occur in oxidized fatty materials[1,2]. The column techniques also provide a method to obtain MA in a given buffer solution at any pH, free from other substances. The original hydrolyzate of MA acetal contains ethanol, and may also contain polymeric MA[2] and other partial hydrolysis products in addition to MA.

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An adjustable column end-piece for gel filtration

The end-piece is constructed from two concentric acrylic tubes (Fig. 1). The inner tube has an expanded end which can be drawn up against the outer tube by a screw thread and nut. A cuff cut from silicone rubber tubing is placed between the ends of the acrylic tubes so that tightening the screw increases its diameter. The expanded end of the inner tube is funnelled to a sharp edge, but is also recessed to take a disc of porous polyethylene which is cemented in with acrylic cement. A silicone tube is pressed into the narrow end of the funnel to convey the column fluid.

Two end-pieces are inserted into a glass cane of slightly larger internal diameter, and tightened till the cuffs expand to fit snugly to the glass. A column of variable bed length can be obtained, and shrinkage can be taken up between experimental runs. The dead space volume of the end-pieces can be made very small, and their porous faces are little smaller than the column cross section. The need for precision bore column tubing is obviated though the diameters of the end-piece and column tube should not be so disparate that fractions with very high or low densities gravitate into the space between them. This risk can be reduced by pressing a little column gel into this space when the end-pieces are finally adjusted.

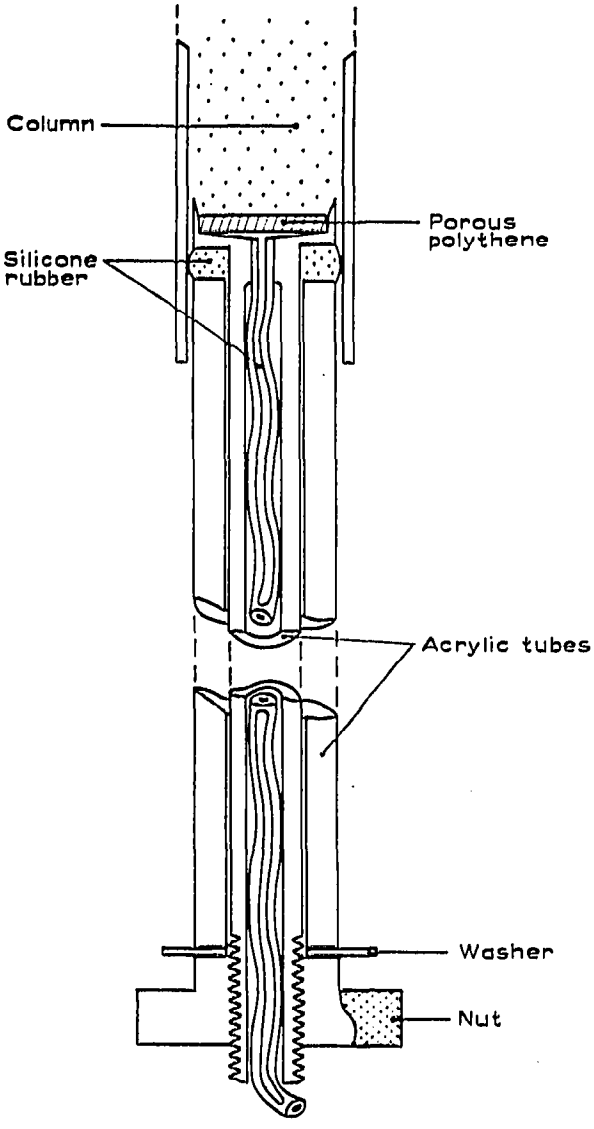

Fig. 1. Column end-piece in longitudinal section.

The end-pieces proved water tight for up to six weeks, but could still be released readily from the glass. Sephadex G-200 grains were completely retained by porous polythene of 80/4 grade, $^1/_8$ in. thick*, at flows of up to 8 ml per hour.

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* Made by Vyon Porous Plastics Ltd., Dagenham Dock, Essex, England.