prescribe. As an external remedy of almost universal application, the warm bath, from its efficacy in restoring the functions of the skin, as well as of carrying off the superabundant heat, cannot be too highly prized. Unfortunately, there exists among the lower orders in this part of the country some unfounded prejudice against its use, which requires always some explanation to qualify or remove; but, in conjunction with appropriate internal treatment, it is not too much to say, that its proper administration is quite invaluable. Most practical writers, I think, have failed in giving it that prominence among the several means of cure to which its claims so justly entitle it. Frequent local sponging, either with cold or tepid water, or vinegar-and-water, is possessed of a very agreeable soothing effect, and should never be neglected. It was my intention at first to have gone systematically and pretty fully into this department of our subject; but I have trespassed at such unusual length upon your indulgence, that I must abruptly draw these imperfect observations to a close. I feel, however, the less concern in this, as your own individual experience, in connexion with the information to be derived from books, will amply supply the defect, if such indeed it be.

ON A NEW PREPARATION OF IODINE.

SYRUP OF IODIDE AND CHLORIDE OF IRON.

By SAMUEL BATTLE, Esq., London.

As iodine is at present so extensively employed, and maintains so high a character as a remedial agent, it appears rather singular that some of its most efficient combinations are still so little used. Amongst these, the iodide of iron is one which has not yet attained that rank in professional estimation that its merits claim. This seems in part owing to the process by which the London Pharmacopœia directs it to be prepared, its great tendency to decomposition, and the difficulty of its preservation. The iron possesses a greater affinity for the oxygen of the atmosphere than for iodine, in consequence of which the latter is set free, and when the preparation is exhibited in such a state, the stomach is frequently incapable of bearing what might otherwise prove a valuable tonic. This tendency to oxidation in the iron, and liberation of free iodine, is indeed prevented by using the syrup, the sugar in which has the property of preventing protoxides, protiodides, and protochlorides, from absorbing oxygen, and passing into peroxide, in which state iron exerts but little action on the system.

Practical men, however, have remarked, that the iodide of iron, even when given in the best form, has sometimes failed to produce that speedy and decisive chalybeate influence on the system that other salts do, though in other respects an agreeable and elegant form. This observation is readily explained on reference to the constitution of the salt, in which the amount of iron is less than one-fourth of that of the iodine, the combining proportion of the former being twenty-eight, while that of the latter is 126. As iodine is incapable of entering into combination with a greater proportion of iron, in order to increase the quantity we may substitute another salt of iron, isomorphous in its crystal, and analogous in constitution in the protochloride. These two salts may be mixed in any proportion without decomposition, and thus present an elegant and powerful preparation of iron, while the iodine, by its action on the glandular system and secretory apparatus, tends to prevent that cerebral plethora which the salts of iron, when given *per se*, so frequently induce.

The syrup of the iodide and chloride of iron, which it is the object of the preceding remarks to introduce to the notice of the profession, is prepared by first forming a solution of iodide of iron. This is effected by diffusing iodine in three or four times its weight of cold distilled water, and agitating for ten minutes with half the quantity of iron filings, added cautiously and gradually, when the colour changes from dark purple to a deep green, as combination takes place. The protochloride of iron is next formed, by acting upon iron filings with hydrochloric acid, specific gravity, 1.160. A copious disengagement of hydrogen gas ensues, and continues for several hours, during which the chlorine combines with one equivalent of iron, the fluid becomes neutral to test paper, and we obtain a solution of a green colour, also with a shade of blue. The two solutions are now mixed together, and so much refined sugar added as will form a syrup.

The syrup ought to be of a pale green, representing the protosalts of iron. The proportions of the salts in solution are so adjusted, that each fluid drachm of the syrup contains

three grains of combined iodine and nearly four grains of iron, united partly with the iodine and partly with the chlorine. The following formula may afford an eligible mode of exhibition:—Syrup of iodide and chloride of iron, two drachms; syrup of orange-peel, four drachms; infusion of cascarrilla, four ounces. Mix for four draughts, one to be taken twice daily.

The syrup of iodide of iron, and syrup of chloride of iron, may be made and kept separately, when they can be mixed in any proportion, according to the amount of iron or iodine the practitioner may wish to administer.

Fore-street, Cripplegate, Jan. 1847.

ON THE

ELECTRICITY EVOLVED IN RESPIRATION.

By — BOW, M.D., Portobello, near Edinburgh.

IN attempts to explain the changes effected during respiration, physiologists take no account of the electricity of the air, notwithstanding it is as much a principle of the atmosphere as either nitrogen or oxygen; indeed, it has been surmised, and that on no slight grounds, that to electricity does oxygen owe its gaseous state. This notion was promulgated in an inaugural dissertation, entitled "De Effectibus Electricitalis Quibusdam, 1820. By Dr. Moran, formerly of the Staff Corps." I remember perusing this thesis at the time with great interest; but had lost sight of it, until it recurred to me whilst reading the article on electricity, in a late number of THE LANCET, by Mr. Lake.

Dr. Moran quotes the experiments of others to prove that the oxygen of the air is combined with electricity, and that it affords electricity when its capacity for it is diminished, as in condensation or combination; and therefore, when the combination which is effected in the lungs takes place, electricity must be liberated. The result of experiments instituted by himself proves that recent venous blood, subjected to negative electricity, becomes red, whilst arterial blood, so treated by positive electricity, becomes black; that venous blood, subjected to galvanism, becomes, at the positive pole, blacker and thicker, but at the negative pole, redder, thinner, and spumous.

Seeing, then, that electricity must be liberated in the lungs, and that it does redden venous blood, and that as nearly all the oxygen which disappears is expired in combination with carbon, Dr. Moran concludes that the change of colour is owing to the entrance of electricity into the blood, and the removal from it of carbon. The electricity is carried along with the blood to all parts of the body, and is attracted by the nervous matter within the cranium, and by the ganglionic system, and there becomes nervous power. By entering the muscular fibre, it endows it with irritability; and from the union of the nervous power of the nerves of the capillaries with the electricity of the blood passing through these vessels, animal heat is produced.

The above is a short exposition of Dr. Moran's views; and I think it would be very difficult to disprove that oxygen owes its gaseous form to its junction with electricity, and that, until it can be disproved, electricity should be considered a principle of the atmosphere, and the part it plays during respiration inquired into.

Volta and Read observed, that in expired air the quantity of electricity was constantly diminished compared with that inspired. But listen to Sir Humphry Davy:—Oxygen, in its elastic state, has properties which are very characteristic; it gives out light by compression, which is not certainly known to be the case with any other elastic fluid, except those with which oxygen has entered without undergoing combustion; and from the fire it produces in certain processes, and from the manner in which it is separated by positive electricity, in the gaseous state, from its combinations, it is not easy to avoid the supposition that it contains, besides its ponderable element, some very subtle matter, which is capable of assuming the form of heat and light. My idea is, that the common air inspired enters into the venous blood entire, in a state of dissolution, carrying with it its subtle or ethereal part, which, in ordinary cases of chemical change, is given off; that it expels from the blood carbonic acid gas and azote; and that, in the course of the circulation, its ethereal part and its ponderable part undergo changes which belong to laws that cannot be considered as chemical,—the ethereal part, probably, producing animal heat and other effects, and the ponderable part contributing to form carbonic acid and other products. The arterial blood is necessary to all the functions of life, and it is no less connected with the irritability of the

muscles, and the sensibility of the nerves, than with the performance of all the secretions. I have not marked the above passage as a quotation from "Consolations in Travel; or, the Last Days of a Philosopher," because I find it on a slip of paper written some years ago, and not so marked. I have not now the volume at command; but I believe it is a quotation, and underneath I have written—Sir Humphry is particularly cautious; he would not have us to believe that he thought this subtle matter to be electricity, and nothing, he says, can be more remote from his opinion than to conjecture the cause of vitality.

The modern doctrine imputes the change of colour to the absorption of oxygen gas by, and the removal of carbonic acid from, the blood. "The blood, whilst circulating through the capillaries of the lungs, is divided into an innumerable multitude of minute streamlets, each so small as to admit but a single layer of its corpuscles; and in these, therefore, the surface which is placed in contact with the air is so enormously extended as to be almost beyond calculation. Hence, then, we can at once understand how a change may be instantaneously effected in it, which would occupy several hours, when the blood is less advantageously exposed to the influence of oxygen. (Carpenter.) This view would appear much clearer, could we believe that the fresh air at each inspiration reached the cells. The quantity of vitiated air remaining in the lungs after expiration is not less than a hundred cubic inches, and this must occupy the cells; the change of colour after each inspiration is instantaneous, which must baffle all attempts at explanation by the laws of diffusion of gases. No such objection can be raised to the electric doctrine; for the separation of the electricity from the oxygen may take place in the bronchial tubes, the electricity passing readily through the moist air of the cells into the blood, which, from the iron it contains, is admirably fitted to attract it. The particles of the blood, having become similarly electrified, repel each other, giving rise to a stream which necessarily flows towards the left auricle. Nor does this doctrine interfere with that of the absorption of oxygen. It is now known that the oxygen consumed exceeds that necessary for the production of carbonic acid, so that a part may be absorbed by the lungs.

I agree with Dr. Moran that the electricity which enters the blood in the lungs becomes nervous power, but I would confine the operation of that power to effecting the functions of animal life. I agree, also, with Mr. Lake, that electricity is elicited in the body by chemical decompositions and combinations; but not that that so elicited is carried to the brain, and thence dispensed. I take it, that the electricity from decomposition is of the nature of galvanism or magnetism, and passes to the ganglionic system of nerves, there to effect the functions of organic life.

Some years ago, in a communication to THE LANCET, I supposed that the sympathetic system of nerves was composed of two divisions, the one furnishing contractility to all the muscles of the body, the other effecting the chemical changes in growth and repair. Thus the muscle derives its contractility from organic nerves, but the nerve conveying the stimulus to contraction comes from a different source. Now, let us see how this nerve enters and traverses the muscle:—"The trunk of a nerve and its first branches penetrate between the muscular fasciculi in a tortuous course, the exact direction of which appears indifferent. But the minute filaments on which each branch ends are found invariably to traverse the muscular fibres at a right angle, and at short distances from each other, and then either to return to the same nerve, or to join a neighbouring branch. Thus, a nerve terminates in muscles by innumerable delicate loops; or the nervous filaments distributed transversely through muscular substance communicate equally at either end with the brain or spinal cord. The branches of the portio dura are found to unite by slender twigs with those of the three divisions of the fifth nerve upon the face; and in the tongue the union is equally distinct of twigs of the ninth nerve with twigs of the gustatory. It is remarkable that in many of these familiar instances the junction that takes place is between sentient nerves and nerves of motion."

In this nerve, which enters and traverses the muscle in a direction perpendicular to that of the fibre, and which communicates equally at either end with the brain or spinal cord, I see nothing more nor less than a conducting wire inducing contraction of the muscle, which, in its turn, may be compared to the magnet of an electro-magnetic machine. By the innumerable filaments by which the nerve traverses the muscle, the inducing force is multiplied in the same manner as we multiply the electrical intensity by making our conductors into the form of helices.

In the above quotation from Mayo, it is said to be remarkable, that in many of these familiar instances, the junction that takes place is between sentient nerves and nerves of motion; but I think it would be remarkable were such not the case, for by such junction we become conscious of the state of the muscle.

Portobello, N. B., Dec. 1846.

Reviews.

The Moral Aspects of Medical Life; consisting of the Akesios of Professor K. F. H. MARX. Translated from the German, with biographical and illustrative remarks. By JAMES MACKNESS, M.D. London: John Churchill, 1846. pp. 348.

WE resume, with pleasure, our notice of the interesting work presented to the English reader by Dr. Mackness, of Hastings.

In considering the epistle to Dr. JAMES GREGORY, the *fifth* of the series, we were led to an estimate of the value of classical knowledge to the medical profession, and we gave, and would still give, our voice in favour of science as the *strength*, and the classics and general literature as the *ornament*, of medical education. In writing thus we are not conscious of underrating the value of classical knowledge; it must always be a high indication of culture, and a key to the nomenclature of the medical sciences. But those who set a disproportionate, and indeed unjust, value upon these things, produce in the bulk of the profession, not a general taste for such studies, but a positive contempt for them. And this is a serious injury. In the College of Physicians classical attainments are made of greater importance than either in the law or the church. Candidates for the licence, looking forward to the fellowship, think more of passing a good classical, than a sound medical, examination. Scanty physiology and pathology, decked out in respectable Latin, will stand higher than mere professional excellence, marred by a false concord or fault of prosody. Such manifest injustice produces an unfortunate reaction against polite learning in the body of the profession. The good time, we trust, is coming, when these anomalies will be set right. The tendencies of the medical age are preëminently in favour of intrinsic, in preference to extrinsic, ornament. Ours is the era of poetry of *act*, rather than of *word*. Even the commencement of our prescriptions no longer stands for the ♃, the sign of Jupiter, but for the simple word Recipe: this hieroglyphic has passed from an invocation of almighty Jove into a plain word of action; human skill takes the place of the favour of the immortal gods. We have had our poets and classical authors, and we are proud of them, but diseases would not now be charmed away even by the lyre of Apollo himself: we no longer sacrifice in the temple of the Dea Tussis, like the Romans, or inquire of the oracles of Delphi and Dodona, like the Greeks; but we bow the ear to the pleximeter, and we listen to the voice of the science-inspired tube of the illustrious Laennec, and there is nothing vague or mysterious in the answers of the sibyl. We have no vestal fires to preserve for the good of the commonweal, but to us is given with faithful care to tend and sustain that Hygeian flame first kindled by the genius of Jenner, and already and for ever the ægis of millions. If we might venture on an humble imitation of the peculiar humour of Professor Marx, though our foil may tell somewhat against the argument hid beneath his playful wit, we should insist, that to the medical man, strictly considered as such, glossology is of more importance than philology, and the study of the scapulary regions more useful than turning over the leaves of the ponderous scapula: to the physician, the rhythms of the heart and nerves are harmonies as delicate as the music of iambs, and chorea Sancti Viti is properly the subject of more interest than the preparation of the festive chorus of antiquity; the study of talipes valgus and varus is a higher duty than the scansion of poetic