SATURDAY, NOVEMBER 9, 1872.

LITERATURE

The Expression of the Emotions in Man and Animals. By Charles Darwin. (Murray.)

(First Notice.)

ALTHOUGH artists will be surprised at Mr. Darwin's statement that he has been disappointed in his hopes of obtaining much aid from paintings and sculptures in the study of his present subject, they will read his work with interest, and remember it with gratitude. It does not possess the clearness and coherency which distinguish the only book of real value which has preceded it, 'The Anatomy of Expression,' by Sir C. Bell (to the merits of that admirable essay Mr. Darwin bears warm testimony), but its pages afford many a curious glimpse of, and vivid suggestion upon, the physical causes and motive powers of most of the phenomena of facial expression, besides meeting with much that throws light on the connexion so often observed to exist between the expression of the face and what we may call the expressiveness of the attitudes of the human body and limbs. Nor have the author's researches been confined to mankind; he has studied the expression of the several passions in some of the commoner animals. We do not care to discuss the causes of Mr. Darwin's failure to obtain more help from the works of those master-students in his subject, the great artists of all ages. Suffice it that he has found in Mr. Rejlander's photographic camera ample materials for the illustration of his own meaning, and for the adornment and the elucidation of his remarks. For such a purpose works of fine art, in the strict sense of the term, were not necessary.

It is to the advantage of the reader that Mr. Darwin has drawn a large portion of his materials from sources which are in a large measure untainted by civilization. Correspondents have supplied him with notes regarding the Australian aborigines, who are "amongst the most distinct of all races of man"; others have done the same for the races that dwell in the interior of Malacca, and on the borders of Gipps's Land, and for Chinese immigrants in the Malay archipelago, and in other remote places. Because of the contamination to which we have referred, Mr. Darwin refused to have anything to do with coloured citizens of the United States, and he ignores Yankees altogether, while he glances in a kindly fashion at Tetons, Grosventres, Mandans, and Assinaboines. He has studied the expression of the son of the last representative of Prester John, and profited by MS. remarks on the expressions of his tribe made by a brother of the Chief Sandilli. Observations, which have proved even more profitable, of the emotions of infants have been taken directly from nature by Mr. Darwin himself; while the remarks on insane persons are the contribution of an eminent physician, employed in a large asylum for lunatics. Dr. Duchenne's plan of galvanizing certain facial muscles has also been turned to account.

What has been said before on this subject, with the one exception of Sir Charles Bell's admirable book, is not of much value. Rather, as we should say, though Mr. Darwin is more lenient, nearly all the hideous caricatures of Le Brun, in his 'Conférences sur l'Expression,' 1667, are worthless; and still less can be gathered from the more than three score authors who had preceded him, and were enumerated by a writer of the last century; while Lavater's 'L'Art de Connaitre des Hommes' contains a great deal of twaddle, and, owing to the writer's prodigious industry and wonderful complacency, combines more blunders with more knowledge than any other book of the kind. Of course, Expression is only incidentally a part of the Swiss philosopher's subject; but there is a good deal in his work which one who would master the text-books of the subject must read. Apart from his grotesques, where, however, we should naturally expect him to be most successful, Le Brun really did make some acute remarks on the physiology of the matter, and Dr. Burgess, in his account of blushing, dealt skilfully with a curious section of the matter, which has a distinct reference to a form of expression that is peculiar to humanity, and seems likely to be lost. Mr. Darwin testifies to the great value of some portions of Dr. Duchenne's 'Mécanisme de la Physionomie Humaine,' the work of an enthusiastic student in this by-path of science. The book which most nearly exhausts the subject is M. P. Gratiolet's lectures at the Sorbonne. This volume and a few essays, especially those by Messrs. Bain and Herbert Spencer, complete the bibliography of Expression: Bell and Le Brun alone deal comprehensively with Expression.

It was, of course, to be expected that Mr. Darwin would refer, for explanation of many phenomena, to the now well-known Theory of Evolution, of which Mr. Herbert Spencer is the prophet. Except the latter philosopher, says our author, all who have written on Expression have been firmly convinced that species, man of course included, came into existence in their present condition. Bell maintained that many of the facial muscles are purely instrumental in expression, or are "a special provision" for this sole object. "But the simple fact that the anthropoid apes possess the same muscles as we do renders it very improbable that these muscles in our case serve exclusively for expression; for no one, I presume, would be inclined to admit that monkeys have been endowed with special muscles solely to exhibit their hideous grimaces." Although it is hard to reject the statement that uses, independent of expression, can be with probability assigned to almost all the facial muscles, we do not see what the hideousness of the grimaces has to do with a question which has no concern with beauty. The real point is: do the grimaces of monkeys partake of Expression? In the following passage we have what may be called the master-key to this book:—

"Many writers consider the whole subject of Expression as inexplicable. Thus, the illustrious physiologist, Müller, says, 'The completely different expression of the features in different passions shows that, according to the kind of feeling excited, entirely different groups of the fibres of the facial nerve are acted on. Of the cause of this we are entirely ignorant.' No doubt, as long as men 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 men once existed in a much lower and animal-like condition. The community of certain expressions in distinct though allied species, as in the movements of the same facial muscle during laughter by men and 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."

No doubt a believer would do this; but another must satisfy himself that the community of facial expression indicates more than a similarity of certain passions in men and animals. Admitting this, he might still be a long way from accepting the Theory of Evolution. However this may be, the notion of thus forcing Expression into the service of the Evolution Theory is a brilliant one, worthy of the acumen and ingenuity of its author.

Mr. Darwin has reduced the results of his observations to three principles, which he illustrates in detail and *seriatim*—1. The principle of serviceable associated habits; 2. That of antithesis; 3. That of actions due to the constitution of the nervous system, independently from the beginning of the will, and, to a certain extent, of habit. Of the first of these principles Mr. Darwin says—and the saying is highly characteristic of the author—that "it is not positively known how it comes that habit is so efficient in facilitating complex movements; but physiologists admit that the conducting power of the nervous fibres increases with the frequency of their excitement." So far good; no one will question the assertion, which is due to Müller. "This applies," proceeds Mr. Darwin, "to the nerves of motion and sensation as well as to those connected with the act of thinking. That some physical change is produced in the nerve-cells or nerves which are habitually used, can hardly be doubted, for otherwise it is impossible to understand how the tendency to certain acquired movements is inherited." To prove that movements are inherited, the author cites the cases of horses, setters, pointers, pigeons, and men. It is implied that these instances strengthen the Theory of the Evolution of species; and many curious illustrations of the principle in view are given here. One of them is afforded by an odd trick, which obtained with a gentleman, of hitting his own nose during sleep; the nose was a very prominent one, and suffered accordingly. This man died, and the amazement of his son's wife may be imagined when she observed that her husband did the same thing to a fortunately less prominent nose; stranger still, the second man's daughter did likewise. As these tricks occurred only during profound sleep, it is impossible that they could be due to mere imitation. They imply, of course, inherited physical or nervous peculiarities. The habit which many youngsters have while they are learning to write, of rolling their tongues in accord with the motions of their hands, and which, by the way, was amusingly depicted in the late Mr. Martineau's picture, 'Kit's Writing Lesson,'—an illustration of 'The Old Curiosity Shop,'—is probably due to imitation.

by supporting his widowed mother on the proceeds of his scanty curacy. Unfortunately, one characteristic weakness mars the absolute perfection of this blameless priest. He is, unfortunately, susceptible to the charms of admiring young ladies. He first nearly commits himself to the penniless Edith Raymond, and then, having irrevocably won her affections, transfers his own to her too wealthy cousin, Caroline. He is unsuccessful in his second suit, although the coquettish young heiress has no sort of objection to his attentions, and the greater part of the book is taken up with the story of his discipline and his repentance. Caroline marries a young lord, who exhibits what our author seems to regard as almost superhuman virtue in staying abroad for a year to pay off the debts upon his property, and whose conversion from scepticism is duly recorded. Caroline on her death-bed seeks to repair the mischief she has done to Edith, by making the limp curate promise to marry her—a promise which, after a decent interval, he readily performs. There is nothing noteworthy about the book, except the exceedingly comfortable circumstances in which the good people are left, and which are indicated by the sign £, with sums of five or six figures attached to it. The author also expresses much admiration for the Royal Exchange, which she characterizes as the Temple of Commerce, and pays a rather tardy tribute to the memory of the late Prince Consort.

The Surgeon's Secret is an extremely disagreeable one. He brings information to a miserable husband of the death of his wife, and when his victim has married for a second time on the strength of the intelligence, induces him to believe that the former story was false, and that the detested Barbara is still alive to plague him. Mr. Harlow's second spouse, Cicely by name, is a simple, charming creature, and one regrets that she should have been even temporarily annoyed by the scoundrelism of Mr. Maturin. However, as that gentleman commits a murder, and falls into the clutches of the law, while Cicely's happiness is placed at last upon a certain footing, we are not seriously disturbed by her vicissitudes of fortune; while the other personages concerned are not sufficiently remarkable to evoke any painful interest. Mr. Mostyn affects certain archaisms of style: "vastly," for "much,"—"sure," for "surely,"—"'tis," for "it is,"—may be considered attempts to reproduce the colloquialisms of the last century; but "like" in the sense of "as," governing a verb, was never English at any period. For the rest, the story, such as it is, is fairly well told. Mrs. Dumbiggle is an amusing specimen of an unapostolic and backbiting widow; the Drummonds, as an unpretending "middle-class" couple, are true to nature; and Harlow, though weakish, is a tolerable imitation of a gentleman; but, on the whole, the story contains no original portraiture of character sufficiently distinct to atone for a worthless and improbable plot.

The Expression of the Emotions in Man and Animals. By Charles Darwin. (Murray.)
(Second Notice.)

MR. DARWIN gives many instances of those expressive movements which are independent of habit; for instance, that one which most of us have noticed: many persons in cutting anything with scissors move their jaws simultaneously with the blades. This, like the schoolboy's trick referred to in our last notice, is probably due to imitation, or what is popularly called "sympathy." Our author has also a good deal to say about reflex action. It is often extremely difficult to draw the line between reflex and habitual actions; and Mr. Darwin has some happy remarks on this point. When a blow is aimed at his face, a man winks; but,

"This is an habitual and not a strictly reflex action, as the stimulus is conveyed through the mind, and not by the excitement of a peripheral nerve. The whole body and head are generally and at the same time drawn suddenly backwards. These latter movements can be prevented if the danger does not appear to the imagination imminent; but our reason telling us that there is no danger does not suffice. I may mention a trifling fact illustrating this point, and which, at the same time, amused me. I put my face close to the thick glass plate in front of a puff-adder in the Zoological Gardens, and with the firm determination of not starting back if the snake struck at me; but, as soon as the blow was struck, my resolution went for nothing, and I jumped a yard or two backwards with astonishing rapidity. My will and reason were powerless against the imagination of a danger which had never been experienced."

How far pure reflex actions are under the control of the will is a curious question. It is certain that the desire to perform such actions will frequently, or rather generally, interfere with their occurrence. When Pistol ate the leek, how he must have dreaded a failure in the reflex action of his throat. The rationale, such as it is, of certain mediæval punishments is to be studied by the light of the laws regulating reflex actions; even more may be learned by similar analyses of the nature of ordeals by swallowing. Mr. Darwin asserts that from what we know of inherited habits, "there is nothing improbable in the transmission of a habit to the offspring at an earlier age than that at which it was first acquired by the parents." We are, therefore, if this be accepted, to assume that acquired habits cause, in those who indulge in them, transmissible physical changes of structure. The reader will not fail to recognize the enormous importance of such an hypothesis as this. Innumerable habits which are called hereditary are unquestionably due to mere imitation. A son will loll in his chair if his father does so; and this is as often due to imitation as to physical debility. At the most, only a few habits, such as we call tricks, are heritable. It is a curious fact, not overlooked, but not explained by Mr. Darwin, that although all the children of men have been coughers and sneezers, these actions are decidedly not reflex, and have to be performed for the purpose of clearing the air passages of the throat and head. Yet every doctor knows that we often announce our entrance into the world by a vigorous sneeze. Whether the infant may not be said to have inherited the action in question, so that in him it has become reflex, is a moot question. A considerable number of actions of anomalous character remain unexplained by the principles laid down by physiologists. Among the most puzzling of these is the contraction of the iris when the retina is exposed to bright light. It appears impossible that this action could have been first voluntarily performed, and then fixed by habit, because the iris is not known to be under the control of the will. Mr. Darwin thinks a solution may be looked for in the radiation of nerve force. Yet the suggestion is rather far fetched, and is scarcely to be accepted.

Mr. Darwin puts forward the theory of natural selection, as might be expected, to account for many phenomena of Expression; and sometimes this is done with great tact and ingenuity. The following is, probably, the best example in the book. It is fair to observe that the solution proposed is given as conjectural:—

"It further deserves notice that reflex actions are, in all probability, liable to slight variations, as are all corporeal structures and instincts; and any variations which are beneficial and of sufficient importance, would tend to be preserved and inherited. Thus reflex actions, when once gained for one purpose, might afterwards be modified independently of the will or habit, so as to serve for some distinct purpose. Such cases would be parallel to those which, as we have every reason to believe, have occurred with many instincts; for although some instincts have been developed through long-continued and inherited habit, other highly complete ones have been developed through the preservation of variations of pre-existing instincts—that is, through natural selection."

This is a parallel to a well-known and widely-accepted explanation of the existence of what are oddly called "rudimentary" members, *e. g.* the flappers or fore-hands of seals and whales, &c. One of the most interesting sections in this book discusses the retention of certain movements by some of the lower animals long after their original motives have ceased to exist:—

"Dogs scratch themselves by a rapid movement of one of their fore-feet, and when their backs are rubbed with a stick, so strong is the habit, that they cannot help rapidly scratching the air or the ground in a useless and ludicrous manner. . . . . If a horse is much tickled, as when curry-combed, his wish to bite (the origin of which desire is easily understood) becomes so intolerably strong, that he will chatter his teeth together, and, though not vicious, bite his groom."

A large number of similar instances are given by Mr. Darwin; but his theory that cats dislike wetting their feet because they were aboriginally of Egypt, is improbable.

The principle of antithesis comes into play under influences which are opposed to those that have been illustrated above. Certain states of the mind lead to certain habitual movements which were primarily or may still be of service, "and we shall find that 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 have never been of any service." Thus, when a dog approaches a man in a hostile frame of mind, he walks upright and stiffly; his head is slightly raised, or not much lowered; his tail is held erect and rigid; the hairs bristle, especially along the back and neck; the pricked ears are directed forward, and the eyes have a fixed stare. These actions follow from an intention to attack; indeed, some of them, such as the bristling of the hair, seem designed to intimidate. If the dog which has been exhibiting these emotions suddenly finds that the man he was prepared to fight is his master, an instantaneous change takes place, every motion is absolutely antithetical to his former movements; the upright body crouches, the rigid form becomes flexuous, the stiff and still tail knows no rest, and dashes

swiftly from side to side, the hair becomes smooth. This is an illustration, and a happy one, of the influence of what the author calls the principle of antithesis:—

"Not one of the above movements, so clearly expressive of affection, is of the least direct service to the animal. They are explicable, so far as I can see, solely from being in complete opposition or antithesis to the attitude and movements which, from intelligible causes, are assumed when a dog intends to fight, and which, consequently, are expressive of anger."

We suppose that if the treatment of the subject were reversed, and the expression of a combative frame of mind declared to be explicable only because its peculiarities are antithetical to those attendant on amiable moods, the principle would still hold good. At any rate, the "principle of antithesis" is admirably illustrated by four sketches of dogs, by Mr. Briton Rivière. The principle is not open to challenge; it is, indeed, one about which there can hardly be two opinions.

Our author comes to an important point of this part of his subject when he considers how the principle of antithesis in expression has arisen:—

"With social animals, the power of intercommunication between the members of the same community and with other species,—between the opposite sexes as well as between the young and the old,—is of the highest importance to them. This is generally effected by means of the voice; but it is certain that gestures and expressions are, to a certain extent, mutually intelligible. Man not only uses inarticulate cries, gestures, and expressions, but has invented articulate language; if, indeed, the word *invented* can be applied to a process, completed by innumerable steps, half-unconsciously made. Any one who has watched monkeys will not doubt that they perfectly understand each other's gestures and expressions, and, to a larger extent, as Beugger asserts, those of man. An animal, when going to attack another, or when afraid of another, often makes itself appear terrible, by erecting its hair, thus increasing the apparent bulk of its body, by showing its teeth, or brandishing its horns, or by uttering fierce sounds. . . . As the power of intercommunication is certainly of high service to many animals, there is no *à priori* improbability in the supposition that gestures mainly of an opposite nature to those by which certain feelings are originally expressed, should at first have been voluntarily employed under the influence of an opposite state of feeling. The fact of the gestures being now innate, could be no valid objection to the belief that they were at first intentional; for, if practised during many generations, they could probably at last be inherited."

Mr. Darwin adds, "Nevertheless, it is more than doubtful, as we shall immediately see, whether any of the cases which come under our present head of antithesis, have thus originated," that is, from expressions originally intentional. Referring to innate gestures, common to a species, Mr. Darwin asserts that shrugging the shoulders is the best instance of a gesture which stands in direct opposition to all other movements, and is naturally assumed under an opposite frame of mind. It expresses impotence or apology—something which cannot be done, or cannot be avoided. The gesture is sometimes used consciously and voluntarily, which, we may add, shows that this action has become accepted almost universally as expressive. It seems to us far too complex in itself to be accepted as due to anything but imitation. Certain nations, for example the English, employ it in a very small degree, or not at all, while others, as the French, use it to an extent which is almost grotesque. It is true that even English children express an obstinate state of mind by a modification of a shrug; thus, a little boy of our acquaintance "hugs himself" and raises his shoulders; but this movement, as Mr. Darwin admits (p. 270), is not a true shrug. Notwithstanding our author's elaborate exposition of this part of his subject, we think he fails in his attempt to show that the action in question is innate. Whatever view of the matter the reader may take, he will not fail to be interested by Mr. Darwin's exposition, and amused by his numerous illustrations.

To his third principle Mr. Darwin has given not less attention than to the two former. He states it as follows:—"That certain actions, which we recognize as expressive of certain states of the mind, are the direct results of the constitution of the nervous system, and have been from the first independent of the will, and, to a large extent, of habit." This principle is obviously of a comprehensive nature, requiring more space than we can afford for its complete elucidation. We may, however, endeavour to put the reader in a position to comprehend Mr. Darwin's views, and accept them or reject them as he thinks fit. The intensity of the action of the nervous system is shown by the often-reported cases, in which, under the direct influence of extreme terror or grief, the human hair has been rapidly blanched. Mr. Darwin gives as authentic an instance from India, where the hair of a man who was led to execution changed colour so rapidly that the alteration was perceptible to the eye. Trembling is another example. It is not only useless but harmful, and cannot have been acquired through the will, and then rendered habitual in association with an emotion. It is due to many causes, but fear is the emotion which usually excites it, although sometimes excessive anger or joy do so. We have room for but one more quotation:—

"An emotion may be very strong, but it will have little tendency to induce movements of any kind, if it has not commonly led to voluntary action for its relief or gratification; and when these movements are excited, their nature is, to a large extent, determined by those which have often and voluntarily been performed for some definite end, and under the same emotions. Great pain urges all animals, and has urged them during countless generations, to make the most violent and diversified efforts to escape from the cause of suffering. Even when a limb or other separate part of the body is hurt, we often see a tendency to shake it, as if to shake off the cause, though this may obviously be impossible. . . . . Another principle, namely, the internal consciousness that the power or capacity of the nervous system is limited, will have strengthened, though in a subordinate degree, the tendency to violent action under extreme suffering. A man cannot think deeply and exert his utmost muscular force, as Hippocrates long ago observed, if two pains are felt at the same time,—the severer one dulls the other. Martyrs in the ecstasy of their religious fervour have often, as it would appear, been insensible to the most horrid tortures. Sailors who are going to be flogged sometimes take a piece of lead into their mouths, in order to bite it with their utmost force, and thus to bear the pain. Parturient women prepare to exert their muscles to the utmost, in order to relieve their sufferings."

Mr. Darwin declares that painters can hardly pourtray suspicion, jealousy, envy, &c., except by the aid of accessories which tell the tale. Surely this is a mistake, due to an imperfect knowledge of what Art has done. Painting, it is not too much to say, can do whatever acting can; and that acting can satisfy our author and produce what he considers satisfactory illustrations of the emotions, is shown by his liking for Mr. Rejlander, who, as Mr. Darwin expressly says, "acted" the required emotions, or got others to act them. Now, we do not think that Mr. Rejlander, to judge by his photographs, is a first-rate actor, or a subtle director of actors. We believe the photographic illustrations of this volume have suffered greatly from a sort of galvanised look they wear; but we do not see how it could be otherwise. A man must be, indeed, a first-rate actor who could keep the intensity of an emotion displayed in his features while another person "took his likeness." These photographs are sufficient to illustrate Mr. Darwin's meaning; but they have no higher value. The more we look at them, the less satisfactory do they appear. We are far from thinking that Mr. Darwin has acted unwisely in introducing them into his book, but Mr. Rejlander's performances are almost sure to mislead any one who puts much faith in them.

The reader should always bear in mind that Mr. Darwin's observations refer not so much to the manifestation of emotion on the faces and limbs of living creatures as to the causes or motive powers of those manifestations, or, to speak more strictly, the media between the emotions and the manifestations. To what causes may such and such forms of expression be referred, is the main question with the author. This is a wise and scientific mode of dealing with the subject, the only one worthy of Mr. Darwin, or which could enable him to bring the matter fairly and clearly before the public. His book is crammed with curious anecdotes of expression in men and beasts, but it is the reverse of what is commonly called an "amusing work." The man who buys it for the pastime of an idle hour will not be pleased with his purchase. On the other hand, the intelligent student cannot fail to learn much from Mr. Darwin.

CHRISTMAS BOOKS.

EVERY boy and girl too will find a great deal to beguile a rainy day in *Every Boy's Annual for* 1873, edited by Edmund Routledge (Routledge). Lady Barker tells delightful stories "About Boys." The Rev. J. G. Wood gives excellent and interesting notes on natural history; and Prof. Pepper explains some of the secrets of his magic. But there is a set of papers that would have been better omitted: Prof. Hoffman's curious tricks with cards impart rather dangerous information. It is ill playing with edge tools, and no boy will be the better for knowing the tricks of sharpers; and though we hope all the readers of the Annual would be too honourable to take advantage of their knowledge, still we think that total ignorance on the subject would be more honourable still. As to the mysteries involved in the charades and the cryptographs, they would of themselves prove antidotes to the best efforts of all the "Hair Restorers" yet invented; for no one could give his mind to these bewildering studies and fail to have grey hair permanently, unless the brain should soften in the process instead.

The difficulty of finding Sunday books which children will read for pleasure, and not on compulsion only, is hardly so great as it was some years