August 25 *B. Vincent Hall*, University of Illinois
"The Glomerulus in the Rat."
Don F. Fawcett, Harvard University
"The Amphibian Nephron".
J. F. Rinehart, University of California
"Sinusoid and Vesicular Structures in the Pituitary and Kidney".

Special Meetings and Seminars

July 7 Informal meeting of laboratory personnel to discuss the summer work.

July 17 *Roy P. Forster*, Dartmouth College
"Comparative Physiology of the Kidney".

July 21 *Roy P. Forster*, Dartmouth College
"The Geography of the Sea".

July 31 *J. Wendell Burger*, Trinity College
"Marine Biology".

August 7 *Alfred P. Fishman*, Columbia University
"Homeostasis."

August 14 *Homer W. Smith*, New York University
"The Hydrogen Ion."

August 21 *Robert W. Berliner*, National Heart Institute
"Regulation of Acid-Base Balance by the Kidney."

Calcification in Molluscs: Repair and Regeneration Studies in Mytilus edulis*, **

Gerrit Bevelander
New York University

A study of the process of repair and regeneration of the shell of *Mytilus edulis* was carried out by utilizing a method whereby a glass cover slip was introduced between the mantle and the shell of the animal. Following this, the animals were placed in sea water and the cover slips were withdrawn and examined at various intervals.

After the cover slips were exposed to the mantle for a few hours, the predominant feature observed was the presence of numerous amebocytes. Following Giemsa staining, a delicate fibrillar ground substance was also

* This study was aided (in part) by grants from the Office of Naval Research and the United States Public Health Service.
** With the technical assistance of Miss Helen Osburg.

observed on the surface of the cover slip. This material stained positively following the PAS procedure. Preparations examined after longer intervals of exposure to the mantle show, in addition to the features already described, definite fibers which are metachromatic and PAS positive, which is indicative of the presence of polysaccharides. After an interval of 2-3 days, examination of the preparations show that the amebocytes have undergone marked transformations: at first they appear to swell, the transformed cells coalesce, and eventually the mass of cells takes on the appearance of a layer of shell structure.

As a result of the observations referred to above, it is evident that amebocytes participate in and are responsible for repair of the shell. Previous studies have shown that in normal growth of the shell these cells are not extensively involved in this process.

Having established the presence of crystals ($CaCO_3$?) in the amebocytes which become part of the repaired shell structure, we examined the amebocytes under various experimental conditions to ascertain some of the factors which may be responsible for crystal formation.

When the cells are exposed to toluidin blue 1:10,000, the cytoplasm stains metachromatically. In addition numerous vacuoles take up the dye. The fluid within the vacuoles is extremely metachromatic. The vacuole is surrounded by a membrane which contains phosphate. These cells are PAS, positive; alkaline phosphatase could not be demonstrated in the granular amebocytes.

Following the introduction of neutral red to the hemolymph, the dye came to be localized in the vacuoles. At first, the color was indicative of a neutral or slightly alkaline pH. After dessication, the color of the dye changed to red indicating a shift in the pH of the cytoplasm to an acid condition. During the change just described crystals arise in the vacuoles.

Crystals originate in vacuoles within the amebocytes in an environment which is probably in part an acid polysaccharide. When changes occur in the cytoplasm as a result of injury and death of the cell, the buffering apparently breaks down, and calcium is precipitated as crystals of $CaCO_3$.

Screening of Tumors for Nerve Growth Stimulating Properties*

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University of Missouri and Sloan-Kettering Institute

Screening experiments which were started during the summer of

* This investigation was supported in part by a research grant, B-391 (C4), from the National Institute of Neurological Diseases and Blindness.