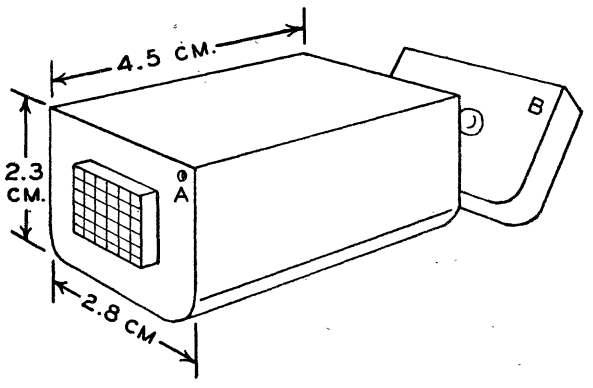

FIG. 1. Freezing unit without insulation. A = Hole for escape of CO_2, B = Removable end.

In using this unit, the case is filled with dry ice (about 20 g) and a piece of tissue, either fresh or infiltrated with gum or gelatin, is placed on the object-holder, to which it adheres almost instantly. Freezing may be hastened by inverting the unit after the tissue is firmly attached or by placing small pieces of dry ice around the tissue. Pieces 10 mm or more in thickness may be frozen. When the tissue is completely frozen, the dry ice is replenished and the unit inserted in the microtome. The heat transfer within the container is so rapid that it is not necessary to keep the dry ice pressed against the freezing surface. The tissue will remain frozen until all the dry ice is gone, 15–20 min. If more time is required, the unit may be easily refilled before the block has thawed.

This unit provided excellent sections of large feather germs, which are difficult to section by any method, and of such soft tissues as liver, kidney and spleen. Soft tissues could be cut at 20–30 microns without fixing or embedding, and excellent sections as thin as 5 microns could be cut after infiltration with a gum arabic solution. This attachment is easily made from materials available anywhere (other metals might be substituted for copper, although it is important to keep the thermal conductivity as high as possible), it is simple and economical to operate, and it produces sections comparable to those obtained with other freezing devices. It should be adaptable to all work except where very large pieces of tissue must be cut.

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A DROP METHOD OF PENICILLIN PRODUCTION[1]

A NEW method of producing good yield of penicillin consists of culturing *Penicillium notatum* No. 5415 on a solid agar base containing constituents which favor a rapid production of penicillin in drops of sufficient size and quantity to be precipitated like rain upon the opposing side of the container, when inverted. The type of culture is what is sometimes called a still growth and 5 to 6 days are required for production of large drops of clear penicillin. This material is withdrawn by means of sterile pipettes and is preserved anaerobically at 5° C.

Two types of agar medium have been employed: (1) A modified Sabouraud's acid maltose described by Scudder[2] and by Risch[3]; and (2) special synthetic medium modified by Robinson, to which has been added 2 per cent. flaked agar. No adjustment of the media is necessary.

The penicillin thus produced has the same physical properties as were described by Fleming[4] for that which he discovered. It is lighter than chloroform, heavier than ether, soluble in water, transparent, clear and yellow. Penicillin isolated at this institution has been found bactericidal in 1–10 dilution and bacteriostatic in dilutions ranging from 1–200 through 1–600. Its unit value is greater than 6 units per cc.

Preparations of our penicillin have been used for topical application with very satisfactory results and dilutions range from 1–250 to 1–800 in sterile distilled water. The solution keeps satisfactorily in the wards if layered with solid paraffin and kept at ice-box temperature. Sterile oils lighter than the penicillin may also be used.

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[1] From the Department of Pathology and Bacteriology, City Hospital, Welfare Island, Department of Hospitals, New York, N. Y. Preliminary report.

[2] SCIENCE, 79: 16, 1934.
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