

dealt with; and it is shown that it is not the bacilli *per se*, but their products, which form the noxious agency leading to tubercular inflammation and necrosis. These products are probably soluble, and it is ingeniously suggested that, becoming more diluted as they spread from their source, they set up in remoter parts—e.g., the pleura—simple, non-infective inflammation. Another suggestive and true description, which goes far to explain the frequent limitation of phthisical lesions and their arrested spread, is that of tuberculosis being primarily a superficial process. It is unable to extend beyond the barriers set by animal membranes, although it spreads through lymphatic channels by continuity, just as it spreads along the track of mucous membranes. It is clearly shown that tuberculosis is not a blood disease primarily, nor does the blood become the channel of infection in any case unless and until the vessel walls are destroyed and the virus thereby gains entrance into the blood stream. We have seldom met with the localistic doctrine more explicitly stated, and the facts cited in its support are certainly very striking. The hopefulness which this deduction from pathological study gives to the treatment of the disease is apparent, and it is further strengthened by the description of the healing processes which are so frequently met with in the lungs. Dr. Coats also touches upon such etiological questions as inheritance, contagion, defective sanitation, soil, &c., and does not hesitate to express the conviction that, like leprosy, isolation might materially diminish the prevalence of the disease. The “early hæmorrhage” of phthisis is attributed to obstructed circulation from the presence of the initial lesions, and the rapid advance of the disease after hæmoptysis is set down to the effused blood forming possibly a favourable nidus for the bacillus. The doctrine of *phthisis ab hæmoptoe* cannot, of course, be accepted in any other sense than this according to present knowledge. There are also excellent descriptions of the concomitant lesions of phthisis; and a section is devoted to the symptom of fever, the cause of which is to be sought in the local inflammatory processes, as well as in the suppuration and hæmorrhage, rather than regarded as evidence of constitutional infection. There is undoubtedly in this volume much that is original and suggestive, whilst the text is not overburdened with details and theories, which would have been out of place. In a word, these lectures are highly practical and thoroughly scientific.

*A Text-book of Physiology.* By JOHN GRAY MCKENDRICK, M.D. Vol. I. Glasgow: James MacLehose. 1888.

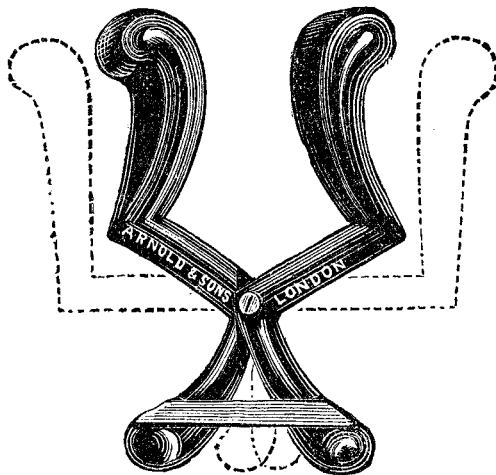
THIS book is practically a new one, and not merely a new edition of Dr. McKendrick's former treatise, entitled “*Outlines of Physiology*.” It is clearly the outcome of no small labour. It is written by a master of the subject, and contains an immense mass of information in a highly condensed form. As Physiology was formerly, and in some universities still is, termed the Institutes of Medicine, so the subjects treated of in the present volume might fairly be termed the Institutes of Physiology, for it deals with the foundations of that science, with its chemistry, physics, and methods of research. It is a matter of regret that the physics of physiology are not more fully discussed—a subject that has been well treated by Wundt amongst others. Some points have, indeed, been introduced, and doubtless others—such as light, heat, and sound—will be considered in subsequent sections. It is difficult to make the chemical relations of the body and its compounds attractive, but the first two hundred pages appear to us to be uncommonly dry reading, and some of the formulæ might well be a nightmare to the unfortunate student who, acting without the advice of a tutor, attempts to learn them, under the impression that they are of the slightest importance, or that they “might be asked.” A special chapter is devoted to the pigments, which is probably the most complete that has yet been published, and gives an account of all that have hitherto been

discovered, with drawings of characteristic spectra. A good account of fermentation is given. The next section deals with the physiology of the tissues, and with the earliest stages of the development of the ovum, the description stopping suddenly with the formation of the blastodermic layers. The apparatus employed in physiological research are then considered, including the microscope, staining agents, and section cutters, followed by an account of the properties of the connective tissues. The last section is devoted to the apparatus and details of the graphic method, and to the structure and properties of muscle. The drawings, tracings, and illustrations generally have been taken, by permission, from the *Lehrbuch der Histologie* of Professor Stöhr of Würzburg, and are extremely good. The perusal of the volume leads us more and more strongly to the view that some form of preliminary education should be insisted on before a youth is dedicated to the medical profession. It ought not to be necessary to explain the nature of a battery to the student, especially if on the very next page the teacher finds it imperative to give a formula of electric action so complicated that none but a highly educated student could understand it. Whilst giving a due meed of praise to the treatise, it is difficult to say for whom such a book as this is really intended. Surely no ordinary medical student would find it serviceable to burden his memory with the fact, and the formidable equation which follows it, that uric acid is regarded by Baeyer as formed by the union of a radical cyanamide with tartronic or oxymalonic acid. Yet the number of students of pure physiology is too small, we should have thought, to enable Dr. McKendrick to obtain a sale for his book at all compensating him for the great pains and trouble he must have had in writing it.

## New Inventions.

### COLOTOMY DILATOR.

IT not unfrequently happens after colotomy that at the end of the first week there is a tendency for the opening unduly to contract, and if this be not prevented, in the course of a few weeks it becomes so small as to destroy the benefit of the operation. The accompanying woodcut shows the form of a dilator made for me by Messrs. Arnold, which answers its purpose well. It is made of two pieces of vulcanite hinged in the middle. The blades are introduced closed into the opening, and, being curved, are self-retaining.



A light indiarubber ring slipped over the opposite ends of the instrument and kept in place by a notch causes the blades to expand, as shown by the dotted lines, and to exert pressure on the edges of the colotomy opening. The ring must be small, as the pressure required to gradually dilate the opening is very slight. If during the second or third week after a colotomy there is a tendency to contraction, the dilator worn for a few hours a day will effectually counteract it. When the wound is once firmly healed there is seldom any further contraction.

HARRISON CRIPPS.