seconds in the annular counter, the time found necessary to obtain a significant number of counts, was used, as was the 100-second count using the immersible detector. The presumptive diagnosis and a comparison of the results obtained in these subjects are shown in Table II.

The results in Table I show that the immersible detector provided in 100 seconds figures whose standard errors compare favourably with those obtained by counting 10 ml. samples in the annular detector for 3,000 seconds. When 10 ml. samples were counted for only 100 seconds a high standard error was incurred. Standard errors were calculated using the formula given by Topping (1960). The ability of the immersible detector to count a large volume of fluid enables significantly high counts to be reached in a conveniently short time. The use of the largest practicable samples is generally advocated (Veall and Vetter, 1958; Quimby and Feitelberg, 1963) as the error in counting is reduced.

CONCLUSIONS

The N691 detector described can be utilized in the urinary B_{12} excretion test to obtain accurate results in a short time as it is able to count large samples of radioactive fluids. It is suggested that it need not replace the current equipment used for this test. If it is acquired as a general purpose versatile gamma-ray counter, it is well suited for use in this manner. Any counter of this type used in this or similar experiments should be thoroughly checked to see that it is watertight initially; the original unit tested was defective in this respect.

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A simple constant-infusion apparatus for very small quantities of fluid delivered over long periods

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Constant-injection devices are mostly expensive and complex. An extremely simple, reliable, and inexpensive device particularly suited to delivering small volumes over long periods is described below.

Essentially it consists of a micrometer syringe driven by a small synchronous electric motor and coupled so that the driving spindle of the motor disengages when the required volume has been discharged (Fig. 1). A suitable micrometer syringe is the standard commerically available Agla syringe. The only modification required is the attachment of the coupling device, which consists of a slotted perspex tube fixed to the end of the micrometer head. This slot takes the driving rods of the motor spindle (Fig. 2). A wide range of synchronous motors is available ranging from one revolution per second to one revolution per week.

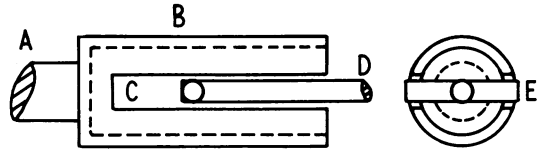

FIG. 2. *Simplified diagram of side and end elevation of coupling. (A) end of micrometer head; (B) perspex tube; (C) slot; (D) spindle from motor; (E) driving rod at end of spindle.*

In the model illustrated (Fig. 1) the Agla syringe is held firmly in two perspex uprights by screws. The motor is held in place by long knurled screws. The depth of the driving rods of the spindle in the perspex tube will then correspond to the maximum movement of the micrometer head (and therefore the movement of the syringe plunger) which can occur before the rods disengage.

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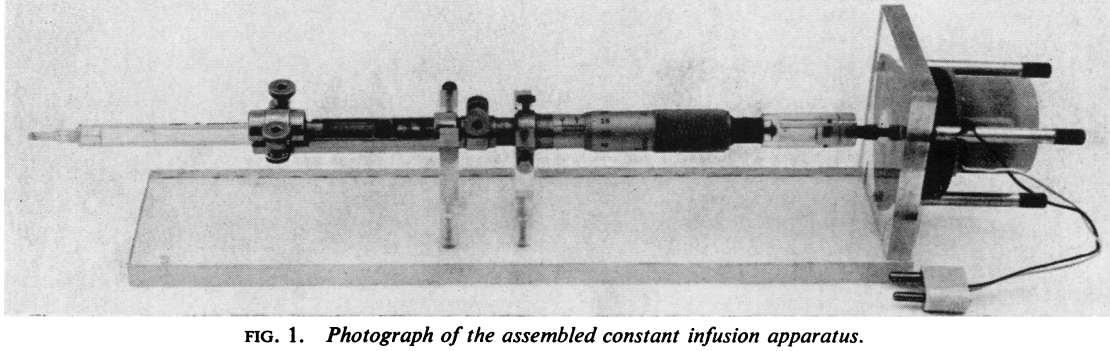

FIG. 1. *Photograph of the assembled constant infusion apparatus.*

Method of silver impregnation for nervous tissue embedded in paraffin

SERGE DUCKETT[1] *From Maida Vale Hospital for Nervous Diseases, London*

The aim of the silver impregnation methods for paraffin-embedded sections of nervous tissue is to combine finesse of histological detail with an easy method of processing.

The following method is presented here because of its rapidity, reliability, staining quality, and utility as a general purpose stain. The basic technique, without the variations, was devised by Fincher (1932) on the basis of Hortega's silver carbonate impregnation method for astrocytes and its purpose was to stain cerebral tumours.

METHOD

1 Paraffin sections, of 5 to 8μ for pathological studies and of 10 to 20μ for anatomical studies, are mounted on albuminized slides a few hours before use. The sections are then slowly brought through xylol (5 minutes), absolute alcohol (5 minutes), and alcohol 95° (5 minutes), and washed in distilled water.

2 Mordant in the following solution at 60°C. until yellow.

Silver nitrate 2%	30 ml.
Pyridine	10 drops
Absolute alcohol	15 drops

This usually takes 30 minutes. I prefer not to pre-warm my solution. Prolonged mordanting gives too dark a picture.

3 Wash quickly in 95° alcohol.

4 Impregnate in the following solution at 60°C. until a dark amber colour. If the solution has been pre-warmed this takes from 15 to 30 minutes; if not it may take up to an hour, at which time the section should be taken out no matter what colour it is.

Hortega's strong silver carbonate (lithium or sodium)[2]	30 ml.
Pyridine	10 drops
Absolute alcohol	15 drops

5 Wash rapidly in 95° alcohol.

6 Reduce in 10% formol for one to two minutes.

7 Wash in distilled water.

8 If desired tone in a 0·2% gold chloride solution.

9 Wash in distilled water.

10 Leave in a 2% oxalic acid solution for a few minutes until the sections become reddish. This step accentuates the staining of axones.

11 Fix, if desired, in a 5% solution of sodium thiosulphate.

12 Wash in distilled water, dehydrate, clear, and mount in balsam.

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[2]a *Lithium carbonate solution* To 5 ml. 10% silver nitrate add 20 ml. of a saturated solution of lithium carbonate and then drop by drop add 28% ammonia water barely to dissolve the precipitate. Bring volume to 75 ml. with distilled water and filter. Keep in brown bottle. b *Sodium carbonate solution* To 5 ml. 10% silver nitrate add 20 ml. 5% sodium carbonate solution and then drop by drop add 28% ammonia water barely to dissolve the precipitate. Add about 20 ml. distilled water and filter, bringing volume to 45 ml. Keep in brown bottle.

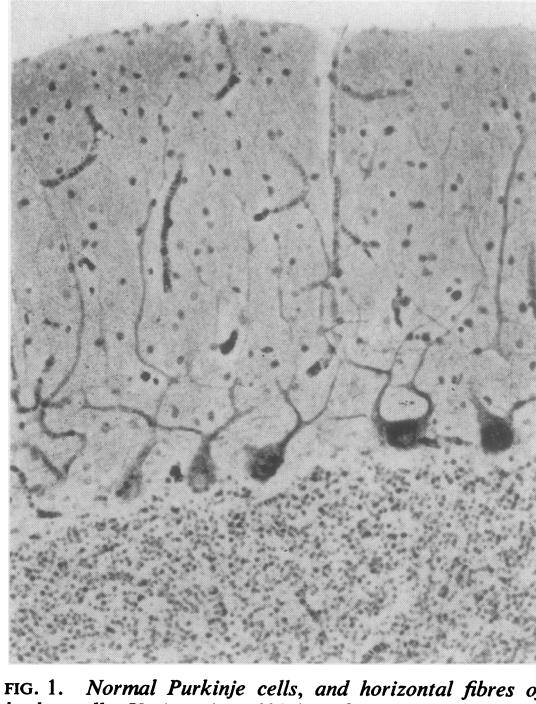

FIG. 1. *Normal Purkinje cells, and horizontal fibres of basket cells. Variant 4 × 120 (mordanting, one hour, and impregnation one hour).*

A simple constant-infusion apparatus—continued.

At present two of these models are being used for the injection of tritiated thymidine into rats at a rate of 0·5 ml. per 25 hours (Foot, 1963).

The advantages of the present device are its simplicity cheapness, accuracy, 'foolproofness', and the minute amounts that can be injected. Its working can also be checked easily by observing the rotation of the micrometer head. Its disadvantage is that a separate motor is required for each different speed but these are cheap and can be changed in a few moments.

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