A striking feature of these discs are folds at their surface which occur in the region of contact between the outgrowth and the underlying disc. Of the 52 discs studied, 39 (75%) showed such folds (Fig. A, B, D, E). In 31 discs these folds are oriented parallel to the anterior-posterior axis of the disc and they connect disc and transformed area (Fig. B2, D2); in 5 discs the folds ran parallel to the boundary between the disc and transformed area and in 3 cases they ran at an angle (Fig. A2). These folds are found in transformed regions of all sizes and shapes. Since the transformed areas of discs without visible connecting folds do not appear to be different from transformed areas having such folds, the role of these folds is not clear. Folds may be caused in part by mechnical stress, but not exclusively since in the disc represented in Fig. D2, for example, they run along a convex region of the abnormal outgrowth. The folds seem to comprise only the peripodial membrane. Occasionally such folds occur in areas other than the border region between disc and outgrowth.

The present study shows different connections between the eye disc and its transformed area in homoeotically transformed tuh mutant larvae. From these it appears likely that Kuhn et al. (1979) isolated and transplanted mainly those outgrowths (small, medium or large) which appear clearly delimited. Whether such a selection might influence the frequencies with which the various homoeotic differentiations occurred in these experiments is not known.

Kuhn & Walker (1978) also state that after dissection "aldox positive areas revealed, in each case, that a smooth boundary uniformly surrounds the entire area". That the transformed areas are functionally only little integrated into the normal part of the eye disc is also suggested by an observation by Stocker who could not show any nerves projecting into the transformed regions of the flies (pers. comm.).

It is interesting to compare the frequencies of abnormal outgrowths in eye discs of tuh larvae with the frequencies of abnormalities in the head of the tuh imago. Kuhn & Cunningham (1976) report that 80-90% of adult flies show head abnormalities (derived from eye and antennal discs). In 3rd instar larvae aldox staining revealed abnormalities in one or two eye discs in 63% of all animals. Since antennal discs stain positively in mutated and non-mutated larvae, their transformed areas cannot be recognized, which accounts for some of the differences between the frequency of the abnormalities in adults and larvae. In 84 3rd instar larvae analysed for visible abnormalities in their eye discs, 100% had them in one or two discs. Of 303 of their metamorphosed siblings, however, 11% did not show any visible eye abnormalities. These figures suggest on the one hand that aldox staining does not allow identification of all the transformed areas before their differentiation during metamorphosis, and on the other hand that either not all the abnormalities in tuh discs are caused by the genes responsible for the tuh trait or that a few transformations are not recognizable on unsectioned metamorphosed eyes.

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Zullo, S. Southern Illinois University, Carbondale, Illinois USNA. The influence of singed (sn^3) in **Drosophila melanogaster - D.simulans** hybrids.

The outcome of interspecific crosses between **Drosophila melanogaster** females and **D.simulans** males is well-known, producing sterile hybrid females (Sturtevant 1920). During investigations conducted with a field-collected strain of **D.simulans** (from Niles, Michigan USNA) (Figure 1), bristle abnormalities were noted in hybrids from matings with fertile, singed (sn^3) **D.melanogaster** females (Figure 2).

Six virgin y, sn^3, lz^{50e30}, v females were mated with 6 **D.simulans** males in each of 7 cultures (standard agar, yeast, molasses medium). Only 4 cultures produced progeny, 284 sterile hybrid females. One or more bristles of all the hybrids except one were misshapen (Figure 3). The posterior scutellars were most often affected. Occasionally the dorsocentrals, supra-alars, post-alars, and verticals also demonstrated a singed influence. The microchaetae showed a slight singed influence. The bristles appeared slightly thicker than in the hybrids with wild-type parents. The lone fly without a misshapen bristle did have thick bristles with a slight waviness. I noted no definite singed bristles in the hybrids.

While missing bristles were noted in hybrids from interspecific crosses between wild-type **D.melanogaster** females and these **D.simulans** males, as reported by others (Sturtevant 1920; Biddle 1932), no abnormal bristles were found on over 500 sterile hybrid females.

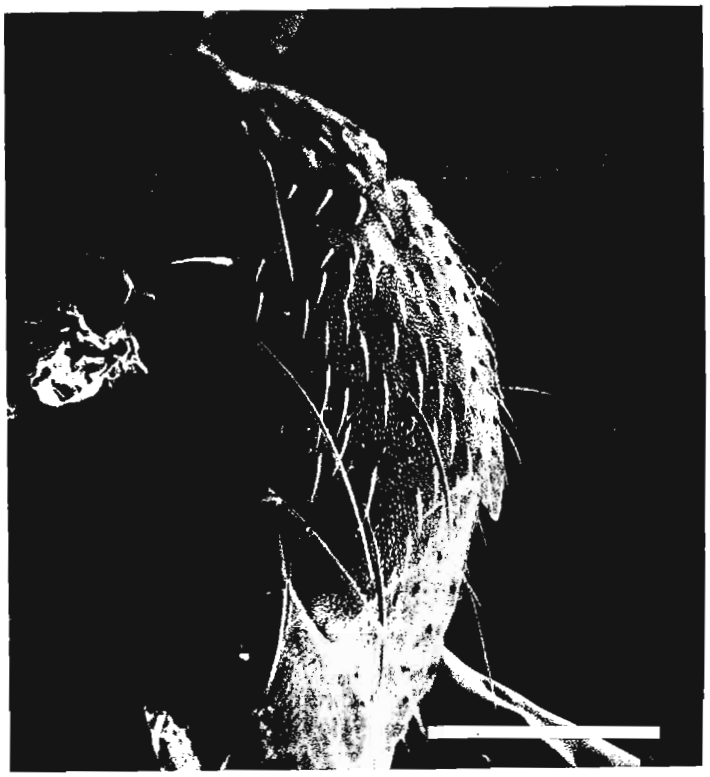

Figure 1. **D.simulans** bristle morphology. Bar represents 231 µm. Bar represents 231 µm.

Figure 2. **D.melanogaster** singed 3 bristle morphology. Bar represents 120 µm.

The salivary gland chromosome pattern of **D.melanogaster - D.simulans** hybrids is not irregular in the singed region (7D 1-2) though differences are present in other chromosomal regions. Indeed, the chromosome banding pattern of this **D.simulans** strain is different from that of a laboratory strain **D.simulans** (Zullo 1983).

It was unexpected that the single copy of the normally recessive sn^3 allele would produce an observable effect in the hybrids. A search for differential replication (and ultimately transcription) of the two species' DNA in the polytene chromosomes of the bristle-forming organs may prove significant. Differential replication has been invoked for asynapsis/desynapsis of polytene chromosomes (Roberts 1979). This **D.simulans** strain has been deposited in Mid-America Drosophila Stock Center in Bowling Green, Ohio.

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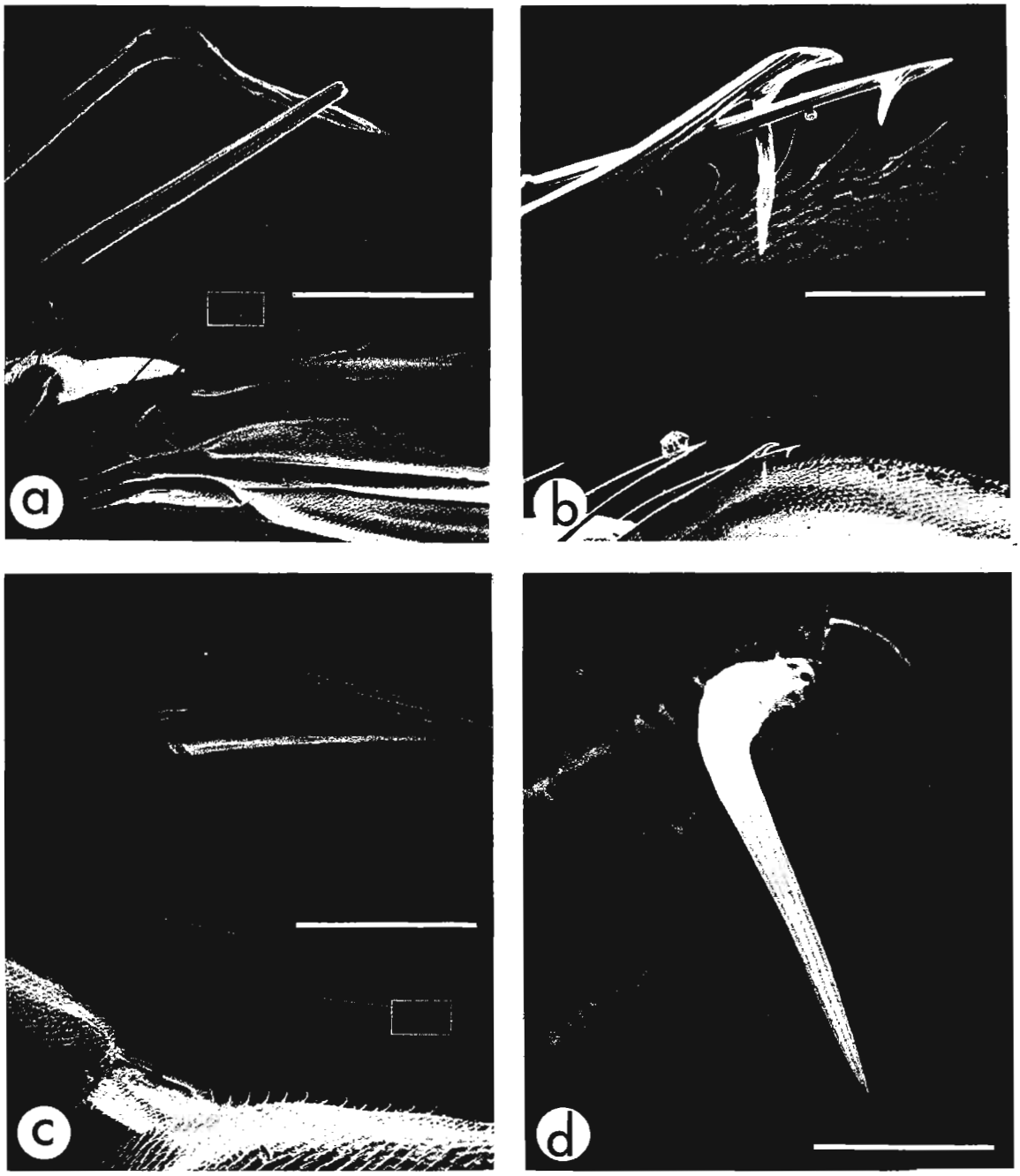

Figure 3. Hybrid bristle morphology. (a) Bar represents 500 µm. (b) Bar represents 270 µm. (c) Bar represents 150 µm. (d) Bar represents 23.1 µm.