1967 #33

THE CIRCULATION OF THE CLAMWORM *Nereis virens*

Johannes A. G. Rhodin, New York Medical College, New York, N. Y.

Since the publication by Federighi (Proc. Nat. Acad. Sci. U.S. 13:639, 1927) it has been commonly accepted that capillaries of the clamworm are contractile. Similarly, capillaries in frogs and mammals have been thought to contract, but it has been demonstrated beyond doubt during the last decade that this is not the case. With this in mind, it was decided to investigate the vascular system of the clamworm with light and electron microscopy in order to decide whether or not structures exist in relation to the capillary wall which might be responsible for this unique capacity of capillaries in the clamworm.

Clamworms were collected in Emery cove and subsequently kept for at least 48 hours in a mud-free tank with running sea water. The worms were anesthetized with MS 222, stretched out and pinned down. The entire worm was fixed with glutaraldehyde, and osmic acid and subsequently, smaller segments were dehydrated and embedded in Epon.

The preliminary studies of this material with light microscopy have concentrated on the ventral and dorsal vessels, of which only the dorsal is contractile. By serial sectioning, the vascular connections between the gut, the lateral and dorsal muscles, the dorsal capillary network, and the parapodia have been analyzed. Electron microscopy of these vessels is now in progress.

Supported by U. S. Public Health Service Research Grant No. HE 10924.

1967 #34

CHANGES IN ULTRAVIOLET SENSITIVITY OF CLEAVAGE DELAY DURING THE CELL CYCLE IN ZYGOTES OF *Echinarachnius parma*

Alvin F. Rieck, Mary F. Christiano, and Mary C. Rieck, Marquette University School of Medicine, Milwaukee, Wis.

The ultraviolet (U.V.) $L.D._{50}$ during the first cleavage cycle increases exponentially (Bull. M.D.I.B.L. 6:33, 1966), whereas, the cleavage delay produced with identical doses of U.V. decreases during this time. A specific study was therefore undertaken to study the changes in sensitivity of subsequent cell divisions and to relate this to cyclobutane type dimer production.

Fertilized eggs were exposed to identical non-lethal doses of U.V. at varying times after fertilization and the variations in cleavage delay were scored and related to the time of the cell cycle that the exposure was made. The U.V. source was a 2537 Å lamp (G.E.-G15-T8) placed about 20 cm from the eggs. The eggs were gently stirred during the time of exposure. Under such circumstances the first cleavage delay that is produced decreases so that at about 55-60 minutes post-fertilization non-lethal doses cannot affect a delay. The second cleavage-sensitive period occurs during this first cleavage insensitive time but becomes completely refractory to U.V. about 15 minutes post-division. The same pattern is noted for the third cleavage. Thus, the sensitivity of cleavage delay is decreasing during the first DNA synthetic cycle (S) but has its peak during the second and third S periods.