tions of this kind not only impress the student with such characteristics of the mammalian ovum as its diminutive size, for example, or with the image of its fresh state, which differs so effectively from the visions of the fixed and colored tissue that dominate the morphological imagination, but also bring him more concretely into contact with the physiological process of ovulation. True, the technical difficulties involved in the mastery of the exercise will register many failures in a large class, but the interest which it arouses, the ingenuity it calls into play and the competition which it engenders, all combine to make it a stimulating introduction to the embryological course.

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EASY SAMPLING OF PLANT TISSUE

THE usual procedure in preparing green plant tissue for sampling for chemical analysis has been to cut the material into one half to one inch segments with a razor or sharp knife. In some instances scissors have been used when the material has not been too bulky or tough. Obviously the preparation of material by this procedure has been a laborious task when the material has been very hard and fibrous or the amount of tissue was very large. In fact, the labor involved is so great that it has been practically impossible to secure samples for analysis when the bulk of material has been large.

Recently in this laboratory some samples of one hundred plants each of hubam clover were taken for carbohydrate studies, but because of the woodiness of the stems it was practically impossible to secure samples for analyses by the procedure mentioned above. The stems were so woody that they were chopped with difficulty with a sharp corn knife.

A paper-cutter having a ten-inch blade was tried and found to work very successfully. The samples of one hundred plants were cut into one half to three quarter inch segments in from three to five minutes. The paper-cutter has been tried on other material and has been used almost exclusively in preparation of green plant tissue for analyses. Samples of cowpeas weighing ten pounds have been prepared for sampling in ten minutes. Fibrous stems like those from large tomato plants have been prepared for sampling in a few minutes.

While the use of a paper-cutter for preparing samples may not be new to a number of laboratories, there are so many places in which the razor method is used that a suggestion to use a paper-cutter in the preparation of samples may be very helpful.

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SPECIAL ARTICLES

THE LEAKAGE OF HELIUM THROUGH PYREX GLASS AT ROOM TEMPERATURE

(Contribution from the T. Jefferson Coolidge, Jr., Memorial Laboratory, Harvard University.)

IN experiments upon the change in PV with pressure for helium at 0° C. in a container of Pyrex glass it was noted that even in so short a time as twenty-four hours the alteration in PV at atmospheric pressure through leakage of helium was perceptible. In Table I are given the products of the pressures in millimeters by the volumes in milliliters as determined on different dates. Since the pressure was considerably below atmospheric in the second series of experiments, in which the gas was expanded from 319 ml. to 392 ml., there can be no question of mechanical leakage. Furthermore the apparatus had been used previously for argon and showed no similar effect.

TABLE I

Date	P	PV	Time	dPV	Change per day
	mm.		days		Per cent.
Oct. 15, 1927	770	245513			
Oct. 18	"	245485	3	28	0.0038
Oct. 20	"	245470	5	43	0.0035
Oct. 23	"	245444	8	69	0.0035
Oct. 25	627	245418			
Oct. 29	"	245388	4	30	0.0031
Nov. 2	"	245373	8	45	0.0023

The capacity of the container in the first series of experiments was 319 ml., the interior surface about 257 cm^2, and the thickness of the walls, which were not very uniform, between 1.5 and 2.0 mm. Apparently the leakage per day per cm^2 was 0.04 mm^3.

Although the leakage of helium through Pyrex glass at elevated temperatures has been noted by various observers, we have been unable to find any reference to this effect at ordinary temperatures.[1] In order to make sure that what we observed was really diffusion through and not merely into glass we have made a roughly quantitative determination of the rate at room temperature in the following way: A spherical Pyrex glass globe of 1044 ml. capacity was filled with fairly pure helium to a pressure of 75 cm. at 20°, and then was sealed by fusion of the glass. A counterpoise of 1.4 ml. greater exterior volume than that of the globe was filled with argon at 79 cm. and also carefully sealed. Since the coun-

[1] Paneth, Peters and Günther state that glass dissolves more helium than neon at ordinary temperatures. *Ber.*, 60B, 808, 1927.