enough mercury to rise about 1 cm above the flask into the manometer arm. The flask is placed on the dry joint of the first manometer of any one of the sets and seated. A line is scratched with a diamond point at the top of the mercury column. The flask is removed and the temperature of the mercury recorded immediately. As quickly as possible, and making sure that the temperature of the mercury does not change and that no mercury is spilled or left on the manometer joint, one repeats this procedure with the remaining manometers, marking the height of the mercury with a diamond point on each. If the temperature of the mercury changes considerably during handling, it may be found advisable to record it after each manometer is marked, for future calculation. We found it simpler in the long run in such cases to wait until the temperature returned to the initial level. The flask and mercury are then weighed and the manometers calibrated from the reference mark in the usual manner.

From this point on it is only necessary to calibrate any flask to the reference mark on any one manometer to obtain the Vg for that flask in combination with any of the manometers. Complete interchangeability then becomes a simple matter of calculation of kO_2 or kCO_2 values from known Vg values for all combinations. Furthermore, broken flasks after mending or new types of flasks may be readily fitted into the scheme by a quick calibration against any one manometer.

Reference

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A Simplified Apparatus for One-dimensional Paper Partition Chromatography

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In carrying out one-dimensional paper partition chromatography, Consden, *et al.* (*1*) make use of glass troughs of cylindrical shape which, held in a horizontal position, serve as reservoirs for the developing solvents into which the filter paper strip chromatograms dip. Longenecker (*2*) has recently described a way of making such troughs.

The present note describes a *circular* trough which is easily and cheaply made from the two halves of an ordinary Pyrex Petri dish, 3.5″ in diameter. The centers of the two halves, with their lips facing upward, are connected by fusing them to a solid glass rod ⅜″ in diameter and 16.0″ long. This can be done readily at low cost by any competent glass blower.

In the accompanying diagram (Fig. 1) the double trough so obtained is shown in place in a glass humidifying chamber. The bottom trough serves to contain water or any aqueous solution which provides the chamber with the necessary humid atmosphere and also serves to provide a base for support. Absorbent cotton is wrapped around the solid glass rod and is wet with the same water phase present in the trough at its base. This cotton wick provides for the rapid restoration of equilibrium when it is necessary to open the humidifying chamber from time to time. The organic solvent used for development is placed in the upper trough. The paper strip chromatograms, suitably folded to dip into the organic solvent and to hang down from the trough, are held in place by a thin, solid, glass rod bent in a great arc. One end of the rod is turned perpendicularly to the plane of the arc and serves as a handle.

Around the circumference of the upper trough is placed a wire guard to hold the paper strips away from the side

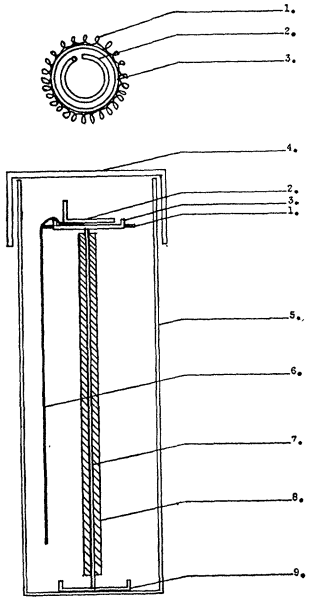

Fig. 1. Diagram of apparatus: (1) stainless-steel wire guard, (2) glass retaining rod, (3) Petri dish, (4) crystallizing dish, (5) cylindrical glass jar, (6) chromatogram strip, (7) glass rod, (8) absorbent cotton, (9) Petri dish.

of the trough over which they hang. This wire guard is made by bending a stainless-steel wire to form a scalloped circle (see Fig. 1) which has sufficient spring tension to grip the sides of the Petri dish trough so that no other means of attachment is necessary.

As a humidifying chamber, one may conveniently use a stock cylindrical glass jar, 18″ high and 6″ in diameter, covered by an inverted crystallizing dish (6.5″ in diameter). The closure may be made gas-tight by applying a starch glycerine paste to the edge of the jar.

The apparatus described, which can be used in developing 8 or more strip chromatograms at one time, depending on their width, has the advantage of cheapness and ease of manipulation.

References

1. Consden, R., Gordon, A. H., and Martin, A. J. P. *Biochem. J.*, 1944, **38**, 224.
2. Longenecker, W. H. *Science*, 1948, **107**, 23.