

## CANALISATION OF THE ACTION OF *sc*<sup>1</sup> IN *DROSOPHILA MELANOGASTER*

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IDEAS about the canalisation of the number of bristles on the scutellum of *D. melanogaster* gave rise to discussion about what it was that was canalised; whether it was the presence of one, and only one, bristle at each of the four sites on the scutellum (Robertson, 1965), the presence of two, and only two bristles, on the anterior half of the scutellum and two, and only two, on the posterior half (Latter, 1964; Latter and Scowcroft, 1970; Scowcroft, Green and Latter, 1968) or the presence of four, and only four, bristles on the scutellum as a whole (Finlay, 1965; Rendel, 1965). This note presents counts which suggest that the unit or units which go to make up the scutellum in development do not extend to or include the other bristle sites affected by the sex-linked mutant *sc*<sup>1</sup>; the mutant *sc*<sup>1</sup> removes some ocellar, post-vertical, notopleural, orbital and postalar bristles in addition to some scutellars. It also removes some of the small hairs from the abdomen and bristles from some other sites not listed here.

Table 1 compares the distribution and mean of bristle counts of three scute stocks. One, LV, was selected for lack of variation of the scutellar bristle number about a mean of two (Rendel and Sheldon, 1960; Rendel, Sheldon and Finlay, 1966), one, H, was selected for high numbers of bristles on the scutellum, and one, SW, has not been selected at all. The LV line has a mean of 2.02 scutellar bristles and only 11 out of 151 individuals with a number different from 2. This constancy of number about a mean of 2 is pronounced by comparison with distribution of bristle number on the scutellum of the other two lines. The LV line does not differ in variability from the other two lines at any other site than on the scutellum. The H line has a much higher mean scutellar bristle number and a distribution of bristle numbers on the scutellum which hardly overlaps that of the other two lines. The H line does have more postverticals than the other two lines and fewer bristles at all other sites, but the striking difference is on the scutellum. The effect of directional and canalising selection on bristle numbers on the scutellum of scute flies is not reflected by changes in bristle numbers at other sites affected by scute. In this respect the scutellum corresponds to one of the five whisker sites in the mouse, the supraorbital, postorbital, postoral, interramal and ulnar carpal (Pennycuik and Rendel, 1977). In the mouse canalisation of total score was achieved by selection about a mean of 15 in one line and by selecting about a mean of 7 in another but though selection was for canalisation of the sum of bristle numbers over all sites, canalisation was achieved at each whisker site separately.

TABLE I

*Distribution of bristle scores by stock and bristle site*

Bristles	0	1	2	3	4	5	Mean
<b>Scutellars</b>							
LV		4	140	7			2.02
SW	60	63	25	1	1		0.80
H			8	49	94		3.57
<b>Ocellars</b>							
LV	149	2					0.01
SW	142	7	1				0.06
H	141	10					0.07
<b>Postverticals</b>							
LV	53	71	27				0.83
SW	97	42	11				0.43
H	17	72	62				1.30
<b>Notopleurals</b>							
LV			52	65	34		2.88
SW		9	83	21	37		2.57
H			46	79	26		2.18
<b>Orbitals</b>							
LV			12	45	94		3.54
SW			5	31	114		3.73
H			22	53	76		3.36
<b>Postalars</b>							
LV			2	20	126	3	3.86
SW			1	7	141	1	3.95
H			6	37	107	1	3.68
<b>Supraalars</b>							
LV				1	150		
SW					150		
H					151		
<b>Dorsocentrals</b>							
LV					149	2	
SW					150		
H					150	1	
<b>Presuturals</b>							
LV			151				
SW	1	2	147				
H	—	—	—				
<b>Verticals</b>							
LV					151		
SW					150		
H					141	10	

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