Aubele, Audrey M. Zoologisches Institut, University of Zürich, Switzerland. Morphological nature of the "palp-like" structure in erupt mutants.

Extreme manifestations of the mutant erupt have been characterized as having a "palp-like" growth protruding from the area of the eye which is normally composed of ommatidia. Other manifestations of erupt are characterized as having holes or breaks in the ommatidial region or by the presence of an additional bristle at the antero-dorsal margin of the eye. Closer examination of the abnormal growths in erupt mutants by means of whole head preparations and preparations of eye imaginal discs which were implanted in late third instar larvae and subsequently retrieved after metamorphosis of the host larvae has revealed information concerning the nature of these growths.

In all cases examined the so-called "palp-like" growth is in no way related morphologically or developmentally to the true palp of D. melanogaster which arises during development from the antenna portion of the eye-antenna imaginal disc. All abnormal erupt growths observed were composed of material derived solely from the eye portion of the eye-antennal imaginal disc. In the case of well-defined growths in both the Swedish-b erupt and the Su-er$^+$ b bw; er st strains, this material was identified as an additional set or sets of trichomes forming the frontal ridges and the frontal, orbital and fronto-orbital setae normally associated with the frons and antero-dorsal eye margin. The material forming the erupt growths may be located in the ommatidial region adjacent to the normally occurring trichomes and setae of the eye margin or may be spatially removed and separated from these normal areas by surrounding ommatidia. The additional bristle described at the eye margin of some erupt mutants is, in all cases here observed, an additional orbital seta. The erupt growths form a spectrum with many degrees of differentiation. Some erupt growths cover the area of only one or two ommatidia and are composed of poorly developed trichomes and setae. Under the dissecting microscope these poorly developed erupt growths appear as a hole or break in the ommatidia.

Further studies with respect to the behavior during development of the eye imaginal discs from erupt strains are now in progress.

Douglas, William L. Howard University, Washington, D.C. Substrate specificity of octanol dehydrogenase and alcohol dehydrogenase in different species of Drosophila.

Substrate specificity studies of ODH and ADH activity in D. melanogaster, D. busckii, D. metzii, and D. unipunctata are being carried out. Crude homogenates of single females at the height of egg laying have been assayed using agar gel electrophoresis. For the substrates methanol, ethanol, 1-butanol, 2-butanol, isobutanol, t-amyl alcohol, isoamyl alcohol, cyclohexanol, 1-octanol, 2-octanol, strong ADH activity as judged by formazan staining has been observed, confirming the results of Courtright, Imberski, and Ursprung, 1966, Genetics 54: 1251-1260. Present work also confirms these authors in the finding that ODH activity in D. melanogaster is obtained only with primary hexanol, heptanol, and octanol. In D. busckii strong ODH activity has been found using cyclohexanol. The finding by Pipkin (in Courtright, Imberski, and Ursprung, 1966) that little or no ADH activity is detectable in D. metzii with formazan staining using ethanol or primary six, seven, and eight carbon alcohols has been confirmed in the present work. In addition no ADH activity in D. metzii has been observed using methanol, isopropanol, 1-butanol, 2-butanol, t-butanol, isobutanol, t-amyl alcohol, isoamyl alcohol, cyclohexanol, or 2-octanol. However, present studies have shown formazan staining of both ADH and ODH isozymes of D. unipunctata using cyclohexanol, and also in some individuals, with primary octanol. Pipkin (in Courtright, Imberski, and Ursprung, 1966) previously had reported an absence of both ADH and ODH activity as judged by formazan staining in the electrophoresed supernatant of mass homogenates, centrifuged at 12,500 rpm for half an hour, for three different strains of D. unipunctata, using heptanol as substrate. D. unipunctata has also shown strong ODH activity but only a trace of ADH activity using n-propanol as substrate. This work has been supported by PHS grant GM 14937 and a grant from the Dean of the Graduate School, Howard University.