melanophores of intact scales.

2. Light passing directly through glass bottomed tanks onto the lower surface of the flounders was the most effective in producing melanophores. This means of illumination delivered the most intense light to the ventral surface of the fish and could be most accurately measured.

3. The use of opaque masks indicates that light affects the cell directly to produce melanin.

4. The melanination of regenerating scales is apparently not dependent upon the presence of light. Investigation of this special problem is being continued.

16335

Technique for the Biomicroscopic Study of the Ovary and the Fallopian Tube.

CLEMENTE ESTABLE.

From the Instituto de Investigación de Ciencias Biológicas, Montevideo.

In order to explore the ovary microscopically *in vivo* a method is described, the first step of which is the eventration of the ovary, with or without the Fallopian tube, and its placing in a subcutaneous loggia. To do this, the animal (rabbit) is fastened on its back, with the posterior part of its body rotated 30° to 45° on the longitudinal axis. Ether or some other anesthetic is administered. Then the ovary, with or without the Fallopian tube, is reached via a discreet section of the abdominal wall, slightly under the dorso-lateral line projected by the course of the Fallopian tube, and behind the kidney. Then the great external obliquus muscle is pierced by means of a surgical knife or the tip of a scissors slightly above this first incision, and the broad ligament is gently clamped; without being touched, the ovary is thus eventrated through the small opening in the muscle, the aponeurosis of which serves as a bed. All suturing close to the ovary should be avoided and is not necessary, as the ovary remains in its new position by simply placing it perpendicularly to the incision (Fig. 1). When removing the ovary from the abdomen great care must be taken not to provoke any circulatory or nervous disturbances; this point is of the utmost importance as regards all further activity of the ovary. The wound in the skin should not coincide with the ovarian surface or with the wound in the muscle which forms the bottom of the subcutaneous loggia. A flap-like portion of skin should cover the ovary, or the Fallopian tube, or both, as the case may be. Neither the suture of the muscle nor that of the skin should be in contact with the organs in the subcutaneous loggia. Thus, the ovary, the tube, or both can be easily reached without causing trauma. The best material for study is that in which no adhesion between skin and ovary arises; this is usually prevented by the secretions of the transferred organs, as well as by the frequent opening of the loggia necessary for repeated macro and microscopic studies of the ovary and the Fallopian tube.

Visualization capsule. The first experiment performed tried to keep the ovary visible through a grafted cornea. This procedure was a failure.

The visualization capsule is made up of 4 parts: (a) an ebonite ring of varying diameter and height, threaded on the inside and having a flat perforated base which allows it to be sutured under the skin, and large enough to accommodate the ovary and the Fallopian tube; (b) a second ring which screws into the first to which is fastened an extremely fine, transparent and elastic, removable diaphragm; 2 small holes in the ring

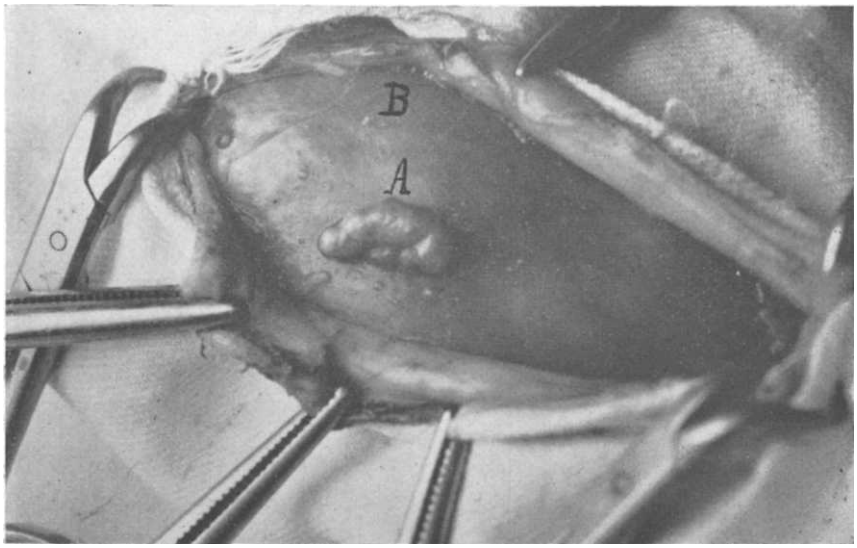

FIG. 1.
Ovary (A) transferred to the great obliquus muscle of the abdomen (B). The eventration was performed through a small opening. The ovary stays *in situ* without ligature or suture.

FIG. 2.
Eventrated ovary, within the fixed part of the visualization capsule.

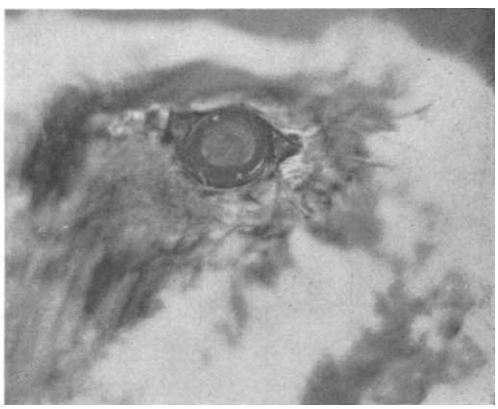

FIG. 3.
Ovary lying inside the visualization capsule, protected by a transparent, elastic diaphragm.

serve to screw or unscrew it; (c) an ebonite lid which screws onto the outside of the upper portion of the first ring, closing the ovarian chamber hermetically (Fig. 2, 3); it can be removed very easily every time it is necessary to make macro and microscopic observations of the ovary; (d) a metal key with 2 fine spigots which fit into the holes in parts (b) and (c) for screwing or unscrewing. This mobility and the elasticity of the diaphragm undoubtedly facilitate biomicroscopy and make preservation of the ovary very easy. The rigid diaphragm prevents the frontal lens of the objective from being brought as close to the ovarian surface as one would wish, becoming blurred more rapidly and being more difficult to replace. The construction allows the removal of parts and whenever necessary the examination of the ovary without any diaphragm. The lid protects the diaphragm and insures better asepsis; the capsule with the lid and without the dia-

phragm affords poor protection of the ovary against drying.

The subcutaneous ovary may be examined daily with the microscope,—the binocular, the ultrapaque or a mono-objective type; in the latter case a microlamp, an illuminating needle or a thin spatule of plastic material is placed directly beneath it or by perforating the tissues under the ovary.

When, through an error in operating, the hind leg of the rabbit rubs against the capsule, the sciatic nerve is sectioned to avoid irritation of the ovary, thus paralyzing the leg.

Precautions must be taken against vascular block,—as this might cause gangrene,—and against inflammatory irritations or damage to the nervous fibers. Obviously, this is not a subcutaneous graft of the ovary; it is a careful and adequate eventration, which maintains circulation and innervation intact.

With the technique for the biomicroscopic examination of the ovary and the Fallopian tube presented above, it is possible to follow, under the microscope, the development of the Graafian follicle, its circulatory changes, the exact moment when the "stigma" appears, its dehiscence, the flow of the follicular liquid carrying away with it the oöcyte, and the peristalsis of the Fallopian tube.

Observations already made are being prepared for publication.

Summary. For the microscopic observation *in vivo* of the mammal ovary and the Fallopian tube, two techniques are described, with special reference to the rabbit: (1) the transference of the ovary to a subcutaneous loggia, (2) the eventration of the ovary and its protection by a visualization capsule through which microscopic examination is possible. In both cases nervous and vascular connections are kept intact.

16336 P

Effect of Sodium Bicarbonate and Ammonium Chloride on Ascorbic Acid Metabolism of Adults.

BETTY E. HAWTHORNE* AND CLARA A. STORVICK.* (Introduced by J. S. Butts.)

From the School of Home Economics, University of Washington, Seattle, Washington.

A consistent lowering of the urinary ascorbic acid excretion of adults has been observed when an increased urinary pH is effected by the ingestion of sodium bicarbonate.[1,2,3] Guinea pig experiments measuring "scurvy scores" and body stores of ascorbic acid[4] indicated that the lowered excretion of ascorbic acid as a result of the ingestion of sodium bicarbonate appeared to represent an increase in retention rather than greater destruction as might be supposed from *in vitro* experiments. This communication reports for the first time, as far as we know, the results of simultaneous daily determinations of plasma and urinary ascorbic acid concentrations of adults on controlled ascorbic acid intakes ingesting sodium bicarbonate or ammonium chloride.

Experimental. The subjects were 2 adult women, C. C. and J. G., in normal health, both actively interested in nutrition research. The experiment was divided into 3 periods of 14 days each: 1st period—basal diet[5] (containing by analysis 7 mg of ascorbic

* Present address, School of Home Economics, Oregon State College, Corvallis, Oregon.

1 Heinemann, M., *J. Clin. Invest.*, 1941, **19**, 39.

2 Hawley, E. E., Stephens, D. G., and Anderson, G., *J. Nutrition*, 1936, **11**, 135.

3 Patterson, I., unpublished data, Cornell University, Ithaca, N.Y., 1942.

4 Hawley, E. E., Daggs, R. G., and Stephens, D. J., *J. Nutrition*, 1937, **14**, 1.

5 Lewis, J. S., Storvick, C. A., and Hauck, H. M., *J. Nutrition*, 1943, **25**, 185.