

T-tube open so that there is free communication with the outside. At the end of an expiration, a stopper is quickly inserted into the T-tube, and at the moment the phenolphthalein is decolorized, this stopper is removed. Two and four-tenths liters of  $\text{CO}_2$  are exhaled during the period and the oxygen is calculated from the record on the drum in the usual manner, using the temperature of the water in the spirometer as the oxygen temperature. The vapor tension of the water is subtracted from the barometric pressure. The advantage of the apparatus over the other portable calorimeters is that the respiratory quotient is determined.

## 2909

The dissociation constants of some indicators for the determination of the pH by the Duboscq colorimeter.

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Indicator	pH at half color	Dissociation constant
4-6-dinitro-guaiacol .....	3.4	$4 \times 10^{-4}$
Pinaeyanol .....	3.7	$2 \times 10^{-4}$
Ortho-chrom-T .....	6.7	$2 \times 10^{-7}$
1-3-5-trinitrobenzene .....	12.8	$1.6 \times 10^{-13}$

Dnitro-benzoylene-urea showed two dissociation constants and was therefore unsuitable. One of these dissociation constants was about  $10^{-12}$ .