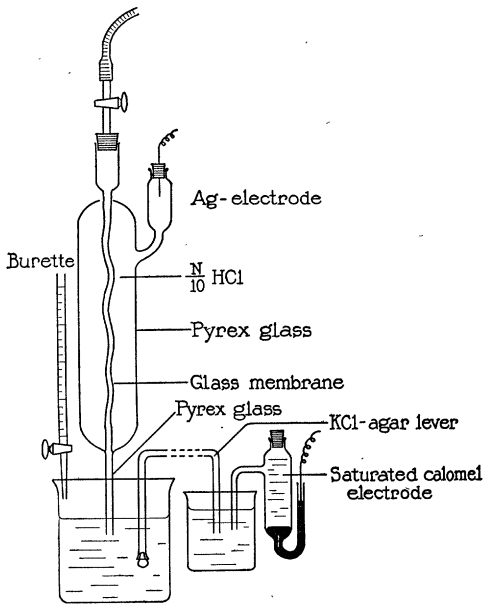

TYPE II

The correctness of the slope is shown in the following experiment.

A solution containing 1 mole NH_4Cl per liter, and NH_3 in the concentration indicated in the table showed the following potentials at 30° C. = (in a constant temperature room).

$[NH_3]$	Electrode I, 7 megohms (filled with .1 N HCl)	Difference	Total difference	Electrode II, 4 megohms (filled with .5 N HCl)	Difference	Total difference
.001000	.2566			.3109		
		.0602			.0598	
.01000	.3168			.3707		
		.0600	.1805		.0601	.1802
.1000	.3768			.4308		
		.0603			.0603	
1.000	.4371			.4911		

The difference should be theoretically in each case .0601 volts; and the total difference over three units of pH is theoretically .1803 volts. This table is taken from measurements made by Dr. J. Bjerrum in this laboratory, who has used this glass electrode for various investigations to be published later.

Except on very warm and humid summer days, no trouble of any kind was encountered in the use of this method.

LEONOR MICHAELIS

A SIMPLIFIED PROCEDURE FOR THE VOLUMETRIC MEASUREMENT OF SERIALLY SECTIONED STRUCTURES

BIOLOGISTS have frequently been able to determine the volume of glands, etc., too small or diffuse to be otherwise handled by outlining serial sections and measuring the outlines either by cutting out and weighing or by use of a draftsman's planimeter. The use of this latter instrument is somewhat simpler, though in either case the method is laborious.

In extensive use of this technique the author has found it possible to so simplify the procedure that, aside from the preparation of the slides, very little effort is involved.

The outlines, by projection or camera lucida, are prepared in sequence on a continuous sheet of wrapping paper. The planimeter is set upon a large sheet of heavy clear celluloid (or other thin flat transparent material) which is tacked down at the ends. A pinhole near the center is made and marked as the starting point. The celluloid sheet should be large enough so that in all measurements the planimeter rides entirely upon it.

The sheet with outlines are slipped *under* the celluloid and a point on the first perimeter is brought under the starting point. The pointer is traced around, measuring the first outline. Then without disturbing the planimeter the outline sheet is slipped along until a point on the next outline is under the starting point. When this is measured the planimeter automatically adds its area to that of the preceding. If it is desired to subtract any particular part of the outline the planimeter is run backwards. The final sum of the areas is given by one reading of the planimeter. From this and the thickness of the sections the volume is calculated.

By this method a gland involving over one hundred sections can be carefully outlined, measured and checked in less than two hours. A comparison with the paper weight method showed somewhat less variability and the further advantage of giving actual volumes.

WILLIAM ETKIN
COLLEGE OF THE CITY OF NEW YORK
AND
THE AMERICAN MUSEUM OF NATURAL HISTORY

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