An Improved Petri Dish Cover

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Julius Petri, a German bacteriologist, in 1887 developed a round, glass dish in two parts in which he was able to grow and observe isolated bacterial cultures. This invention by Petri proved to be a very useful piece of apparatus which has become standard in all bacteriological laboratories.

Advances in technique and in equipment frequently present new problems and the introduction of the petri dish was no exception. Hot media in a closed container, such as the petri dish, causes the condensation of moisture on the cooler glass. The condensate forms into droplets which are suspended from the lower surface of the cover. Consequently, the cover becomes fogged and frequently makes easy observation of the culture growth difficult unless the cover is removed thus rendering the culture vulnerable to contamination. Also, the condensate may drop to the surface of the medium and disturb the growth so that the characteristics are not natural. This condition is often extremely annoying, especially when critical work is being done.

Several different techniques have been suggested to overcome these difficulties. One has been to pour the medium, allow it to harden, and then raise the cover into such a position so that air can circulate through the dish and evaporate the condensate from the cover. Obviously, this method introduces the increased probability of contamination. Another method has been to invert the dishes containing the solidified medium and place them in an incubator to evaporate the condensate from the under surface of the cover. A clay petri dish cover was devised which absorbs the condensate, but this type of cover created two new problems. First, the opaqueness of the cover prevents ready observation of the surface of the medium, and second, the cover, which acts somewhat like a blotter, increases the rate of water loss and, consequently, a more rapid drying of the medium.

Another device employing a metal ring fitted with a paper insert was developed. This cover has the disadvantages of being opaque, of allowing the moisture to evaporate too rapidly as in the case of the clay cover, and of having joints into which contaminants can find their way.

Thus, the problem of condensation in petri dishes has not been solved completely and satisfactorily and the bacteriologist has continued to be handicapped with inadequate methods of eliminating condensate.

A new, improved, transparent petri dish cover which controls the condensate has been devised (Fig. 1a, 1b). This new cover is made of fracture-resistant glass with the lower surface gradually sloping from the margin to the center where a glass stud holds an absorbent disc of specially prepared paper. The paper disc is similar to filter paper in

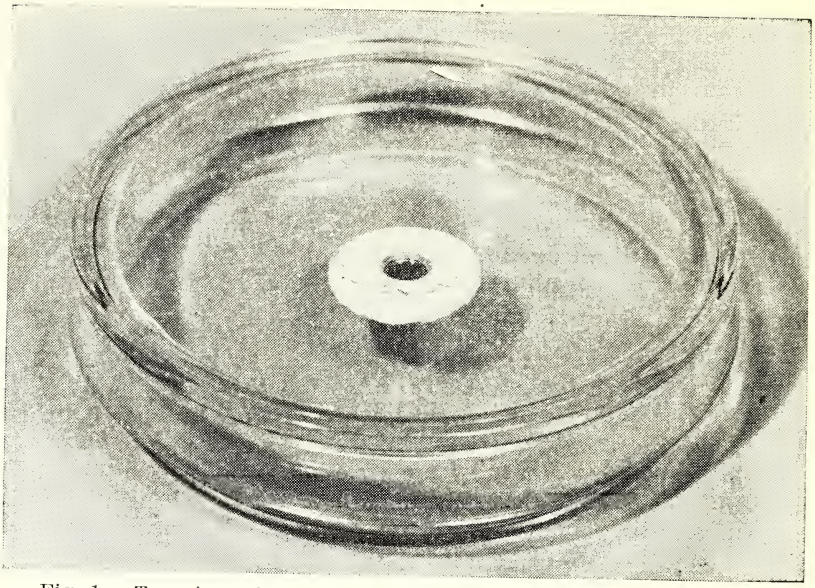

Fig. 1a. Top view of The New Improved Petri dish cover.

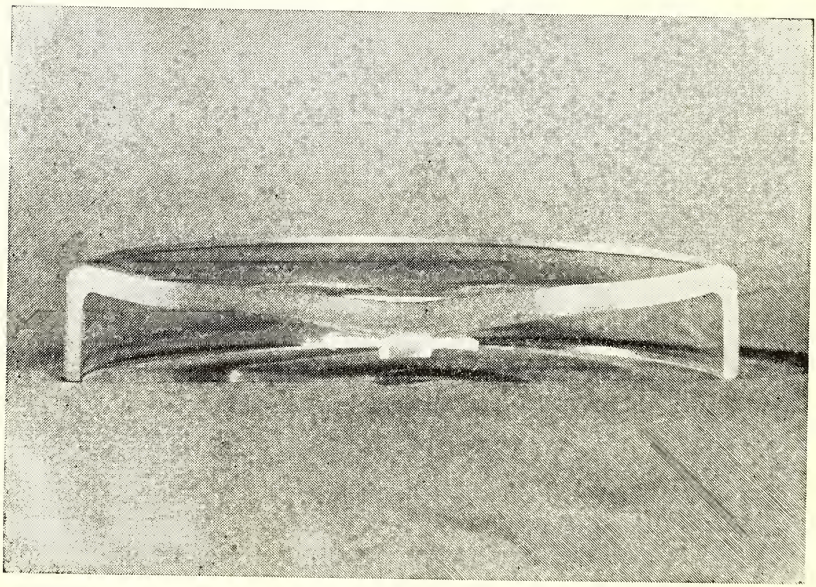

Fig. 1b. The New Improved Petri dish cover in cross section.

composition but will withstand the temperatures of dry heat sterilization. The condensate under the influence of gravity flows toward the disc where it is absorbed. The new cover with the absorbent disc attached is

used with the lower half of a standard 100 mm. petri dish. The complete petri dish, including the absorbent disc, is assembled and sterilized in dry heat in the usual manner.

The heated medium is placed in the dish in the customary manner, using sterile technique, and the dish is immediately closed. By the time the medium has solidified, most of the condensate will have been absorbed by the disc, thus leaving the cover clear for observation of the surface of the medium. Condensate, being held in the absorbent disc, cannot drop onto the surface of the medium. The cover, being used in the same manner as an ordinary cover, reduces the possibility of contamination by air currents since it is not necessary to open the dish except for the introduction of the medium and/or for inoculation. In addition, the moisture is contained within the dish and thus tends to prevent the medium from rapidly dehydrating.

It is believed that the improved petri dish cover will be very useful wherever it is necessary to observe cultural growth.

This new, improved petri dish cover is available from the A. S. Aloe Scientific Company, St. Louis, Missouri.

Detailed Procedure for Using The New, Improved Petri Dish Cover

1. The covers should be thoroughly cleansed using a detergent or a cleaning solution to remove any film from the glass.
2. The covers should then be rinsed well in clear water and allowed either to air-dry or be wiped dry with a lintless cloth.
3. The special absorbent disc should then be placed on the glass stud so that the lower surface of the cover is in direct contact with the disc. The opening in the center of the disc is slightly smaller than the diameter of the stud, thus requiring a slight pressure to force the disc into proper position.
4. The cover is now placed over the bottom half of a standard 100 mm. petri dish. Sterilization should take place in dry heat to promote maximum absorption by the disc.
5. After sterilization, the dishes are ready to be used in the usual manner. Up to 20 ml. of medium may be used in a 100 mm. petri dish without causing direct contact between the medium and the glass stud.