the sample, the free ends of the filter paper dipped into the electrolyte solution carrying the electrical charge and the electrophoresis carried out in the usual manner.

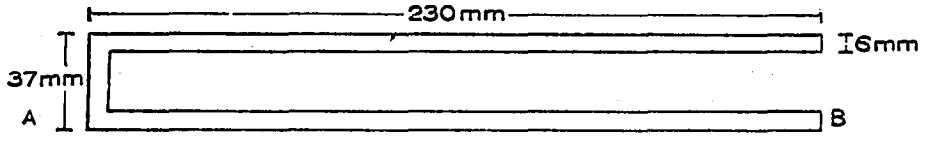

Fig. 2. Detail of the plastic form used in the apparatus.

Once the electrophoresis is complete, the dialysing membrane can be cut and peeled off. If desired, the starch gel can be slit lengthwise into two sections by inserting a razor blade between the two parts of the plastic frame—one part can then be stained to show the distribution of the proteins and the other saved for further investigations.

(2) Chromatographic tubes with ground-glass joints and an internal diameter of 10 mm can be used. The short end with the fritted disc (the inner member) is filled with starch sol and a length of Whatman No. 1 filter strip inserted into its open end. When the starch solution has gelled in this part of the column, it is fitted into the longer piece of the column (the packing column) which is filled with starch sol and a length of Whatman No. 1 filter strip inserted into its open end. After the starch solution has gelled in the longer column, the two pieces of the column are parted and the sample pipetted onto a small disc (7 mm diameter) of filter paper which is laid on the fritted disc so that, when the complete column is reassembled, the sample will lie directly against the starch gel column. The filter paper strips projecting from the ends of the assembled column are allowed to dip into the electrolyte solutions carrying the electrical charge and the electrophoretic operation is begun.

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Contact prints of starch gel electrophoresis patterns

The method of electrophoresis in starch gel first introduced by SMITHIES[1] in 1955 is now used extensively for many purposes. One problem associated with this technique is that of obtaining a satisfactory laboratory record of the separations

obtained. Photography of every gel is time-consuming and tedious, whilst drawing, even when accurate, is not satisfactory as the intensity of the bands is not easily reproduced.

SMITHIES[2] reports that gels may be rendered transparent by heating in glycerol or by dehydrating in benzyl alcohol, but in the latter solvent they become rigid and brittle. It has been found that by soaking the stained gels in ethyl alcohol followed by a mixture of benzyl alcohol and glycerol (2:1 v/v) a flexible, transparent gel is obtained. This can be pressed on to photographic paper and will give a satisfactory contact print.

The stained surface of the gel is placed in contact with the photographic paper in a pool of the benzyl alcohol–glycerol mixture. More of the mixture is poured on to the back of the gel and a piece of plate glass placed on it, avoiding air bubbles. It is necessary to have both faces of the gel in contact with the mixture to render it completely transparent. Extra hard contact paper is used and is developed in a contrast developer.

Whilst these contact prints are not suitable for reproduction, it is felt that this technique will enable others using starch gel electrophoresis to make rapid permanent records.

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Radioactive Isotopes in Biochemistry, by E. BRODA, Elsevier Publishing Co., Amsterdam, 1960, x + 376 pages, price 57 s, Dfl. 30.00.