

forwards or backwards; 3, because they antagonise one another even during simple elevation of the arm; for the posterior portion of the muscle can only raise the arm until it makes with the body an angle of 45°, after which it lowers it, if it has been raised higher by the other two portions."

Anyone who has ever galvanised the deltoid must be ready to support the author's statement, that this muscle can only raise the arm at right angles to the body. In order to bring the limb into a vertical position, the scapula must rotate so as to elevate its outer angle; and this is effected by the lower portion of the serratus magnus, and, when greater force is required, by the additional contraction of the middle portion of the trapezius. With regard to the movements of the scapula, Dr. Duchenne denies that the bone rotates around a fictitious axis passing through the centre of its dorsum, and shows that it always moves in one piece, one of its angles remaining fixed as the fulcrum; and he compares the movements of the scapula, as Cruveilhier had done before him, to those of a bell which is being pulled.

We can only advert to the interesting researches of the author on the action of the various muscles which move the hand, and must refer our readers to the work itself for proofs of his statement, that the extensor communis digitorum can only extend the first phalanges of the fingers, and exerts no action whatever on the two last phalanges, which are extended by the lumbricales and interossei muscles. On the other hand, the latter muscles are stated to flex the first phalanges, while the action of the flexor sublimis is chiefly exerted on the second phalanges, and that of the flexor profundus on the second and third phalanges.

The author's investigations into the action of the muscles which move the foot, are destined, we believe, to throw great light on the mode of production of the various forms of talipes, and will be of no inconsiderable service to those who devote themselves specially to the important department of orthopædic surgery. As an illustration of the valuable practical results derived from Dr. Duchenne's researches, we need only mention the important facts which he has brought to light concerning the evil consequences following from the permanent contraction or the paralysis of the peroneus longus muscle. In the former condition, there is not only production of valgus, but also depression of the sub-metatarsal eminence, increased arching of the foot, and diminution of the transverse diameter of the forepart of the foot, with production of oblique rugæ in the sole. Paralysis of the muscle is productive of still worse results, as the faulty attitude which the foot then assumes, and which varies according as the patient is in a state of rest or attempts to walk, is attended with considerable pain during the act of walking. The plantar arch then disappears completely; and, when the patient walks, he is unable to bring down the inner half of the forepart of his foot, and can only flex the big toe, on the under and inner aspect of which painful corns are soon formed from the unusual pressure on that part.

But we think that we have said enough to give our readers a wish to make personal acquaintance with this new work of Dr. Duchenne. We warn them, however, beforehand, that they must not ex-

pect to be able to run rapidly through it. It is made up of a mass of facts, most of which are novel and original; and this is, indeed, what constitutes the value and importance of the work. Book-making has, unfortunately, become much too fashionable of late; and medical literature has been literally deluged with long-winded productions and ponderous volumes, which would dwindle and shrink into a very few pages indeed, if they merely contained the personal investigations of their respective authors. The work which now lies before us is a remarkable exception to this. A supplement, or we should rather say, a complement of Dr. Duchenne's great work on *Localised Electrification*, that rich mine of neuro-pathology which has gained for its author a world-wide reputation, the present work on the *Physiology of Movements* deserves to be carefully studied alike by physiologists, who wish for a better acquaintance with the intricate actions and wonderful mechanism of man's muscular apparatus; by orthopædic surgeons who try to remedy, by operations and by mechanical appliances, the faulty attitudes and deformities of various parts of the body, whether congenital or acquired; and by physicians who devote themselves specially to the study and treatment of the perplexing and oftentimes obscure diseases of that most highly wrought and exquisitely organised apparatus, the nervous system of man.

#### NOTES ON BOOKS.

*Science Lectures for the People* (Manchester and London, 1866-7) include four lectures on Elementary Chemistry, by Professor Roscoe, F.R.S.; four on Elementary Zoology, by Dr. T. Alcock; one lecture on Coal, by Professor W. S. Jevons; and four lectures on Elementary Physiology, by Dr. J. E. Morgan. They are quite elementary, and were delivered to large and very attentive audiences of working men. To awaken a real interest in these subjects among the poorer classes, who are very liable to be led away by quacks and impostors, is to render a public service. The results were most encouraging. The experiment will, we believe, be repeated.

*Chemical Notes for the Lecture Room*, by Dr. Wood, F.R.S., are specially arranged for the London University Matriculation pass-examination, an ordeal which is fatal to the aspirations of some hundreds annually. Dr. Wood is a very experienced tutor, and has here presented the strictly necessary information in a very small compass and very intelligible form. It is the solidified extract of chemistry for examinations; and here, in a most digestible form, is all the student wants for his pass-examination; but he will want every grain of it.

*The Journal of Anatomy and Physiology*, No. II. May 1867. (Macmillan and Co.) This second part of the *Journal of Anatomy* is, in all respects, an improvement on the first. It contains a most valuable series of original papers on anatomical and physiological subjects. No British student of either subject can afford to be ignorant of its contents; and, whether for his own instruction or for the encouragement of an undertaking which is creditable to our country, we hope that all who are interested in the cultivation of the biological inquiries which are the groundwork of scientific medicine, either have or will become subscribers. The reports on foreign literature are valuable to students.