taminating spores; the production of harmful gases and the fire hazards are all eliminated by substituting a low rectangular frame of transite containing a number of turns of nicrome wire connected to the lighting circuit.

The details of the sterilizer are given in the accompanying sketch (Fig. 1). When using the sterilizer a pedal switch operates to turn the electric current on

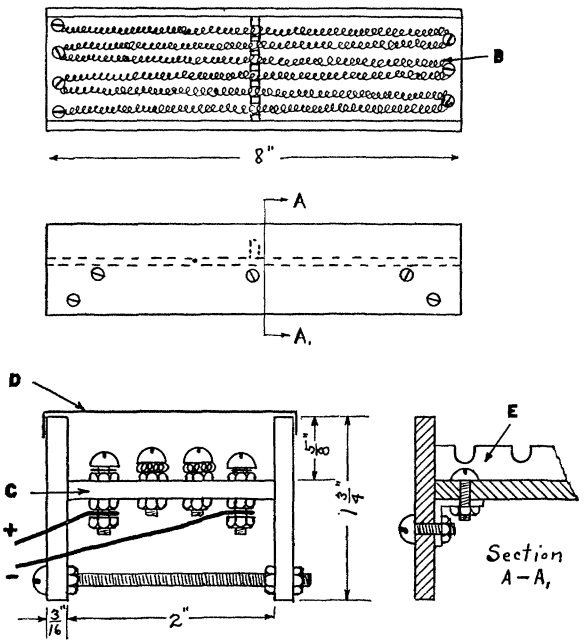

FIG. 1. Electric sterilizer, showing frame of 3/16" transite which bears the coils of resistance wire B on a shelf C. The "12 to the inch" mesh galvanized wire screen D, covers the frame, prevents direct contact with the heating coil B and is used to hold various cultural instruments such as wire needles, special knives, scalpels, chisel forceps, long museum forceps and other instruments and materials during sterilization. In B the length of resistance wire from a cone-heating unit is looped around binding bolts at both ends and supported in the center by a slotted strip of transite E to prevent lateral contact between segments of the coil.

and off, keeping the heating coil hot only during the period when the culture instrument is being held over the mesh screen. The instrument is first dipped in alcohol and either held momentarily over the screen or laid upon it until the alcohol ignites and burns off. Glass rods used in special cultural technique for testing toxicity of preservatives in wood can be dipped in alcohol and a number of them placed over the screen for sterilization before placing them on the test fungus mat. The sterilizer is placed on a sheet of asbestos paper laid on the culture room table or the floor of the culture case in a position most handy for the worker.

The electric sterilizer is submitted for trial to those workers who desire, for one reason or another, to eliminate the open flame in the culture chamber.

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THE INFLUENCE OF CENTRIFUGATION ON THE AGGLUTINATION OF PNEUMOCOCCI[1]

THE usual methods for detecting agglutinins (excepting the relatively crude slide agglutination), require 18–24 hours. Fleming,[2] stimulated by earlier observations of Gaehtgens[3] and of Gates,[4] employed centrifugation.

It was observed during observations on antigen-antibody balance in treated cases of pneumococcal pneumonias that centrifugation increases the rapidity and accuracy of agglutinin detection.

One half cc portions of the different antibody dilutions were mixed with 0.5 cc portions of bacterial suspensions. Readings were made after ½, 1 and 2 hours' incubation at the following temperatures: 4° C., 20° C., 37° C. and 55° C. and again after refrigeration at 4° C. overnight. The results obtained by this method were compared with those observed after immediate centrifugation of the antigen-antibody mixture for 5 minutes at 2,000 r.p.m. Immediate development of strongly positive reactions were observed in all tubes after centrifuging for 5 minutes. Reactions were always more definite than those obtained with water bath incubation for two hours and overnight refrigeration. The "inhibition-zone," observed after incubation in the water bath in tubes containing an excess of antibody, was eliminated.

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[2] A. Fleming, *British Jour. Exp. Path.*, 8: 231, 1928.

[3] W. Gaehtgens, *Munch. med. Woch.*, 53: 1351, 1906, and *Arch. Hyg.*, 56: 377, 1908.

[4] F. K. Gates, *Jour. Exp. Med.*, 35: 63, 1922.

BOOKS RECEIVED

BALL, ALICE M. *Compounding in the English Language.* Pp. 226. Wilson.

Science Reports of the Tôhoku Imperial University. Fourth Series. (Biology.) Vol. XIV, Nos. 2 and 3. Pp. 121–326. Illustrated. Maruzen, Tokyo.

TAYLOR, JAMES H. Vector Analysis. Pp. ix + 180. Prentice-Hall. $2.85.