

picturesque of living French writers. Even political and social economy may be redeemed from prosaic dullness, and made interesting by its mode of presentation to general readers. Both M. About and M. Bastiat are masters of the exact logic and neat precision to which in the discussion of philosophical or scientific subjects the French language is so admirably adapted. M. About is the more brilliant of the two. Both are free-traders, and with great force and cogency expose the fallacies of protection—for which, happily, there is less need in England than in France; although among members of trades'-unions and the producers of particular industries there is yet much lurking fallacy here, the offspring of short-sighted selfishness. Many of M. About's antagonists will seem windmills to Englishmen, but his clear and vivacious expositions of true ideas make his little book one that our working men may study with great advantage. He refutes the sophisms of Communism no less effectually than those of protection and capital, shows the limit as well as the legitimacy, of the working man's claim to a share in that which he produces. Mr. Rae is almost right. M. About has made a treatise on political economy as amusing as a fairy tale. Some of M. About's positions about money, and wages, and strikes need qualification, and do not seem to go to the root of the problem; but we should be glad to see his treatise in the hands of every English workman.

The second work is a popular edition of M. Bastiat's very able and well-known essays.

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

Since the publication of his ablest and most characteristic work, 'The Origin of Species,' many of the serious scientific defects of which we exposed in a recent number of this journal, Mr. Darwin has been busily buttressing the theory therein contained by subsequent works. With notable boldness and candour he has given equal attention to the strong and the weak points of the hypothesis. He has not only completed the machicolations of his towering keep, but has examined the whole line of circumvallation. In his 'Domestication of Animals' he elaborated his position, and followed out in detail that variation in breeds which could be most easily observed and recorded, and which first lent such force to his speculations. In his 'Descent of Man,' he discussed sexual selection, and now in the volume before us, he has addressed himself to the difficulties which surround his theory. The vast difference in the nature and manifestation of the mental and moral peculiarities of man as compared to the next allied animals was discussed we think but feebly in the 'Descent.' The prominence of beauty for its own sake, or at least without apparent connection with use or necessity, was most insufficiently met by assigning its phenomena to sexual selection as a cause. Another problem has now been approached and analyzed in 'The Expression of the Emotions.' Those who believe in the

special creation of man have perhaps laid undue emphasis on the face as the index of the mind. Thought is reflected on his brow. Passion is seated in his eye. The most subtle emotions reveal themselves in the quiver or tension of eyelid, lip, and cheek. *Vultus animi janua et tabula*, says Cicero. The hand is not so exclusively nor so obviously the instrument of an intelligent contriver as the facial muscles are devoted to the portrayal of the soul. Of course, even if all this be admitted, the evolutionist is placed in no dilemma by the presence and adaptation of the facial muscles to express those emotions which are peculiarly or pre-eminently human. If a mental and moral consciousness, like that which man undeniably possesses, can be evolved from the modicum of intelligence and shame of which the actions of brutes give evidence, how much more can the mere nuncios of this mental and moral excellence be also produced from the same muscular homologues which are applied to more brutal uses in the lower animals. To compare the facial muscles of monkeys, apes, and man, and to trace how modified structure had run parallel with modified structure in the upward series, would have been the plan of a less original thinker than Mr. Darwin. He, on the other hand, has completely turned the flank of the opponents of his theory, by finding a proof where they have only recognised a difficulty. He resolves all, or nearly all, the expressions of emotion into reflex, involuntary, or voluntary actions, which originally had objective significance in the life of the brute, but have been retained after this objective significance had ceased and they had only a subjective relation. These expressions are, in fact, *rudimentary functions*, if we may use such a term, which once were of great service to the animal in his relations to the outer world, but have lost all their original use for the man, though other uses, founded on the appreciative recognition of his fellow man, may now be assigned to them. 'Such words,' says Mr. Darwin, 'as that "certain movements serve as a means of expression," are apt to mislead, as they imply that this was their primary purpose or object. This, however, seems rarely or never to have been the case, the movements having been at first either of some direct use or the indirect effect of the excited state of the sensorium.' According to this explanation the facial phenomena exhibited in crying are all due to the violent excitation of the muscles of the thorax, which results in violent expiratory efforts. These efforts arrest the return of blood from the head and surcharge the eyes with fluid, which would be injurious to those delicate organs unless they were supported from without by the contraction of the muscles around the eye. These efforts also require for their relief that the mouth should be squared and opened to the fullest extent; hence the angles are violently drawn down, while the central and intermediate parts of the upper lip are as violently dragged upward by the zygomatic muscles. The sneer, which is best expressed and generally accompanied by lifting the upper lip on the side next the person who has excited the

emotion, is but the remnant of the snarl of the brute, who then clears his more powerful canine tooth before he uses it on the foe. Disgust is expressed by gestures which precede vomiting! Nodding in assent is but the relic of the habit of thrusting the head forward to obtain food when offered from the teat or otherwise! Shaking the head in negation is but the lateral avoidance of the same proffer. This conjecture is supported by the fact that among some races of men negation is expressed by a rapid throwing of the head back and on one side.

Such 'actions, which are at first voluntary, soon become habitual, and at last hereditary, and may be performed even in opposition to the will.' Curious complications take place when the conscious man endeavours to control actions which had free expression in children. The muscles least under the will contract still, while those under better discipline remain relaxed. Sometimes antagonistic muscles are voluntarily used to neutralize the effect, as much as possible, of the involuntary ones. Thus in grief, the muscles which are associated with violent crying are involuntarily exerted. The brows are knitted, but the muscle which runs under the scalp is voluntarily exerted to counteract this action, and from the joint action of them the brow is contracted into folds, while the inner ends of the eyebrows are drawn together.

Mr. Darwin must have been long engaged in personal observation of these phenomena, as he constantly refers to evidence taken from his own children; but he has availed himself of other sources of information. A table of questions drawn up with care, directing attention to the expression of the various emotions, was furnished to gentlemen who are brought in close contact with widely different aboriginal races of men. The answers thus derived show a wonderful similarity in the expression of their emotions by men of every race. The expression of insane idiots, and those born blind, are thought to be particularly worthy of study, as imitation and repression do not operate with them.

The author enunciates three principles, which appear to him 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:—

I. The principle of serviceable associated habits.

II. The principle of antithesis.

III. The principle of action due to the constitution of the nervous system independently from the first of the will, and independently to a certain extent of habit.

The second principle, or that which causes animals to perform movements directly opposite to those which in the opposed state of mind would be useful to them, even when these movements are of no service, is well illustrated in the case of the cat and the dog. The manner of fighting or of standing on the defensive in these two animals is so utterly different that their manner and action when under the influence of opposite emotions, as when one is

enraged and the other affectionate, have a strong spurious resemblance.

Although this volume is far inferior in power and range of thought to most of the others by the same author, yet it treats of a subject so interesting and so well within the range of the comprehension, the observation, and even the experimental verification of all readers, that it is certain to be very popular. The photographs of the exhibition of emotions in childhood, adolescence, and old age, are full of interest and suggestion.

*On the Scientific Value of the Legal Tests of Insanity.* A paper read before the Metropolitan Counties Branch of the British Medical Association. By J. RUSSELL REYNOLDS, M.D., F.R.S. J. and A. Churchill. 1872.

Unsoundness of mind is a phenomenon of human life with which it is frequently the function of doctors and lawyers alike, though with diverse aims, to deal; and, as the lawyer, now at least, rarely acknowledges the existence of insanity without previously taking counsel of the physician, the indicia of the malady are topics common to the members of both professions. But while physicians have been making progress in knowledge of its nature and its signs, the lawyers—as is, in a case of this kind, to a great extent inevitable—have continued standing in the ancient ways, and while they consult physicians furnished with the modern learning, they yet acknowledge criteria of insanity adopted in times which are, to men of science, a remote antiquity. In this paper Dr. Reynolds states these tests, and shows that they are ill-chosen, and that for the several purposes for which the lawyer needs the distinction, they fail to distinguish the insane from the sane. Although Dr. Reynolds hints at some possible remedies for the faults he points out, his chief purpose has been to indicate and illustrate the discrepancies between the legal rules and medical science, as a preliminary to the inauguration of 'a conference between the legal and medical professions upon this matter, with the purpose of taking such steps as may be most conducive to' 'the proposition of some mode of remedying the evils which at present exist.'

The subject is one of great importance, and as it is also one to which general attention is frequently called, we are not without hope that the discussion invited and admirably opened by Dr. Reynolds may be accepted and pursued to a not wholly unsatisfactory issue by duly-qualified members of the legal and medical professions. The author examines *seriatim* the scientific value of 'the legal doctrines with regard—1st, to insanity generally, *i. e.*, as to what is legally understood by the words "insane," or of "unsound mind;" 2nd, the legal test of insanity, when this condition of mind is made the plea of innocence in criminal trials; and 3rd, the legal dogma in respect of mental capacity—testamentary, and other—in cases of alleged mental weakness, or of "partial insanity;"' and he shows, we think to demonstration, that the criteria of insanity 'now recognised by the law, are unsatisfactory and unten-