rod F leads to an attachment by which the cell is mounted in the constant temperature bath. I and II are cylindrical openings through which the cell is filled. By sliding the lower block to the left until its slit is in line with tube I, the lower compartment is completely shut off from the upper one. This part of the cell can be filled with solution through tube I, which connects through a one-eighth inch hole drilled through the upper block. The upper compartment is filled with the solvent through tube II. After the cell has been placed in the constant temperature bath, the screw K is loosened slightly, and the lower block, together with the glass plates, is moved slowly to the right until the upper and lower compartments are in alignment. Then the screw K is tightened again and diffusion proceeds.

A very thin layer of stop-cock grease is applied to the steel surfaces before the glass windows are set in place. In order to prevent grease from soiling the glass forming the windows of the upper half of the cell, a quarter-inch wide area to the left of the upper rectangular slot is left free of grease. For greater refraction power, the thickness of the cell has been increased, in comparison with the Lamm cell, from 1 to 1.7 cm. All parts with the exception of the stainless steel blocks, A and A_1, are made of chromium-plated brass.

From an experimental viewpoint the cell has been found to offer the following advantages: 1. Smooth boundary formation and immediate visibility of the boundary at the position of formation. 2. Small volume capacity, *i.e.*, 2 cc of solution and solvent each being sufficient for a diffusion experiment. 3. Greater refractive power due to the increased thickness of the cell; this allows the diffusion rate of protein solutions to be measured in concentrations of 0.2 per cent. and less. 4. Easy dismantling and reassembling for cleaning purposes.

The cell has proved to be suitable for diffusion measurements with solutions of proteins as well as of low molecular weight substances, the results of which will be published elsewhere.

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A SIMPLE, THIN AQUARIUM

A SATISFACTORY, water-tight, live chamber can be built easily with two sheets of clear window glass, a length of heavy-walled "pressure" rubber tubing, two wooden rectangles of the same size as the glass and four C-clamps. The figure shows the separate parts and the assembly in end view. This unit will hold water, can be made in any size or shape needed, and, for photographic work with artificial backgrounds placed behind the assembly, is excellent, since it does not distort the backgrounds or cause lack of uniformity in illumination.

If a thicker cell is wanted and rubber tubing of the largest size not adequate, a still broader unit can be made by adding a flat wooden rectangle and another U of tubing to the sandwich. Thus the thick cell will consist of rectangle—glass—tubing—rectangle—tubing—glass—rectangle. Smaller tubing can then be used and the flat rectangle made any thickness needed.

With this type of thin aquarium, all sorts of interesting lighting can be employed and many scenic backgrounds provided. Yet the organisms can not get far enough away from the front glass to escape a hand lens or dissecting binocular used horizontally.

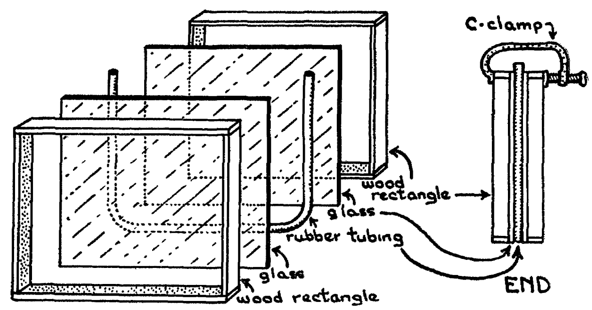

FIG. 1

For study of water insects, salamanders or fish, this type of equipment is much preferable to the commonly used thin museum jars, since it lacks distortion and can be made of any dimensions desired.

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