Bibliographical Notices.

Expression of the Emotions in Man and Animals. By CHARLES DARWIN, M.A., F.R.S., &c. Pp. 374. New York: D. Appleton & Co. 1873. (From A. Williams & Co.)

PROBABLY no one has taken up this latest work of Mr. Darwin without a preconceived idea that it was written in support of the author's well-known views; an impression which loses none of its force during the perusal of the book, though no direct statement is found to warrant it. On the last page is the following passage, which is of importance as showing Mr. Darwin's position: "We have seen that the study of the theory of expression confirms to a certain limited extent the conclusion that man is derived from some lower animal form, and supports the belief of the specific or sub-specific unity of the several races; but as far as my judgment serves, such confirmation was hardly needed." Nevertheless, there is an evident desire throughout to maintain these points, but, by an error identical with that which the author committed in that part of his preceding work*

* The Descent of Man and Selection in Relation to Sex.

which treats of the descent of man, evolution is continually used as a well-accepted fact for the support of doubtful ones. The methods of investigation, the number and diversity of sources from which information has been obtained, the careful and long-continued observation of children, neighbors and animals, are all admirable and worthy of the author of the "Origin of Species." On the other hand, some of the conclusions may be questioned, much of the physiology is vague, and the frequently recurring "contraction of the central fasciæ of the frontal muscle" is incomprehensible.

Mr. Darwin believes that most expressions and gestures may be accounted for by the following three principles: 1st. "*The principle of serviceable associated habits,*" which, in brief, is that as certain gestures are of service under certain circumstances in certain states of the mind, the recurrence of that state of mind will cause a repetition, to a greater or less extent, of the action in question, though it be of no use, or, at least, will occasion an effort to repress this manifestation which will itself be expressive. 2d. "*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." 3d. *The principle of actions due to the constitution of the Nervous System, independently from the first of will, and independently to a certain extent of habit,*" which is to account for what cannot otherwise be explained, which is one of the recognized duties of the nervous system.

The first principle is the one most easily studied, and a strong case is made from it. The following is an example of its action. A dog, wishing to approach its prey without being observed, often doubles one leg up under him and pauses so as to advance as noiselessly as possible at a favorable opportunity, and this habit causes him to take a similar position when listening to any uncommon sound. Mr. Darwin has observed this when the dog was separated from the sound by a high wall so that it could have had no idea of advancing. The difficult subject of reflex actions is necessarily brought up. The fact that actions which were originally voluntary may be performed unconsciously and even unnecessarily is accounted for by the statement that "in such cases the sensory nerve-cells excite the motor cells, without first communicating with those cells on which our consciousness and volition depend." The second principle is more difficult to establish. The sudden change in the bearing and expression of a dog, who, going out savage and on the alert to inspect a supposed stranger, suddenly recognizes in him his master, is given as an example. The author accounts for the dog's position in the former state of mind by showing that in every respect it will be of service to him in his contemplated attack, but he cannot account for the sudden relaxation and humble aspect, &c., as these are of no use to the animal, except by saying that the whole expression is precisely the opposite of that which would be useful in the opposite state of mind and that it serves to make the animal's feelings plain to others. The third principle has to account, as best it can, for the sudden blanching of the hair, trembling, profuse perspiration from mental causes, and the increased or diminished secretion of certain glands.

Two very good chapters are devoted to the expressions of animals, and throughout the book there are interesting instances of some that are strangely human. For instance (p. 167) "The Indian elephant is known sometimes to weep. Sir E. Tennent, in describing those which he saw captured and bound in Ceylon, says, some 'lay motionless on the ground, with no other indication of suffering than the tears which suffused their eyes and flowed incessantly.'" On page 215, there is a description of the meeting of two chimpanzees which were introduced to one another in captivity. "They sat opposite, touching each other with their much protruded lips; and the one put his hand on the shoulder of the other. They then mutually folded each other in their arms. Afterwards they stood up, each with one arm on the shoulder of the other, lifted up their heads, opened their mouths, and yelled with delight."

The most important part of the book is that which treats of the mechanism of human expressions and in which it is attempted to explain their derivation. The subject of weeping (chap. vi.) furnishes an example of a kind of reasoning too often met with in this work. "The nature of the relation between the involuntary and energetic contraction of the muscles round the eyes, and the secretion of tears, cannot be positively ascertained, but a probable view may be suggested." One of the chief functions of the tears being to wash the eyes, the argument is continued as follows: "It is difficult to conjecture how many reflex actions have originated, but in relation to the present case of the affection of the lachrymal glands through irritation of the surface of the eye, it may be worth remarking that, as soon as some primordial form became semi-terrestrial in its habits, and was liable to get particles of dust into its eyes, if these were not washed out they would cause much irritation; and on the principle of the radiation of nerve-force to adjoining nerve-cells, the lachrymal glands would be stimulated to secretion. As this would often recur, and as nerve-force readily passes along accustomed channels, a slight irritation would ultimately suffice to cause a free secretion of tears." It is then argued that irritations of various kinds, among others the pressure from the contraction of the orbicular muscles in crying, would have the same effect. "We may see, as lately remarked, the muscles round the eyes of a person who reads a pathetic story, twitching and trembling in so slight a degree as hardly to be detected. In this case, there has been no screaming and no distention of the bloodvessels, yet, through habit, certain nerve-cells send a small amount of nerve-force to the cells commanding the muscles round the eyes; and they likewise send some to the cells commanding the lachrymal glands, for the eyes often become at the same time just moistened with tears. The author holds that if the former manifestations be repressed, the glands, being less under the control of the will, may still act alone; an explanation which, however necessary for the theory, is hardly satisfactory *per se.*

Blushing (chap. xiii.) for shame (distinct from reddening with passion) is, perhaps, the most decidedly human expression of emotion. Animals never blush. The author shows that it is common to most races of men, and that in those who go but slightly covered it occurs over a larger part of the body than in the civilized. As blushes result from causes (real or imaginary) which bring the observation of others upon us, it attacks the part to which attention is most likely to be

directed, namely, the face, especially when that alone is uncovered. Hence, anyone likely to blush thinks more of his face than of the rest of the body, and thus modifies its innervation. It may be said, on the other side, that the face is the most vascular part of the surface, and it is asking a good deal to call on us to suppose that the peculiar distribution of its vessels was essentially modified by so insignificant a cause as blushing.

The book is very readable, and will be found very instructive by any reader, whether he fully accepts the author's conclusions or not.

T. D., JR.