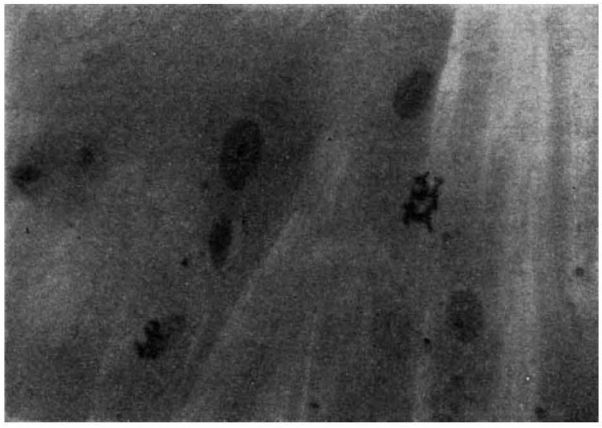

Fig. 3. Higher magnification of Yaba tumour cells from tissue explant shown in Fig. 1

The cell on the extreme left of Fig. 3 may contain an inclusion body. If this observation is borne out by electron-microscopic investigation, the Yaba-histiocytoma cell origin of these cells will be strengthened. This preliminary communication points out that the virus-induced Yaba tumour itself can be perpetuated in simple cultures, and suggests a possible method for cultivation of the virus. Further investigations are needed before this cell culture can be developed into a useful tool for the investigation of this virus.

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MISCELLANEOUS

Use of Glass Fibre Paper in Liquid Scintillation Counting

Filter paper is frequently used as a means of supporting radioactive substances, such as proteins or the effluent from a column, for counting in liquid scintillation counters. While this is satisfactory for most isotopes in common use, the efficiency of counting tritium is undesirably low, being a fraction of the efficiency obtainable with tritiated toluene. Glass fibre paper, however, has been found to allow a much higher counting efficiency, approaching the theoretical maximum.

The efficiency of counting typical water-soluble radioactive compounds supported on various filters was determined on a Nuclear Chicago model 724–725 liquid scintillation counter (this is a coincidence counter with photomultiplier tubes either side of the counting bottles). Known amounts of ^{3}H- and ^{14}C-labelled amino-acids were applied evenly to the filters, which were dried under an infra-red lamp and inserted in cylindrical form into 5-ml. flat-bottomed vials containing toluene-based scintillator (5 g/l. 2,5-diphenyloxazole; 0·3 g/l. 2,2-*p*-phenylene*bis* (5-phenyloxazole)). It can be seen from Table 1 that the efficiency of tritium counting is very much greater, and the efficiency of carbon-14 counting is slightly greater, using glass fibre paper than using cellulose paper.

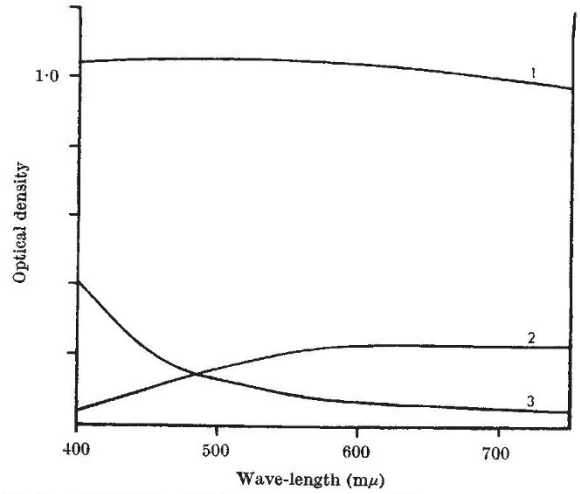

Fig. 1. Absorbance of filters in toluene. 1, Filter paper (Whatman No. 1); 2, glass paper (Whatman *GF/C*); 3, membrane filter (Oxoid)

It was at first suspected that the increased efficiency might be attributable to the virtual transparency of glass fibre when immersed in toluene (Fig. 1). That this is not so was demonstrated by counting vials containing radioactive protein entirely supported on cellulose, cellulose acetate, or glass paper and then counting the same vials with the radioactive material surrounded by a non-radioactive cylinder of a different material. All combinations were tried, and in no case with either carbon-14 or tritium was a significant decrease in count observed. It seems, therefore, that the lower efficiencies with cellulose or cellulose acetate could be a result of quenching by these materials, but that the optical density of the supporting substance is relatively unimportant.

Table 1

	Thickness (mm)	Maximum loading (ml./cm²)	Counting efficiency (%) ^{3}H	^{14}C
Filter paper (Whatman No. 1) 3·3 cm × 3·3 cm	0·17	0·02	4·6	61
Glass paper (Whatman *GF/C*), 3·7 cm diam.	0·31	0·04	20·8	75
Membrane filter (Oxoid), 3·0 cm diam.	0·12	0·01	6·9	64

A further advantage of glass paper is that it holds about twice the volume of liquid as the same area of paper, enabling one to apply larger volumes of solution for drying. If even larger volumes are to be counted, aliquots may be applied successively with interjacent drying, or more than one piece of glass fibre may be counted in the same vial with no decrease in efficiency—a result implicit in the observation of Pinter *et al.*[1], who found no reduction in count when up to 25 glass fibre disks were laid flat in counting bottles containing ^{14}C-cholesterol in solution. This has been found to hold true for tritiated compounds as well.

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