some sensation, if often repeated, become so habitual, that they are performed, whether or not of any service, whenever the same desire or sensation is felt, even in a very weak degree" (p. 348). For instance, people shut their eyes in describing a frightful sight, as though they actually saw it. "I have caught myself," says Mr. Darwin, "when thinking in the dark of a horrid spectacle, closing my eyes firmly." Again, "I noticed a young lady earnestly trying to recollect a painter's name, and she first looked to one corner of the ceiling and then at the opposite corner, arching the one eyebrow on that side, although of course there was nothing to be seen there" (p. 33). "Persons cutting anything with a pair of scissors may be seen to move their jaws simultaneously with the blades of the scissors. Children learning to write often twist about their tongues, as their fingers move, in a ridiculous fashion" (p. 34). Many such actions, especially if they be of a serviceable kind, pass into the reflex stage, and, like coughing and sneezing, become independent of the will. They are thus peculiarly liable to survive, in the shape of actions or gestures, which have no further use than the expression of emotion. Take, for instance, the start, with which, originally, we quickly avoid a danger, but which comes at last to signify no more than astonishment at some unexpected piece of news. So a dog, going to sleep on a carpet, turns round and round, because his wild parents once did so, when stopping out a place to live in, on soft sand, or among long grass. Horses nibble one another when they want the skin irritated, and therefore "when a horse is much tickled, as when curry-combed, his wish to bite something becomes so intolerably strong that he will clatter his teeth together, and though not vicious, bite his groom. At the same time, from habit, he closely depresses his ears, so as to protect them from being bitten, as if he were fighting another horse" (p. 45).

The "second principle is that of antithesis. The habit of voluntarily performing opposite movements under opposite impulses has become firmly established in us by the practice of our whole lives. Hence, if certain actions have been regularly performed, in accordance with our first principle, under a certain frame of mind, there will be a strong and involuntary tendency to the performance of directly opposite actions, whether or not these are of any use, under the excitement of an opposite frame of mind" (p. 348). Nothing, for instance, can be more opposed than a dog's attitude in approaching a hostile dog and that with which he greets his master: then, upright gait, head raised, tail erect, and rigid; hair bristling, ears pricked forward, eyes fixed; now, body crouching, or fawning, tail lowered and wagging, hair smooth, ears depressed, lips hanging loosely. In the same way, though the gestures of the cat are quite different from those of the dog, the same principle of antithesis may be observed in the contrast between its attitude when ferocious or when pleased. Mr. Darwin ascribes to the operation of this principle the gesture which we call "shrugging the shoulders." When a man does this, he at the same time turns his elbows in and his hands out, displaying meanwhile the separated fingers. Other associated movements are the elevation of the eyebrows and the partial opening of the mouth. What does this express but depreciation, puzzlement (real or affected), a genuine or a feigned impotence? The man seems to say—"What do I know about it? How can I help it? What on earth do you ask me for?" And the ingenious explanation of this attitude which Mr. Darwin gives is, that it is the antithesis of the attitude proper to attack. The man cannot strike; he cannot ward off a blow; he is completely defenseless. Were he prepared to hold his own, his eyes would be partly closed, his lips firmly set, his hands clenched, his arm in a posture of guard across his chest. The necessity of self-defence naturally suggests these gestures; the feeling or the affectation of defencelessness the exact opposite.

The "third principle is the direct action of the excited nervous system on the body, independently of the will, and independently, in large part, of habit. Experience shows that nerve force is generated and set free, whenever the cerebro-spinal system is excited. The direction which this nerve force follows is necessarily determined by the lines of connection between the nerve cells with each other and with various parts of the body. But the direction is likewise much influenced by habit, inasmuch as nerve force passes readily along accustomed channels." (p. 349). Both fear and joy produce trembling. The secretions are affected by strong emotions. No fact is more familiar than the way in which the beating of the heart, which is beyond the control of the will, answers to the stimulus of the moment. When a man is in great agony perspiration streams down his cheeks. Rage reddens the face, quickens the circulation, makes the chest heave and the nostrils quiver, gnashes the teeth, affects the voice. These manifestations may be repressed by strong determination, but in different proportions, as the muscles which produce them are more or less subject to voluntary control. A man in a passion, possibly, does not roll his eyes, or clench his teeth, but he cannot prevent his heart from beating more quickly, or a brief spasm from passing across his face. Tears will come into the eyes when the facial muscles are impassive—for the lachrymal glands are independent of the will. "A hungry man, if tempting food is placed before him, may not show his hunger by any outward gesture, but he cannot check the secretion of saliva."

Whoever is accustomed to reflect on the complexity of all human actions, especially when the new doctrine of hereditary habit is taken into account, will be prepared to hear that very few of the peculiarities of human expression can at all be accounted for without the conjoint help of all these principles. Let us take the case of anxiety, grief, dejection. "The circulation," says Mr. Darwin, "becomes languid, the face pale, the muscles flaccid; the eyelids droop, the head hangs on the contracted chest; the lips, cheeks, and lower jaw all sink downwards from their own weight. Hence all the features are lengthened, and the face of a person who hears bad news is said to fall. . . . After prolonged suffering, the eyes become dull and lack expression, and are often slightly suffused with tears. The eyebrows not rarely are rendered oblique, which is due to the inner ends being raised. This produces peculiarly formed wrinkles on the forehead, which are very different from those of a simple frown, though in some cases a frown alone may be present. The corners of the mouth are drawn downwards, which is so universally recognised as a sign of being out of spirits, that it is almost proverbial." (pp. 178-9). Now, the two points of peculiarity here are certain pyramidal wrinkles in the forehead, caused by the elevation of the inner ends of the eyebrows, and the drawing downwards of the corners of the mouth. These wrinkles are caused by the opposite action of certain muscles—that of the "orbicularis, corrugator, and pyramidale of the nose, which together tend to lower and contract the eyebrows, being partially checked by the more powerful action of the central fascia of the frontal muscle." "These muscles when thus in conjoint yet opposed action, may be called, for the sake of brevity, the 'grief muscles.' Now why should this motion, together with the depression of the corners of the mouth express grief and dejection?" It is general; in some families it is hereditary in a very marked form; it is common to many races of mankind; it is universally understood. We must refer our readers to Mr. Darwin's own pages for an account of the process of observation and reflection which put him on the track of the explanation which we are about to give. We can deal here only with the results:—"When children scream or cry out they contract, as we know, the orbicular, corrugator, and pyramidal muscles, principally for the sake of compressing the eyes, and thus protecting them from being gorged with blood, and consequently from pain." We have all done this, and a long line of pugilists before us, and we still involuntarily, under the influence of distress, make slight contractions of the muscles in question. But the pyramidal muscles are least under the control of the will: they are checked, if at all, by the fascia of the frontal muscle, and the result is the peculiar puckering up of the forehead, for the reason of which we are in search. "In all cases of distress, whether great or small, our brains tend, through long habit, to send an order to certain muscles to contract, so that we were still infants, on the point of screaming out. But this order we, by the weakness power of will, and through habit, are able partially to counteract, although this is effected unconsciously, as far as the means of counteraction are concerned." Then, as to the depression of the corners of the mouth. Infants, when they scream, firmly contract the muscles round the eyes; the upper lip is drawn up; and, as the necessities of the case make them keep their mouths open, the depressors of the lower lip are also called into strong action. Now, Dr. Duchenne is quite sure, from prolonged observation, that these depressors are among the muscles of the face least dependent on the will. "As the depressors have been repeatedly brought into strong action during infancy, in many generations, nerve force will tend to flow, on the principle of long associated habit, to these muscles, as well as to various other facial muscles, whenever in after life even a slight feeling of distress is experienced. But as the depressors are under what less under the control of the will than most of the other muscles, we might expect that they would often slightly contract, whilst the others remained passive. It is remarkable how easily a depression of the corners of the mouth gives the countenance an expression of low spirits or dejection, so that an extremely slight contraction of these muscles would be sufficient to betray this state of mind" (p. 195).

We will take as another instance of the way in which Mr. Darwin manipulates his facts and principles the case of blushing, which he pronounces to be "the most distinctively human of all methods of expressing feeling." "The reddening of the face from which is due to the relaxation of the tunics or coats of the small arteries by which the capillaries become filled with blood" (p. 319). And the great peculiarity of this is "that we cannot cause a blush . . . by any physical means—that is by any action of the body. It is the mind which must be affected. Infants do not blush; but the faculty is soon developed. Idiots rarely blush; women blush more than men, the young than the old. Laura Bridgeman, born both deaf and blind, blushes. The tendency is hereditary, and even peculiarities in the manner of blushing are transmitted. Generally, blushing is confined to the face, ears, and neck, but, in some cases, other parts of the body are similarly affected, while in others there is a feeling as if the trunk and limbs grew hot and tingled. The fact that blushing is thus local, seems to depend "on the face and adjoining parts of the skin having been habitually exposed to the air, light, and alternations of temperature, by which the small arteries not only have acquired the habit of readily dilating and contracting, but appear to have become unusually developed in comparison with other parts of the surface" (p. 315). "Blushing is evident in all the Aryan nations of Europe, and to a certain extent with those of India." The Semitic races blush freely; the Chinese rarely. The habit is strong with the Polynesians, and not unknown among the North American Indians. The Indians in the hot and damp regions of South America do not seem to blush, as Humboldt quotes, without protest, the Spanish saying—"How can those be trusted, who know not how to blush?" Negroes blush black, so might be expected from the fact that the cause of blushing is an increased supply of blood to the skin. The Kaffirs and the Australians are said never to blush; but the evidence is not quite unanimous or conclusive.

Blushing is naturally accompanied by gestures which imply the wish for concealment, arising out of the emotion of shame. We turn our eyes downward or away; we do not wish to meet the gaze of the persons with whom we are speaking. If we desire to hide and counteract this tendency, and force ourselves to meet another's gaze, a blinking motion of the eyes is the result. With excessive blushing also goes some degree of mental confusion: a fact, the explanation of which probably "lies in the intricate sympathy which exists between the capillary circulation of the surface of the head and face, and that of the brain."

Now, in the states of mind which induce blushing—shyness, shame, modesty—there is one common

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