

BOOK REVIEWS.

THE EXPRESSION OF THE EMOTIONS IN MAN AND ANIMALS. By Charles Darwin, M.A., F.R.S. London: John Murray. New York: D. Appleton & Co.

That Mr. Darwin is the author is a sufficient guarantee that the work is an interesting one; and the present is, perhaps, the most generally interesting of all his publications. It is, also, of a more popular character than his celebrated works on the Origin of Species and the Descent of Man, though assuredly it does not come under the head of "light reading." Nevertheless, it is thoroughly readable by any one who will bring a fair amount of attention to the task; and it has the advantage of being the kind of book which no one will like to confess to not having read, or, at any rate, dipped into. It is rendered still more attractive by the nature of the illustrations, which are mostly photographs by the heliotype process. All of these are necessarily true to nature, and some of them are remarkably good; whilst others are by no means as clear as they ought to be.

As we have said, the present work is of a more popular character than Mr. Darwin's other publications; but the reason of this, when we come to look into it, is a somewhat disappointing one. The truth is that it is hardly possible that the book should be other than popular in its character, seeing that it deals with a subject on which we are at bottom profoundly ignorant. It is not that observations are wanting as to the manner in which the emotions are expressed by man and by various of the lower animals. On the contrary, the works of Sir Charles Bell, Lavater, Duchenne, Gratiolet, and others, teem with admirable word-pictures and equally admirable illustrations of the signs by which man gives evidence of his various emotions. Mr. Darwin's own book is a perfect mine of facts of this kind, and any one who chooses to study it will be able to accurately name the very muscles which he employs under the stimulus of fear, agony, contempt, love, or other emotional impulse. It is not even that we have no theory capable of uniting and binding together these innumerable and admitted facts. We have several of such theories, and Mr. Darwin's will serve the above purpose as well as any other. The real fact is that no satisfactory theory of the expression of the emotions is even conceivable, unless as based upon a satisfactory and intelligible theory of the connection between

matter and mind, the body and the spirit, the muscle which expresses and the soul which feels the emotion. It is hardly necessary to say that we have no such theory; we know less than nothing as to the connection between the material and immaterial, which, rightly considered, is the great wonder of our earthly existence. We talk of "nerve force," "principle of association," "reflex action" and the like, but these are in truth merely phrases by which we conveniently conceal our excessive ignorance. Of course, we know quite well what we mean when we talk of a "reflex action;" but then we can merely apply the term to the *method* in which the action is performed, and we know nothing whatever as to its true nature. We know that the will can act upon certain of the muscles and make them contract; we know that the emotions can do the same, without the co-operation of the will, or even against its consent; but we do not know how it is that *any* muscle can be influenced by the mind at all, nor do we know the manner in which this influence is effected. In other words, we are profoundly ignorant of the nature of the connection between the soul and the nervous system on the one hand, and between the nervous system and the muscles on the other hand.

The expression of any emotion depends upon three elements, if we admit, that is, that emotion is a spiritual and not a physical phenomenon. In the first place we have the particular form of mental excitement which constitutes the actual emotion, whatever that may be. Secondly, we have this excitement producing a corresponding perturbation in the nervous centres. Thirdly, the nervous excitement thus generated is conveyed by appropriate channels to some particular muscle or muscles. These then contract, and we get the peculiar, visible change in the face or figure which constitutes the *expression* of the emotion. Most writers upon the subject admit that this is the succession of phenomena concerned in the expression of the emotions; but very various opinions have been entertained as to the nature and relative value of these phenomena. The older view, that man was created with certain muscles specially adapted for the expression of his feelings, may not be tenable; but there are certainly strong grounds for believing, with some of the most illustrious of modern physiologists, that our ignorance of the fundamental elements of the case is too great to allow of our forming any theory as to the manner in which man expresses his emotions.

Mr. Darwin, however, in the present work, has undertaken to supply this want, and he furnishes us with a theory of the emotions, which is complete so far as it goes, though confessedly leaving much unexplained. Very naturally, indeed almost inevitably, he links on his theory of the expression of the emotions to his theory of the descent of man from a lower animal form; and those who reject the latter will infallibly reject the former. "No doubt," he says, "as long as man and all other animals are viewed as independent creations, an effectual stop is put to our natural desire to investigate as far as possible the causes of Expression. By this doctrine, anything and everything can be equally well explained; and it has proved as pernicious with respect to Expression as to every other branch of Natural History. With mankind some expressions, such as the bristling of the hair under the influence of extreme terror, or the uncovering of the teeth under that of furious rage, can hardly be understood, except on the belief that man once existed in a much lower and animal-like condition. The community of certain expressions in distinct though allied species, and in the movement of the same facial muscles during laughter by man and by various monkeys, is rendered somewhat more intelligible, if we believe in their descent from a common progenitor. He who admits on general grounds that the structure and habits of all animals have been gradually evolved, will look at the whole subject of Expression in a new and interesting light."

It is absolutely impossible to criticise the mass of facts which Mr. Darwin has accumulated in the present volume. To form any judgment as to these, it is necessary to read the work itself, and we venture to think that the reader, whilst unlikely to agree with the author's general conclusions, will not lay down the book without a strong admiration for the ingenuity and industry displayed by its writer. Mr. Darwin, however, formulates three principles, which may be advantageously stated in his own words, as he believes them "to account for most of the expressions and gestures involuntarily used by man and the lower animals, under the influence of various emotions and sensations." They are, as it were, the key-note to the whole of Mr. Darwin's theory of Expression, and though they may seem slight and shallow enough when we have them presented to us in print, it is easy to believe that they were not arrived at without a good deal of thinking. At the same time we are bound to say that we cannot admit that these three principles afford even a "fairly satisfactory" explanation of the Expressions of Man and Animals. They doubtless are true in part, and explain just so much of the phenomena as can be explained upon a purely material view of the

subject; but they leave us just as ignorant as we were before of the true nature of all Expression.

The first of these "principles" is that "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." This "principle of serviceable associated habits" is a kind of utilitarian view of Expression which, in reality, is an almost unavoidable deduction from Mr. Darwin's formerly promulgated belief that all instinctive actions are the result of "inherited habit." Much might be said against this view of instinct, and similarly a great deal might be brought forward against the present principle. Like the principle of "natural selection," it is, however, no doubt a perfectly true and efficient cause, so far as it goes. Unfortunately Mr. Darwin has in both cases pushed his principle much beyond the solid ground afforded by facts. The actions which he thinks can be explained by this first principle are exceedingly numerous. Amongst them he places all those actions which a man learns to perform when young, and which afterwards become so natural as to be performed automatically and without the co-operation of the will as a necessary element of the case. Here also he places most, or all, "reflex" actions, such as coughing, sneezing, clearing the throat, winking at the approach of danger, etc. He believes, of course, upon his own principle, that all these actions were originally performed only by a deliberate act of volition, and that it has only been by the effect of "inherited habit" that they have finally become what might be called "natural" to us. He is obliged to admit, however, that there are some of these actions which can not be explained in this way, since they are performed by organs which have been at no time under the control of the will. Thus, the wild throbbing of the heart under fear or other powerful emotion, and the contraction of the pupil of the eye under the stimulus of a bright light, are actions which can not possibly have been originally performed voluntarily and afterwards fixed into a mechanical habit by long-continued inheritance. Mr. Darwin's first principle, therefore, breaks down on one very important class of cases.

Mr. Darwin's second principle—the "principle of antithesis"—is stated as follows: "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." Thus, when a dog approaches a stranger, "his head is slightly raised, or not much lowered ; the tail is held erect and quite rigid ; the hairs bristle, especially along the neck and back : the pricked ears are directed forwards, and the eyes have a fixed stare." On the contrary, when the same dog approaches his master, "instead of walking upright, the body sinks downwards, or even crouches, and is hrown into flexuous movements ; the tail, instead of being held stiff and upright, is lowered and wagged from side to side ; his hair instantly becomes smooth ; his ears are depressed and drawn backwards, but not closely to the head ; and his lips hang loosely." These opposite states of mind, with the opposite actions which respectively express them, are illustrated by four capital drawings, and Mr. Darwin explains them upon the "principle of anti-thesis." The actions of the first series are believed to be serviceable actions, produced under the first principle ; and the actions of the second series are supposed to be useless, and to be merely produced by the involuntary tendency which the dog feels to perform in his loving and joyful condition the very opposite of what he did in his hostile and suspicious frame of mind. The idea is an ingenious one ; but we must confess that Mr. Darwin has failed to convince us by any of the examples which he has adduced, that it affords any real explanation of the case.

The third principle—that of "the direct action of the nervous system"—is founded upon the belief that there are certain actions which are due to the constitution of the nervous system itself, 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." A good example of the actions which Mr. Darwin includes under this head is the trembling of the muscles which is produced by fear, violent anger, or excessive joy. Mr. Darwin admits that this subject is "very obscure," and, for our own part, we do not think that enough is known of the physiology of the nervous system, and of its connection with the mind, to render any discussion of this subject of any scientific value. It is all very well to talk of an "overflow of nerve-force" being generated, of its "manifestly" taking the most habitual routes, and of its then overflowing into the less habitual routes ; and to say

that when nerve-force is "liberated in excess" it *must* "generate an equivalent manifestation of force somewhere." These are but phrases which cover a vast deal of ignorance. We know nothing of what "nerve-force" is, how it is generated, or how it is transmitted along the nerves. We come back, therefore, to our original proposition that any satisfactory theory of the expression of the emotions must be preceded by, and based upon, some genuine knowledge of the relationship which subsists between man's spiritual essence and its corporeal instrument.

Mr. Darwin's book is likely to be widely read, and it deserves to be so. It exhibits all his wonted ingenuity, his power of marshalling a vast array of facts in ordered sequence, and we may add, his usual candour and fairness in stating what he believes to be the weak points of his own theory. We question if it is likely to add much, if anything, to his scientific reputation ; but it can hardly fail to be highly appreciated by the reading public at large.

THE HIGHER MINISTRY OF NATURE, VIEWED IN THE LIGHT OF MODERN SCIENCE AND AS AN AID TO ADVANCED CHRISTIAN PHILOSOPHY. By John R. Leifchild, A.M. London : Hodder & Stoughton.

Mr. Leifchild's work is one of the latest, and perhaps not the least successful, of the numerous attempts which have been made to bridge over the gulf which has opened of late years between the Natural and Physical Sciences on the one hand, and Theology on the other. That the revelations of modern science can ever affect those primitive religious truths which lie at the very foundation of man's existence as a spiritual being is not to be seriously supposed for one moment. These fundamental truths may be obscured in the minds of some few who have devoted themselves so entirely to the knowledge which is to be derived through the senses that they have come to disbelieve in the existence of any other kind of knowledge : but that is the worst which is to be apprehended. All scientific theories which strike at these primitive spiritual truths must fall sooner or later ; for they are opposed to the deepest instincts of man's nature, and increasing wisdom is sure to show that they are false to fact. On the other hand, the antagonism between modern Science and Theology—the latter being at bottom nothing more than our human interpretation of these fundamental truths—is one which will probably be ended by mutual concession. That modern Theology will in the long run more than hold her own against modern Science is the conviction of some of the wisest minds of the present century ; but this