No 36

THE TIMES, FRIDAY, DECEMBER 13, 1872.

THE EXPRESSION OF THE EMOTIONS.*

Mr. Darwin has in this book carried his favourite method of inquiry into a subject of great popular interest. There is nothing more wonderful in nature than the expressiveness of the human face, nor anything which excites a wider sympathy than the expression of the emotions. The whole charm of art lies in this expression, and no art is so powerful as the dramatic, in which words are interpreted by looks and gestures. Any one who has seen a great play well acted will know that even the most powerful words convey only half their meaning without a visible embodiment. The countenance utters a thousand things which words miss or mar. In delicate natures it is as sensitive as the surface of a lake, and is ruffled or calmed by every breath of feeling. Each shade of passion, from rage to tenderness, from love to hate, from joy to misery, has its peculiar reflection, and the sligitest shades of variation are perceptible. A glance, a blush, a smile, a tear will convey in an instant the thought which a poet would labour for hours to express, and which he would, after all, fall short of. It cannot but be a most difficult inquiry to investigate this wonderful instrument in all the details of its operation, and to analyze its mechanism. Its movements are as fleeting as a ripple on the water, and so slight that they can only be felt and not observed. A difference, Mr. Darwin confesses, may be clearly perceived, and yet it may be impossible to state in what the difference consists. Great physiologists have given up the whole subject as inexplicable, and others have been content with the assumption that the expressive power of the face was specially created. This mode of eluding the difficulty is, of course, peculiarly obnoxious to Mr. Darwin; but his inquiry would have been equally legitimate and equally practicable apart from his special theories. The origin of the face and its muscles does not alter the facts of their actual existence; and it is perfectly possible to seek illustrations of human emotions by analogies in the lower animals without admitting that the higher features were developed from the lower. But, whatever one thinks of Mr. Darwin's theory, it must be admitted that his great powers of observation are as conspicuous as ever in this inquiry. During a space of more than 30 years he has, with exemplary patience, been accumulating information from all available sources. He has observed infants, as exhibiting many emotions with extraordinary force and simplicity; and he has most ingeniously deduced some of our most complex expressions from their earliest cries. He has studied the insane, as being liable to the strongest passions and as giving uncontrolled vent to them. He has been permitted by the kindness of a French physician, Dr. Duchenne, to make free use of some valuable experiments on the artificial production of various expressions by galvanizing the facial muscles. He has examined the expression of emotions in great works of art, but it is remarkable that he has found on the whole that great painters and sculptors subordinate accuracy to beauty, and he has not profited by their aid as much as he expected. He has made most interesting inquiries respecting the prevalence of the same modes of expression among the various races of mankind, especially among those who have associated little with Europeans. For this purpose he circulated a number of queries and has received 36 answers from different observers, several of them missionaries, or protectors of aborigines. It follows from the information thus acquired that the same state of mind is expressed throughout the world with remarkable uniformity—a fact, as he observes, in itself interesting as evidence of the close similarity in bodily structure and mental disposition of all the races of mankind. In the last place, he has attended closely to the expression of the several passions in some of the commoner animals, and he believes observation on this point to be of paramount importance, as we may be sure that such expressions are not conventional, and we are less likely to be biased by our imagination.

The result of all this is undoubtedly the collection of a mass of minute and trustworthy information which must possess the highest value, whatever may be the conclusions ultimately deduced from it. To artists and actors this work must become a sort of text-book on the facts of facial and bodily expression, and the details are full of interest to ordinary readers. There are some woodcuts and photographs at the end, descriptive of the feelings of pain, horror, and agony, which will mar the pleasure of the book to sensitive readers, and which might perhaps occasion a distressing shock under some circumstances. But if these could be kept out of sight, we should recommend to mothers a series of photographs of sulky, screaming, and smiling children, which might enable them, in the midst of some of their less agreeable experiences, to find relief in scientific observation. A crying child to Mr. Darwin is as interesting a phenomenon as the young Hippopotamus to Mr. Frank Buckland. The result of the book, however, we venture to think, is less satisfactory when we pass from the facts to the explanations and inferences. Mr. Darwin has, indeed, thrown great light on a few of the chief expressions of the face, and laid bare in great measure the mechanical means by which the emotions are written on the countenance. But when he touches on the agencies by which this mechanism is put in motion, or, rather, when he seems to assume that all expression is little more than the residue of a kind of mechanical habit, he leaves us with the impression that the most interesting and most difficult portion of his subject remains unexplained. His thorough-going "evolutionism" tends to eliminate from the developed human form any relations beyond those of the bare mechanism of animal existence. That mind and body are so intimately connected that feelings can exert of themselves a direct sympathetic influence on the bodily frame seems to be a conception usually beyond his ken. It is interesting to compare the book from this point of view with Burke's *Essay on the Sublime and Beautiful*. We are somewhat surprised that Mr. Darwin makes no reference to that essay, though much of its inquiry is closely allied to his subject, and though in many respects it is not unworthy of Burke's genius. We will quote presently a particular instance of the difference between the two essayists; but the peculiarity of Burke is that, while examining with care the physical action of the sublime and beautiful, he never forgets that the mind exerts a direct sympathetic influence on the body. It is very difficult to resist the evidence of consciousness that such an influence exists; but even in cases where it would appear most obvious, Mr. Darwin goes out of his way to find a far more artificial explanation. He leaves the reader with the impression that there is no immediate and inherent sympathy between the emotions of the mind and the expressions of the countenance, and such a conclusion will never, we think, commend itself to the consciousness of mankind.

As the result of his observation, Mr. Darwin lays down three Principles, which he considers account for most of the expressions and gestures involuntarily used by man and the lower animals under the influence of various emotions and sensations. The first he calls "The Principle of Serviceable Associated Habits." Certain complex actions are of direct or indirect service, in order to relieve or gratify certain sensations and desires, and whenever the same state of mind is produced, however feebly, there is a tendency through the force of habit and association for the same movements to be performed, even though they may not then be of the least use. The second Principle is that of "Antithesis." Certain states of mind, according to the first principle, tend to certain habitual actions. Now, when a directly opposite state of mind is induced, there is a strong and involuntary tendency to perform movements of a directly opposite nature, although these are of no use. The third Principle is that 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." More briefly, it is the Principle of the direct action of the Nervous System. When the sensorium is strongly excited, nerve force is generated in excess, and must expend itself in some direction. There is so much superfluous electricity, so to speak, in the machine, and it escapes by the most convenient conductor. Mr. Darwin first discusses these Principles generally, and then applies them in detail first to animals and then to the various emotions of man; but for the purpose of a brief review it will be more convenient if we take each principle by itself, collecting under each a few illustrations of the manner in which Mr. Darwin applies it.

The Principle of Serviceable Associated Habits is simply an interesting extension of the familiar observations on the force of Habit. The power of association is admitted by every one, and is independent to an extraordinary extent of the action of the will. A decapitated frog cannot, of course, feel, and cannot consciously perform any movement. Yet if a drop of acid be placed on the lower surface of the thigh of a frog in this state, it will rub off the drop with the upper surface of the foot of the same leg. If this foot be cut off, it cannot thus act, and after some fruitless efforts it gives up trying in that way, seems restless, as though it was seeking some other way, and at last makes use of the foot of the other leg, and succeeds in rubbing off the acid. It is scarcely credible, says Mr. Darwin, that movements so well coordinated for a special purpose were not at first performed voluntarily, and by long-continued habit rendered so natural as at last to be performed unconsciously, or independently of the brain. Cats dislike wetting their feet, and when they wet them shake them violently. Mr. Darwin observed that on some water being poured into a glass close to the head of a kitten, it immediately shook its feet in the usual manner. The habitual movement was falsely excited by an associated sound, instead of by the sense of touch. Another most curious illustration is derived from the trick of young, and sometimes of old, cats, which, when comfortably lying on a warm shawl or other substance, pound it quietly and alternately with their fore feet, their toes being spread out and claws slightly protruded "precisely as when sucking their mother." That it is the same movement seems clearly shown by their often at the same time taking a bit of the shawl into their mouths and sucking it, generally closing their eyes and purring from delight. Animals which fight with their teeth draw their ears back, in order to keep them out of the way, and consequently, by the force of association, they always put their ears back when they are enraged. But cattle, sheep, or goats, which never use their teeth in fighting, do not employ this gesture. But the most interesting application of this Principle is afforded by Mr. Darwin's investigation of the expressions of grief and suffering. He starts from the expressions of a crying infant. When screaming, "the eyes of infants are firmly closed, so that the skin round them is wrinkled and the forehead is contracted into a frown. The mouth is widely opened, with the lips retracted in a peculiar manner, which causes it to assume a squarish form, the gums or teeth being more or less exposed." Now these complex movements may be, in the first place, reduced to the necessary consequence of the contraction of the circular muscles which surround the eyes. In intimate connexion with these, other muscles proceed from the corners of the eyes to those of the upper lip. Consequently, when an infant compresses its orbicular muscles it necessarily draws up its upper lip. But at the same time it wants to scream, and, therefore, to keep the mouth widely open, and for this purpose it instinctively draws down some muscles at the angles of the mouth, which depress its lower lip. What, then, occasions the compression of the orbicular muscles? Mr. Darwin, after careful inquiry through Mr. Bowman and one of the most distinguished ophthalmists of the Continent, accepts the explanation of this movement suggested by the late Sir Charles Bell. Every violent act of "expiration," whether in weeping, coughing, laughing, or sneezing, tends to communicate a retrograde impulse to the blood in the veins. Consequently, the blood not only extends the vessels, but is regurgitated into the minute branches. Now the vessels of the eye are so delicate that this exposes them to considerable danger, and nature instinctively protects them by applying the muscles as a sort of *tourniquet*. "If we separate the eyelids of a child to examine the eye, while it cries and struggles with passion, by taking off the natural support to the vascular system of the eye, and means of guarding it against the rush of blood then occurring, the conjunctiva becomes suddenly filled with blood, and the eyelids everted." This protective contraction of the muscles round the eyes may be observed during other acts which involve violent "expiration," and according to Professor Donders, the Continental authority just referred to, the vessels are imperilled both by an increased pressure of blood in the arteries, and by the return of the blood in the veins being impeded. Hence we may refer the expressions under consideration to the simple impulse of screaming. Assuming that impulse, all the expressions of an infant's face are accounted for. The secretion of tears appears to be another consequence. This point is rendered rather more obscure by the fact that very young infants do not weep, and it appears that children have in some degree to learn to cry. But it would seem that tears are called into play for the protection of the eye against the lodgment of foreign substances, and at length they flow after any blow or inconvenient pressure. Thus the contraction of the eyelids, together with the distension of the ocular vessels in screaming, would stimulate the lachrymal glands; and finally the force of association, the excitement of nerve force, and the inability of the will to control the glands as easily as the muscles, may lead to the secretion of tears in after life, even when the muscular movements of infancy are restrained.

Mr. Darwin then carries this explanation a step further to account for a peculiar expression assumed by the countenance under the pressure of grief. The eyebrows under such circumstances become oblique, the inner ends being raised; the corners of the mouth are drawn downwards, and very peculiar wrinkles are produced on the forehead. Instead of wrinkles extending across the whole breadth of the forehead, the muscles in the centre alone are contracted. A mark is thus produced on the forehead which has been compared to a horseshoe; but the furrows more strictly form three sides of a quadrangle. This expression is so distinct that the muscles which produce it may be called for brevity "the "grief muscles," and the power to bring them freely into play is an hereditary faculty. Mr. Darwin had for years been utterly perplexed with respect to the cause of this expression, when, on one very bright day, with the sun behind him, he met on horseback a girl whose eyebrows, as she looked up at him, became extremely oblique, with the proper

© Reproduced with the permission of Cambridge University Library

furrows on her forehead. On his return home he made his children look up at a bright sky, and found the same expression developed on their faces. There was an evident struggle between the frontal muscle of the forehead and the several muscles which serve to lower the eyebrows and close the eyelids. Under the bright light there was an impulse to close the eyes, which was counteracted by the effort to see. Mr. Darwin then observed a similar struggle in children when they are endeavouring either to prevent a crying fit from coming on or to stop crying. Here, then, he believes, is the key to the problem why the central part of the frontal muscle and the muscles round the eyes contract in opposition to each other under the influence of grief. We have all of us, as infants, repeatedly contracted the latter set of muscles in order to protect our eyes when screaming; our progenitors before us have done the same during many generations; and though, with advancing years, we easily prevent the utterance of screams, we cannot, from long habit, always prevent a slight contraction of the muscles. The muscles along the summit of the nose, which contract at the same time as the orbiculars, are still less under the control of the will, and their contraction can be checked only by the antagonistic contraction of the central portion of the frontal muscle. The result which necessarily follows is the oblique drawing up of the eyebrows, the puckering of their inner ends, and the formation of rectangular furrows on the middle of the forehead. In short—"In all cases of distress, whether great or small, our brains tend, through long habit, to send an order to certain muscles to contract, as if we were still infants on the point of screaming out; but this order we, by the wondrous power of the will, are able partially to counteract, although this is effected unconsciously, so far as the means of counteraction are concerned." It is impossible not to admire the minuteness of this investigation, and yet it is difficult to rest satisfied with the result. Mr. Darwin may have observed with accuracy the mechanical relations between the several contracting muscles, but there may, nevertheless, be a more intricate relation than he allows between the emotion of grief and the impulse communicated to the muscle. It is not easy to believe that so powerful an emotion has no other direct impulse on the face than to excite a rudimentary screaming fit. It would seem, too, that, if Mr. Darwin's explanation be correct, the peculiar frown of grief ought to be specially associated with an effort to restrain the expression of the emotion, whereas we should think it was most strongly developed where the emotion was most passionately and consciously expressed. Mr. Darwin seems to us to have proved too much. He has debarred himself from taking any account of the effects which one would think must be produced by the extreme excitement of the brain under a strong emotion. If consciousness can afford any trustworthy evidence at all, it certainly bears witness to some direct sympathetic relation between mental suffering and a sense of contraction and pressure over the brow and eyes. Mr. Darwin's observations can by no means be excluded from contributing towards the complete explanation of which we are in search, but we cannot believe his hypothesis to be complete in itself. Another very curious application of this principle seems less open to exception. The expression of affirmation by nodding and shaking the head, though not universal, is very common, and Mr. Darwin suggests that this also may be traced to the movements of infancy. With infants the first act of denial consists in refusing food, and they constantly do so by withdrawing their heads laterally from the breast or from anything offered in a spoon; while, in accepting food and taking it with their mouths, they incline their heads forward. In accepting food there is only a single movement forward, and thus a single nod implies an affirmation. On the other hand, in refusing food, especially if it be pressed on them, they are wont to move their head several times from side to side, as we do in shaking our heads in negation. The part played by this Principle in confirming, intensifying, and modifying expressions produced by other means is, however, perhaps its most important function.

The Principle of Antithesis appears to us far more open to criticism. It may be questioned whether it is requisite in explaining any of the expressions to which it is applied by Mr. Darwin, and it is equally doubtful whether it explains these satisfactorily. Mr. Darwin's most vivid illustration of this principle is derived from the example of dogs. If a dog approaches a stranger in a hostile frame of mind, he walks upright and very stiffly; his head is slightly raised or not much lowered; the tail is held erect and quite rigid, the hairs bristle, the pricked ears are directed forwards, and the eyes have a fixed stare. These actions follow from the dog's intention to attack his enemy, and are intelligible from their serviceableness. But let the dog suddenly discover that the stranger is his master, and his whole bearing is completely and instantaneously reversed. Instead of walking upright, the body sinks downwards or crouches, and is thrown into "flexuous" movements; the tail is lowered and wagged from side to side, the hair instantly becomes smooth, the ears are depressed and drawn backwards, and the lips hang loosely. Now not one of these movements, Mr. Darwin says, is of the least direct service to the animal. They are explicable, he thinks, solely by being in complete opposition or antithesis to the attitude and movements which are expressive of anger. He gives an amusing instance in a dog of his own, which was fond of going out walking with him. He showed his pleasure by trotting before his master with high steps, head raised, and tail aloft. Not far from the house a path branches off to the hothouse, which Mr. Darwin used often to visit, and whenever he turned aside on this path an instantaneous and complete change of expression came over the dog. His look of dejection was laughable enough to be known in the family as his "hothouse face." The head drooped, the body sank a little and remained motionless, and the ears and tail fell suddenly down. Every detail of his attitude was in complete opposition to his former joyful and dignified bearing, and can be explained, as Mr. Darwin thinks, in no other way except through the principle of Antithesis. It is strange that he immediately adds a suggestion which would seem to explain the matter far more simply:—"Had not the change been so instantaneous, 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 the whole muscular frame." "This," says Mr. Darwin, "may have been in part the cause." It is hard to see why it should not be the whole cause. Why should the principle of Antithesis act more instantaneously than lowered spirits? The latter at least, as Mr. Darwin admits, is a known cause, and by the rules of philosophizing it ought to be positively proved insufficient before an unknown cause is assumed. An adequate explanation of the attitude of a dog "in a humble and affectionate frame of mind" seems equally attainable without recourse to this new hypothesis. Burke, in the Essay we have referred to, observes that the feelings of affection and complacency are always associated with an inward sense of melting and languor, and corresponding expressions of bodily relaxation. "The head reclines something on one side; the eyelids are more closed than usual; the mouth is a little opened, and the breath drawn slowly, with now and then a low sigh; the whole body is composed and the hands fall idly to the sides." "There are," he says, "all the appearances of a relaxation of the whole system; and a relaxation somewhat below the natural tone seems to be the cause of all positive pleasure." In all times and in all countries the expression has been common of "being softened, relaxed, enervated, dissolved, melted away by pleasure." There is, in other words, a sentiment in the mind exactly analogous to the relaxation presented by the body. Is it not more simple to suppose that the bodily effect ensues directly than that it is produced circuitously by contrast with some opposed sensation? The idea of the dog performing a multitude of contrasted movements over his whole body in order to express an antithesis of feeling is infinitely more complex than the notion that he is yielding to a single relaxation of the system. Mr. Darwin displays sometimes a fondness for gratuitous theories. Thus, he says that as the power of intercommunication is certainly of high service to many animals, there is no *a priori* improbability in the supposition that gestures manifestly of an opposite nature to those by which certain feelings are already expressed should at first have been voluntarily employed under the influence of an opposite state of feeling. There seems to us a high degree of improbability in the assumption. But, in any case, where is the use of making it when Mr. Darwin has immediately to add that, "nevertheless, it is more than doubtful whether any of the cases which come under our present head of Antithesis have thus originated?" We should have thought a philosopher would have spared himself the trouble of inventing doubtful hypotheses to account for non-existent facts. With mankind Mr. Darwin considers the best instance of a gesture standing in direct opposition to other movements is that of shrugging the shoulders. This gesture expresses impotence or an apology—something which cannot be done or cannot be avoided. The head is thrown a little on one side, the eyebrows are raised, and the mouth opened. With various modifications, this is a gesture natural to mankind, and has been observed alike among Europeans, Hindoos, the hill tribes of India, Malays, Micronesians, Abyssinians, Arabs, Negroes, Indians of North America, and apparently the Australians. None of the movements denoted are of the least service, but they are in antithesis to the movements of a man who is disposed to show resistance. A man who will not submit to some injury holds his head erect, squares his shoulders, and expands his chest. He clinches his fists and puts his arms in the proper position for attack and defence; he frowns and closes his mouth. The helpless man, on the contrary, contracts the muscles on his forehead which are antagonistic to those which cause a frown, and thus raises his eyebrows; he releases at the same time the muscles about the mouth so that the lower jaw drops. Now, this antithesis may in point of fact be very complete; but what need is there to assume that the reason why one set of movements is performed is because they are in antithesis to the others? Why should not a helpless state of mind tend directly to produce a helpless attitude of body? If the attitude in question were not helpless, Mr. Darwin's principle might be welcome. But if it be, it seems sufficiently explained by the direct action of sympathy. Commenting on the shedding of tears during excessive laughter, Mr. Darwin quotes, without protest, a remark by Sir Joshua Reynolds which seems to involve a grave objection to this Principle. "It is curious," says Sir Joshua, "and it is certainly true, that the extremes of contrary passions are, with very little variation, expressed by the same action," and he instances the frantic joy of a Bacchante and the grief of a Mary Magdalen. On Mr. Darwin's supposition, contrary passions should be expressed by contrary actions. His explanation of surprise on this principle seems equally unsatisfactory. A man in an ordinary frame of mind, doing nothing and thinking of nothing in particular, usually keeps his two arms suspended laxly by his sides, with his hands somewhat "flexed," and the fingers near together. Therefore, to raise the arms suddenly, to open the palms flat, and to separate the fingers are, says Mr. Darwin, movements in complete antithesis to those preserved under an indifferent frame of mind, and they are, in consequence, unconsciously assumed by an astonished man. We are perplexed to know why either the two sets of gestures or the two frames of mind should be described as antithetical. The one is different from the other; but there seems no direct opposition between them. Here, again, it would seem more natural to seek the explanation in some direct influence of a mental shock on the muscles.

The most striking illustration of the third Principle—that of the direct influence of the Nervous System on the body—is afforded by the loss of colour in the hair, which has occasionally been observed after extreme terror or grief. One authentic instance has been recorded, in the case of a man brought out for execution in India, in which the change of colour was so rapid that it was perceptible to the eye. The trembling of the muscles is another illustration. It cannot have been acquired by the will, and can never have been of service. But any strong excitement of the nervous system seems to interrupt the steady flow of nerve force to the muscles. Mr. Darwin thinks, however, that actions due to this cause are often combined with others which follow from the first Principle—namely, that actions which have often been of direct or indirect service under certain states of the mind are still performed under analogous circumstances through mere habit. For instance, under the powerful emotion of Rage, the action of the heart is accelerated, the respiration is laboured, the chest heaves, the nostrils quiver, the whole body trembles, the teeth are ground together, and the muscular system is stimulated to violent and almost frantic action. But it is to be observed that the gestures of a man in this state usually differ from the purposeless writhings and struggles of one suffering from an agony of pain, for they represent more or less plainly the act of striking or fighting with an enemy. Consequently, though all the signs of rage are probably in large part due to the direct action of the excited sensorium, they seem to Mr. Darwin to reflect in some degree an inherited habit of muscular exertion. The erection of the hair on animals under the influence of anger or fear is partly ascribed by Mr. Darwin to this cause. It is effected by the contraction of "minute, unstriped, involuntary muscles." This erection, however, is, in a large number of animals, singularly combined with various voluntary movements, such as threatening gestures, and Mr. Darwin is inclined to believe that the original involuntary movement has been gradually developed and strengthened, in the lapse of generations, by exertion of the attention and will. He speaks of animals "endeavouring to make themselves as dreadful as possible to one another," and, indeed, he often seems to allow to animals a more direct intention in their expressions than he permits to man. The bristling of the hair which is observable in the insane should suggest that the mere action of the Nervous System affords a sufficient explanation of the similar phenomenon in animals. A lunatic has been said to be "a lunatic to his fingers'-ends," and it might be added, says Mr. Darwin, to the extremity of each particular hair. In many lunatic patients it is a sure sign of improvement when their hair ceases to be rough and unmanageable. But the most interesting application made by Mr. Darwin of the principle we are now considering is in the explanation of Blushing, and his conclusions on this subject tend to justify the criticisms we have made on his failure to give sufficient attention to the direct influence of mental action. Blushing, he says, is the most peculiar and 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 under 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 "vaso-motor centre" being affected. We cannot cause a blush by any physical means; it is the mind

© Reproduced with the permission of Cambridge University Library

which must be affected, and the wish to restrain blushing, by leading to self-attention, actually increases the tendency. The young blush more freely than the old, but not during infancy. In most cases the face, ears, and neck are the sole parts which redden; but a blush sometimes extends over the upper part of the chest, and even over the greater part of the body when attention has been drawn to those parts. There is reason to believe that the habitual exposure of the face has induced in the small arteries a greater readiness in contracting and dilating; but as the hands rarely blush this cannot be a sufficient explanation of the fact of blushing being mainly confined to the face. It is common to most, probably to all, the races of man. The skin of negroes becomes darker, and white scars on their faces are reddened. After an interesting discussion of the various occasions of blushing, Mr. Darwin concludes that, whether due to shyness, to shame for a real crime, to shame from a breach of the laws of etiquette, to modesty from humility, or to modesty from an indelicacy, it depends in all cases on the same principle, "this principle being a sensitive regard for the opinion, more particularly for the depreciation of others, primarily in relation to our personal appearance, especially of our faces; and secondarily, through the force of association and habit, in relation to the opinion of others on our conduct." Now Mr. Darwin suggests that attention closely directed to any part of the body tends to interfere with the ordinary and tonic contraction of the small arteries of that part. These vessels, in consequence, become at such times more or less relaxed, and are instantly filled with arterial blood. This tendency will have been strengthened if frequent attention has been paid during many generations to the same part, owing to the force of habit and inheritance. Mr. Darwin gives a considerable body of details to show that mental attention possesses this power of influencing the capillary circulation, and his instances leave little doubt of the possibility of its producing such an effect as blushing. The hypothesis appears extremely probable; and we can only wonder that Mr. Darwin should not have inquired whether some equally direct relation between the brain and the body might not afford an explanation of other expressions he discusses. Intense blushing is, he says, accompanied with some, and often great, confusion of mind, and he attributes this to "the intimate sympathy which exists between the capillary circulation of the surface of the head and of the brain." It is very unlikely that this intimate sympathy between the brain and the head affects nothing but the capillary circulation, or that it is only brought into play by conscious self-attention. If modesty can by this influence cause a blush, why should not grief, by a similar influence, provoke a frown of distress? The question arises, in short, whether this principle of "the direct action of the Nervous System on the body" might not be much further applied than Mr. Darwin has carried it, especially if due regard were paid to any distinction there may be in the specific action of different emotions on the brain.

These examples will afford a fair specimen of Mr. Darwin's investigations, and their value is unquestionable. But we cannot part from the book without expressing our surprise at the failure it often displays to look beyond the mere surface of nature, and its frequent lack of philosophical caution in its inferences. Sometimes, indeed, Mr. Darwin seems to display a kind of incapacity for any but the most mechanical observation. We can only call it astounding, for instance, to find him saying that, "although the emotion of love—for instance, that of a mother for her infant—is one of the strongest of which the mind is capable, it can hardly be said to have any proper or peculiar means of expression." All he can say is that "no doubt, as affection is a pleasurable sensation, it generally causes a gentle smile and some brightening of the eyes. A strong desire to touch the beloved person is generally felt, and love is expressed by this means more plainly than by any other." Yet the deep, yearning, and gentle feeling which breathes in the faces of Raphael's Madonnas must be familiar to every one; and poets have been all mistaken if the love of man and woman has no subtle language of its own. Whoever can recall all the varied and exquisite language of this passion will feel some revulsion at Mr. Darwin's reduction of the whole to the "principle of pleasure derived from contact in association with love"—like the fondness of dogs and cats for rubbing against their masters and mistresses. But what is to be expected from a philosopher who also says that "music has a wonderful power of recalling, in a vague and indefinite manner, those strong emotions which were felt during long-past ages, when, as is probable, our early progenitors courted each other by the aid of vocal tones?" We may trust musicians to appreciate the suggestion that "the thrill or slight shiver which runs down the backbone and limbs of many persons when they are powerfully affected by music" is nothing but the relic of sensations once experienced by an amorous monkey at the call of his mate. This mode of discussing the subtlest emotions of the mind and body is as unphilosophical as it is repugnant to natural feeling. It is incessantly forgotten in the speculations of modern philosophers that a combination of common things in a certain order and proportion may be something entirely different from the things themselves, and may possess qualities utterly different in kind from any other combination. Now that the human frame exists, whatever may be the truth of Mr. Darwin's theories respecting the mode of its development, to assume that the exquisitely refined influences of music are identical in kind with the amorous cries of wild beasts, is the very bigotry of theorizing. There is more truth, even if there be some enthusiasm, in a beautiful passage in one of Dr. Newman's University sermons, in which he contrasts the simplicity of a musician's machinery with the marvellous world of emotion he creates, and asks whether such magic sounds are not the echoes of some higher sphere, and of more than material harmonies. "Can it be," he exclaims, "that those mysterious stirrings of heart and keen emotions, and strange yearnings after we know not what, and awful impressions from we know not whence, should be wrought in us by what is unsubstantial, and comes and goes, and begins and ends in itself? It is not so; it cannot be. No; they have escaped from some higher sphere; they are the outpourings of eternal harmony in the medium of created sound; they are echoes from our Home; they are the voice of Angels, or the Magnificat of Saints, or the living laws of Divine Governance, or the Divine Attributes; something are they, besides themselves, which we cannot compass, which we cannot utter, though mortal man and he, perhaps, not otherwise distinguished above his fellows, has the gift of eliciting them." In speculating on man's material origin natural philosophers seem to lose sight of the complexity of his being as it now exists. We must needs, moreover, enter a remonstrance against the unqualified manner in which Mr. Darwin assumes the truth of his hypothesis respecting the origin of man, and the freedom with which he employs it as a legitimate basis of reasoning. He says, indeed, at the close of his book that the study of Expression "confirms to a certain limited extent the conclusion that man is derived from some lower form, and supports the belief of the specific or subspecific unity of the several races," though in his judgment "such confirmation was hardly needed." For our part we are rather surprised at the small amount of specific analogy he has shown between the expressions of man and of animals. Nobody doubts that the natures of the two are more or less analogous, and consequently in any theory of Expression we should expect to find certain principles of interpretation applicable to both. But with the exception, perhaps, of defiant sneering, which is singularly like the snarl of a dog, none of the expressions he discusses seem to suggest a development from those of the lower animals. A fierce sneer, in which "the upper lip is retracted and the canine tooth exposed on one side alone, Mr. Darwin ventures to say, "reveals man's animal descent;" but when he adds, as a reason, that "no one, even if rolling on the ground in a deadly grapple with an enemy, would try to use his canine teeth more than his other teeth," he seems to cut away his own ground. The canine teeth, as the sharpest and strongest, are surely those which would naturally be used for such a purpose, and if this expression be really a relic of primeval ferocity, it may as easily have been inherited from savage men as from dogs and monkeys. But assumptions of this kind are excusable in a man firmly convinced of the truth of his hypothesis. It is not equally admissible to adduce mere speculations respecting our unknown ancestors as affording a scientific explanation of perplexing facts in ourselves. "Our early progenitors" become in this book quite troublesome by the frequency of their intrusions. It may be a curious, "though, perhaps, an idle speculation," as Mr. Darwin admits, "how early in the long line of our progenitors the various expressive movements now exhibited by man were successively acquired." He furnishes us, however, with a minute sketch of the gradual advance of "our early progenitors" in laughing, weeping, frowning, and pouting; though he is not always on such sure ground as when he says that "our early progenitors, when indignant or moderately angry, would not have held their heads erect, opened their chests, squared their shoulders, and clinched their fists, until they had acquired the ordinary carriage and upright attitude of man, and had learnt to fight with their fists and clubs." But our early progenitors would at least be harmless if kept in those vague regions of speculation. It is otherwise when they are actually brought forward, on the strength of mere hypothesis, to explain present phenomena. Mr. Darwin, for instance, thinks it difficult to account for the fact that vomiting should be induced in some persons by the mere idea of having partaken of unusual food, though there is nothing in such food to cause the stomach to reject it. "Therefore," he says, "the suspicion arises that our progenitors must formerly have had the power of voluntarily rejecting food which disagreed with them." This is certainly "the use of the imagination in science;" and whenever Mr. Darwin is in a great difficulty he brings in an early progenitor to cut the knot. The suppositions of the Ptolemaic system were a modest contrivance compared with this device; and Mr. Darwin's own remark with respect to another method of philosophizing applies, in this instance, to his own, that, "by this doctrine, anything and everything may be equally well explained."

© Reproduced with the permission of Cambridge University Library