the vial, and put into a fire-proof vessel inside the 1st tube in the presence of the O_2 flow. The organic matrix of the sample was burned by placing the tube in a furnace whose temperature reached 900 °C. After 10–15 min, the halogens were carried by the O_2 flow to the HMD resin, which retains Br_2 and Cl_2, but not I_2. I_2 is fixed by the Ag-wool, forming AgI. Finally we placed the Ag-wool in a suitable vessel, in order to get the same counting geometry for standards and samples treated with radiochemical separation. The sensitivity of this method allows the measurement of iodine concentrations as low as 0.02 ppm.

Results and discussion. In the table we summarize the results obtained; iopamidol is quickly eliminated from the most significant tissues. 15 min after its administration most has already passed through the kidneys and can be found in the bladder (see X-ray photograph). After 1 min we find the greatest amount of iopamidol in the kidneys (15,000 ± 1500 ppm); with blood, thyroid, liver and brain levels following in decreasing order. With regard to the decrease in the hematic level, diffusion of this compound to extravascular compartments seems to be slow; in fact we can see that the amount of iopamidol in the blood remains constantly much higher than expected relatively to the amount in the liver and brain. Even total thyroid iodine levels remain significantly lower until thyroid basal values are reached. Brain iodine values remain much lower than hematic values and 24 h after injection near basal levels have been reached, suggesting that iodine measured in the brain is due to iodine present in residual blood in the cerebral vessels and that iopamidol does not pass the blood-brain barrier. On the contrary, some extravascular diffusion is seen at the hepatic level, where measured values, even though remaining constantly lower than hematic values, are significantly higher than those measured in the brain and the elimination kinetics seem to be similar to those seen in the blood. This phenomenon could be due to the structure of the liver itself, where plasma is known to filter freely through the sinusoidal plexus into Disse space. The percent increase of iodine with regard to basal values is greatly inferior for the thyroid when compared to other compartments of the organism and after 24 h iodine concentration has almost reached basal values. Subsequent experimental data demonstrate a return to original values. From the results obtained in our study, the 60 day waiting period usually required before testing thyroid iodine incorporation in patients who have undergone iodate RCM administration seems to be excessive.

Two months later, the sensitivity of the method employed allows us to ascertain that blood iodine levels are only slightly higher than basal values. At this time we can see even less additional iodine present in the liver, but considering the incidence of statistical error, this experimental value can be considered as equal to physiological values. On the whole our results show that iopamidol is quickly eliminated and not likely to accumulate in the most significant tissues; moreover it has no effect on thyroid iodine uptake.

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A holder for Ralph knives for cutting sections for high performance optical microscopy with a Minot type microtome

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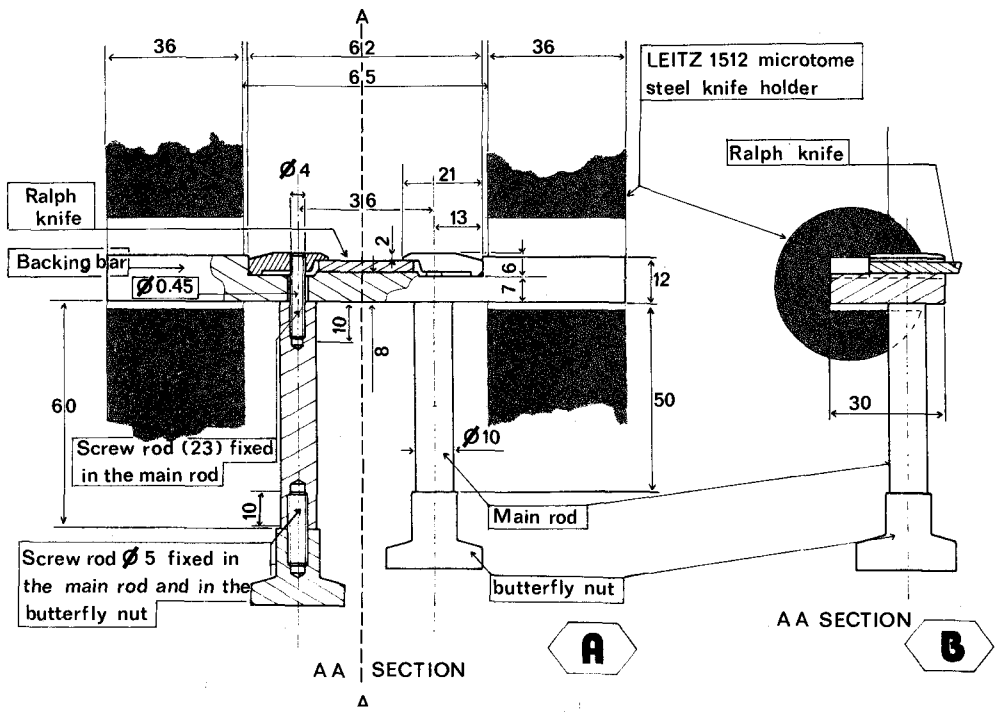
Summary. We present plans for an original holder for long-edged glass knives (Ralph knives). Knives are prepared by hand-breaking of commercial window glass (3 mm thick), for cutting large blocks of tissue embedded in a water-miscible plastic resin, glycol methacrylate.

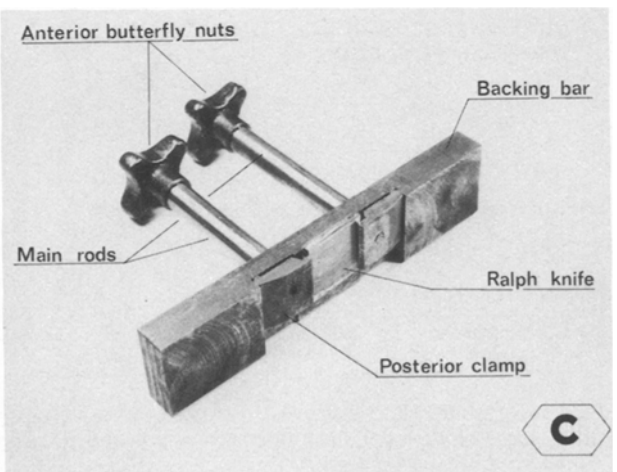
Recent years have seen the development of high performance optical microscopy (HPOM) which allows a clear visualization of the intimate structure of cells and tissue organisation by standard light microscopes. HPOM makes use of plastics as embedding media, instead of paraffin wax, which has been the traditional embedding medium for

generations of histologists. Since polymers produce less distortion and shrinkage than paraffin, more details are now observed when light microscopy is undertaken. Such high resolution microscopy will fill the well-known gap between transmission electron microscopy and light microscopy. Various plastic embedding media have been successfully introduced for HPOM, for example methylmethacrylate, N-butyl methacrylate, araldite and epoxies (see review by Bennett[2]). However, glycol methacrylate (GMA), and various mixtures composed of GMA, are the most easily handled because of their water-solubility and the possibility of obtaining semi-thin sections (i.e.: 1-to 3 µm in thickness) on a conventional Minot rotary microtome with large area tissue blocks. We have recently described a method for the purification and use of GMA[3] for HPOM.

Sectioning plastic blocks is easier with glass knives than with steel knives. Lindner and Richard[4] and others[5] have emphasized the superiority of long-edged glass knives over the short classical triangular glass knife of Latta and Hartmann[6] (6.5 mm in length) which is used for electron microscopy. Large glass knives were first introduced in histology by Bennett (op. cit.) as 'Ralph Knives' in honor of Dr P. Ralph who invented the procedure for the fracture of glass. Their original method makes use of hand broken large strips of flat glass 6.5 mm thick.

In Semba's hands[7], and in our own experience, it was found to be difficult to obtain suitable knives by this technique. Although devices have been described for mechanically scoring and breaking glass strips[4,5] we consider this procedure rather expensive. The method described by Semba (op. cit.) with thinner glass slides, 1.0–1.4 mm thick, gave us full success, especially when a standard window glass (3 mm thick) was used. We have been able to obtain excellently sharpened Ralph knives with an edge 20–50 mm long; 25 mm was found to be the most suitable length for the Leitz 1512 rotary microtome, because of the design of its steel knife-holder.





Plans for the Ralph knife holder: *A* Upper view: all dimensions are given in mm. ∅ = diameter. The screw rods are fixed by Araldite or Loctite. *B* Lateral view: section through AA. *C* Holder with a Ralph knife in position for sectioning.

Bennett (op. cit.) used Ralph-knives by gluing them on to steel bars with a heat softening cement (dental cement for example). Semba (op. cit.) recommended a paraffin method of adhesion. However, these 2 techniques are time-consuming and need the preparation of a large number of knives before sectioning.

Several holders have been described for glass knives; Behnke[8] and Shaw[9] have described holders for the triangular Latta and Hartmann knives. A holder is available from Leitz for the 1515 MOT rotary microtome, which accepts glass knives with an edge 12 mm long. Gorycki[10] has adapted an ultra-microtome holder for long knives and Szczesny[11] is the only one who has presented plans for a holder for Ralph knives prepared according to Bennett (op. cit.).

We have found this last holder exceedingly difficult to handle. When its edge has deteriorated, a glass knife must be changed; with Szczesny's holder, one must remove it from the microtome, loosen 4 screws, change the knife and

make a new adjustment. To overcome these problems, we have designed an original type of holder for Ralph knives 25 mm long and 3 mm thick, to be used on a Leitz 1512 microtome. We prefer standard window glass, scored with a diamond and hand-broken. We present here detailed plans which can be used by any workshop. The dimensions were calculated for the Leitz 1512 microtome. The adaptation of the holder for other microtomes like the Minot rotary type is also possible by adjusting the dimensions.

The Ralph knife is held by 2 lateral posterior clamps which are firmly tightened by 2 anterior butterfly nuts. The backing bar is placed in the microtome steel-knife holder. Such a mounting does not require removal of the holder when the knife has to be changed. Alignment and approach are not modified. These plans for an original holder for hand-broken Ralph glass knives may seem a little difficult or confused to a histologist, and we apologize in advance; the plans were designed by a professional industrial draughtsman for direct use by the workshop.

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A microquantitative method for investigating the interaction between labeled lectins and the surface membranes of human lymphocytes using a semi-automatic harvesting machine

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Summary. We describe a simple, rapid and economical method for the study of the interaction of labeled lectins and the surface membranes of human lymphocytes using a semi-automatic harvesting machine (Titertek Multiple Cell Harvester). The procedure requires both small numbers of cells and small amounts of lectin, moreover it reduces the number of experimental steps required.

Lectins are bi-or multivalent proteins which are found predominantly in the seeds of some plants and also occur in invertebrates and mammals[2,3]. These lectins bind to specific cell surface saccharide determinants and induce lymphocyte stimulation and cell agglutination[2]. It is generally accepted that the effects of lectins on the cell presuppose a prior binding to the glycoprotein receptor sites located on the cell surface[4]. Because of their particular properties, lectins have been found to be useful molecular probes for investigating the structure, topology and mobility of plasma membrane saccharide-bearing components[5,6]. Inhibition of the lectin-cell surface interaction with saccharides and cell surface components has been used to investigate the saccharide specificity of lectins and also to evaluate the lectin receptor activity of cell macromolecules. Such studies have been done using lectins labeled with radioactive compounds, and involve large amounts of both lectin and cells. Moreover, a long and repetitive centrifugation procedure is required[7,8]. In the present communication we present a simple, rapid and economical procedure for studying the interaction of labeled lectins and the cell surfaces of human lymphocytes using a semiautomatic harvesting machine (Titertek Multiple Cell Harvester).

Materials and methods. 1. Lectins. Concanavalin A (grade III) was obtained commercially from Sigma Chemical Co.; Robinia lectin, *Ricinus communis* lectin (Var. sanguineus agglutinin, RCA 120) and anti-Robinia lectin serum were prepared by methods described elswere[9,11].