

The Boiling Point of Para-Cresol.¹—In my article on *p*-cresol,² the literature citations omitted a determination by Clemmensen³ which has just been found in his article entitled "Über eine allgemeine Methode zur Reduktion der Carbonylgruppe in Aldehyden und Ketonen zur Methylengruppe."

He describes (p. 61) the preparation of *p*-cresol from *p*-hydroxybenzaldehyde but makes no statement concerning the source of the *p*-hydroxybenzaldehyde or its purity. The product, after several distillations, finally boiled at the constant temperature of 201°, at 750 mm. pressure.

From these meager data I have calculated the boiling point at 760 mm. pressure by means of Equations 1 and 2 of my previous article. The values found are (1) 201.50° and (2) 201.54°. They afford no basis for modifying my views previously expressed and the boiling point of 202.32° given in my paper.

The object of this note is to complete the literature citations since Clemmensen's determination is one that might be indefinitely overlooked because of the title of his article.

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High Vacuum Distillation.—Sufficient glass wool is placed in the distilling flask to extend slightly above the surface of the liquid. The vacuum distillation of very heavy sirups may be carried out in this way smoothly and without bumping.

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New Fermentation Tube.—In the determination of the qualities of different micro-organisms it is of fundamental significance to know whether the micro-organism is capable of growing in oxygen-containing, oxygen-free or other atmospheres.¹ Up to the present, different bothersome processes have been in use for this purpose. It was found that it is possible to avoid

¹ Published by permission of the Surgeon General, United States Public Health Service.

² Gibbs, *THIS JOURNAL*, **49**, 839 (1927).

³ Clemmensen, *Ber.*, **47**, 51 (1914).

¹ Nord, *Protoplasma*, **2**, No. 2 (1927).

these difficulties in a simple manner through an appropriate reconstruction of the saccharimeter of Einhorn.

When one found it necessary to grow micro-organisms on a suitable nutrition medium in a nitrogen-containing or other atmosphere, it was not possible to carry out this investigation in the present form of the saccharimeter because it does not allow the passing through of another gas. If, therefore, we add a stopcock (Fig. 1) to the longer arm of this tube, it will be possible, by simultaneously inserting a single-holed rubber stopper in the shorter end of the tube, to pass through the nutrition medium and, if necessary, to keep in the space above it whatever gas is wanted. The open surface of the liquid has to be covered simultaneously with liquid paraffin. In the case of nitrogen, the purification of this gas by passage through an alkaline pyrogallol solution is not satisfactory enough for biological purposes. Such nitrogen still oxidizes reduced methylene blue and therefore it is necessary for this purpose to pass it over hot (dark, gleaming) copper spirals.

A fermentation tube constructed in this way can of course also be used as a common saccharimeter; with such a tube, a fermentation may be carried on during which the expected quantity of carbon dioxide produced exceeds several times the capacity of the long arm of the tube. A repeated simple opening of the stopcock renders this possible. It also enables one to investigate the capacity of micro-organisms for nitrogen fixation.

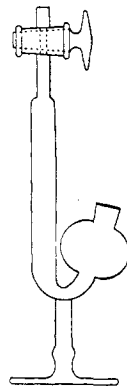


Fig. 1.

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NEW BOOKS

Magnetism and Atomic Structure. By EDMUND C. STONER, Ph.D., Lecturer in Physics at the University of Leeds. E. P. Dutton and Company, 681 Fifth Avenue, New York City, 1926. xiii + 371 pp. 56 figs. 22.5 × 14.5 cm. Price \$5.00.

According to the author's statement, this book is to be regarded as a supplement to ordinary works on magnetism, rather than a comprehensive treatise. The general method adopted is "to give tolerably complete outlines of representative researches, and to base discussions on these. Prominence is given to work which is thought to be of most importance and lasting value, but the selection involved is necessarily arbitrary." This mode of treatment makes possible the logical discussion in a book of moderate size of those phenomena of magnetism which bear most directly upon the problems of atomic structure. A more