

by a parasite, as any of which we know. The second fact is the action of quinine upon the parasites. The simultaneous disappearance of the symptoms of the disease and the hæmatozoa suggest that the specific influence of the medicine is upon the parasites, though it may be urged that the quinine, while curing the disease, simply removes the conditions which permit of their growth in the blood.

Practical Considerations.—An interesting practical point is the diagnostic value of the presence of these bodies. There were six or eight cases in which the examinations of the blood proved of great service in determining the existence of malaria. Some of these are worth mentioning. One of the first was a man aged 37, who had been under observation on three or four occasions with anæmia and an enlarged spleen. He had had three attacks of hæmatemesis. There was no history of malaria, and, from the gravity of the case, I was led to regard it as one of severe spenic anæmia. On his fourth visit, however, a careful examination of the blood revealed the presence of the parasites, and I gave, in consequence, a more favourable prognosis in the case which has since been justified. In an instance of pernicious malaria admitted to the Philadelphia Hospital, under the care of my colleague, Dr. J. H. Musser, the diagnosis rested on the discovery in the blood of the characteristic changes in the corpuscles.

Melanæmia.—These researches on malaria throw light on the formation of pigment in the blood and various organs in the chronic cases. Evidently the primary change is in the red blood-corpuscle, which is gradually destroyed by the amœboid form of the parasite. Every stage of this process can be readily traced, and these observations bear out the more recent views on the origin of the pigment in the blood itself.

RECENT ADVANCES IN ELECTRO-THERAPEUTICS.

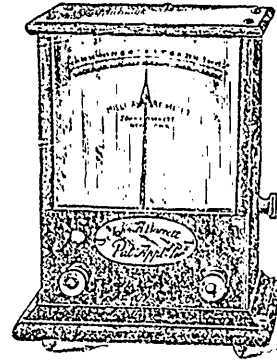
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I DESIRE to call your attention this evening to some new apparatus recently devised for regulating, controlling and registering the voltaic current when used in medicine or surgery. These are

1st, the Milliampère meter or galvanometer; 2nd, a new rheostat; and 3rd, a new form of electrode.

As the apparatus is here to speak for itself, any lengthened description on my part will be unnecessary.



Vertical Milliampère meter (Barrett's), for indicating strength of current. The scale is graduated in milliampères, and ranges from 0 to 50 milliampères direct reading, and, by moving a switch, which multiplies by 10,—from 0 to 500 milliampères.

The introduction of the Milliampère meter marks a new era in electro-therapy. It has produced a true therapeutic revolution by substituting mathematical precision for the vagueness of empiricism. What is the Milliampère meter? The Milliampère meter is a modification of the galvanometer, and indicates, firstly, the presence of the galvanic current; secondly, its direction; and thirdly, the strength of said current. The value of the electric unit was definitely fixed by the International Congress of Electricians which met in Paris in 1881, the Ampère being adopted as the unit of current strength. In the new galvanometer the scale is divided so as to indicate the thousandth part of an Ampère, hence the instrument is called a Milli-Ampère meter. This instrument having been accepted by the profession as the standard for measuring current strength, "it becomes to the electric current what the *gramme* is to weight, the *second* to time, and the *metre* to length."

According to the law of Ohm, we obtain the strength of the voltaic current by dividing the electromotive force of the battery cell by the resistance of the circuit. Now, if in the case of a given cell, the electromotive force is exactly one volt, and the resistance of the circuit exactly one ohm, the strength of the current is exactly one Ampère.