applied at outlet O after the device is assembled. Vacuum grease is required on both sides of the gasket at H. When the required vacuum is obtained, pressure is applied to the depression head of knob A which is attached to the push rod by set screw B. If numerous vials are being capped at the same time, a steel lever for exertion of pressure on the push rod is necessary; this is depicted as R. The hook portion of the lever is placed beneath the lip of lid G, and pressure is exerted on knob A with the lever arm.

If it is desirable to seal the vials under dry nitrogen, the nitrogen is added via Y-tubing channelled through the vacuum system from beyond outlet O. A second Y can be placed on the line with a short section of tubing collapsed under vacuum. When the nitrogen reaches the pressure necessary to fill the chamber completely, the collapsed section of tubing expands, the nitrogen is cut off, and the stoppers are driven home as previously described. The stoppered containers are then removed and sealed with aluminium seals under a firm press capper.

A combined moist chamber and tray

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In the FTA (abs) test sera are allowed to act on antigen-coated microscope slides[1]. Small volumes of fluid are used. After incubation at 36 to 37°C in a moist chamber the slides are washed in several changes of buffered water, dried, conjugate is added, and the slides are reincubated. They are washed again in several changes of buffered water, dried, and mounted. This procedure involves repeated handling of the slides.

The apparatus has been designed to obviate handling and to facilitate the bulk transfer of slides throughout the test.

Design and Use of Apparatus

SPECIFICATION

The apparatus is in the form of a tray which is made from anodized aluminium[2]: length $8\frac{1}{8}$ in, width $4\frac{1}{8}$ in, depth $\frac{1}{2}$ in. Two inches from side B a $\frac{3}{4}$ in wide piece is cut out (E) rounded at both ends for neatness, and terminating $\frac{1}{4}$ in at each end, to allow the slides to be removed easily. Along side A are fixed two strips of absorbent material (C), and a strip of plastic (D) which serves to provide a watertight seal and separates the absorbent material from the slides. A handle of convenient size, but less than the width of the tray, is bolted to side A, and four holes $\frac{1}{8}$ in diameter are drilled, two centrally placed and one in

[1]PTFE coated microscope slides C. A. Hendley & Company, Victoria Road, Buckhurst Hill, Essex.

[2]Blank tray kindly supplied by Denley Instruments Ltd, Bolney Sussex.

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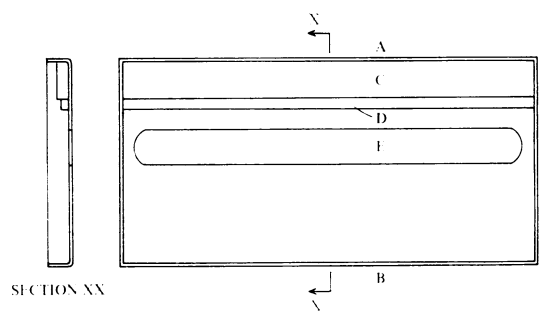

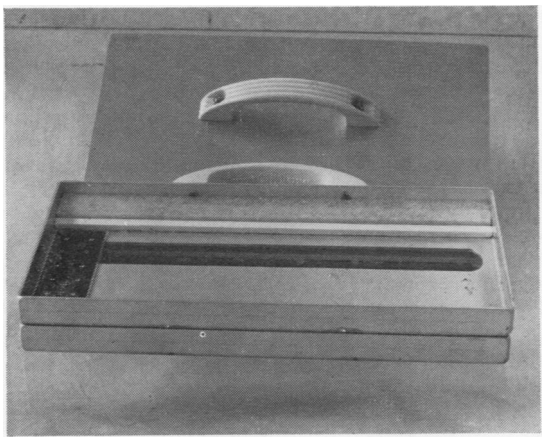

each corner of side B. These holes are used for drainage. The lid is made of aluminium sheet 8⅛ in × 4½ in with the handle centrally placed. The tray can hold eight slides.

USE

Antigen slides are numbered and placed in the tray, and the absorbent material is moistened with water.

After diluted sera have been added, another tray is then placed over the top and this constitutes the moist chamber. If one tray only is used the lid is placed on this tray. However many trays are used the lid must be placed on the top tray.

These trays are then placed into the incubator for the required time. After this period the fluid is washed off and the slides are placed in suitable containers containing buffered water. Trays may then be transferred from one container to another, the slides being attached to the tray by capillary attraction. During transfer water drains through the holes. For drying, trays are placed upright, handle uppermost, against the inside wall of the incubator and absorbent material, eg, blotting paper strips, is layered at the bottom of the tray to absorb excess moisture.

This procedure is repeated after the addition of the conjugate. Gentle pressure through the slot enables the slides to be removed.

It will be noted that during the whole of this procedure the slides remain in the tray and in the order in which they were initially placed.

Conclusion

Use in this laboratory has shown that in the FTA (abs) test the handling of slides has been reduced to a minimum. Little evaporation occurs with the small volumes of fluid used (0·03 ml) even after incubation at 37°C for two hours. Using slides with 12 antigen areas per slide (2) one filled tray carried 96 tests. We find two such trays sufficient for our requirements.

I should like to thank Dr E. G. Dowsett, consultant pathologist, for her helpful advice, Mrs E. Hogben who typed this paper, and Mr E. Rowe who took the photograph.

Letters to the Editor

In Defence of APTT Control of Long-term Anticoagulant Therapy

In their interesting and provocative paper, Drs Sarah Pearce and Sekar (1973) claim to have shown that the prothrombin ratio is a better test for the control of oral anticoagulant treatment than the activated partial thromboplastin test (APTT) using Bell and Alton phospholipid as the platelet substitute and a bentonite suspension for surface activation. Unfortunately they have chosen to express their APTT results as ratios of normal control values, which are not given, and have arbitrarily chosen a therapeutic range of 1·5 to 1·8.

When 168 paired results on plasma samples collected during long-term anticoagulant therapy were compared using Bell and Alton phospholipid or soya bean phospholipid with bentonite activation, good correlation between the two platelet substitutes was found (r=0·87). The therapeutic range of 50 to 70 seconds, based on the incidence of haemorrhage when soya bean and bentonite was used (Eastham, 1968), was found to correspond to 44-57 seconds when Bell and Alton phospholipid was used.

The normal untreated range of APTT results using soya bean and bentonite is wide (33-45 seconds), and it is therefore not sensible to express the APTT as a ratio. A time of 70 seconds, found to be critical in indicating potential risk of haemorrhage (Eastham, 1968), could be expressed as ratio values ranging between 1·6 and 2·1, wider than the therapeutic ranges chosen by Drs Pearce and Sekar (1973), depending on the normal control values found. Similar criticism can be levelled at the results of Drs Pearce and Sekar, their method of APTT estimation also having a wide normal range (26-40 seconds). It would be interesting to see their results plotted in the form used by Hamblin (1971). Using their method of estimation of APTT in their laboratory, he showed that the APTT was more sensitive than the prothrombin ratio in the detection of bleeding tendency. In 15 bleeding episodes during a three-month period of oral anticoagulant therapy, all these affected patients had abnormally raised APTT results (expressed as actual clotting times), whereas only five of these same patients had abnormally raised prothrombin ratios above the accepted therapeutic range.

Drs Pearce and Sekar found 29 bleeding episodes during a six-month period covering 906 patient/weeks of treatment, a rate of one bleed per 31 weeks of treatment. During a similar five-year period covering 13 780 patient/weeks of treat-