Diebolt, J.R. Queens College, Charlotte, North Carolina. The effect of inhomogeneous electrostatic fields on D. melanogaster egg hatch; negative results.

Avio and Tarozzi (1956, 1958) have reported that an electrostatic field of 125 V/m had no effect on oviposition or egg hatch of D. melanogaster. Similarly, Steen and Oftedal (1967) found that D. melanogaster egg hatch time was unaffected by homogeneous magnetostatic fields of 0.16 and 0.5 tesla.

In this study D. melanogaster eggs were subjected to a 0.3 kV/cm or a 0.6kV/cm, inhomogeneous, (-) or (+) polarity, electrostatic field to determine the effect on egg hatch time. The treatment apparatus consisted of two aluminum plates measuring 0.3 thick x 39.7 cm long x 18.4 cm high, arranged parallel and separated by a distance of 10 cm. The plates were connected to one another by two porcelain spacers at each end. Culture vials, plugged with a one hole, size 4 rubber stopper, through which a piece of 5mm (o.d.) flint glass tubing about 8-9 cm long was inserted, were arranged in a single, uniform row between the plates. A piece of 12 guage copper wire about 18-19 cm long was inserted through the glass tubing and immersed into the corn meal, molasses, Brewer's yeast medium in the vials. Each wire emerging from each vial was connected at right angles to a long single piece of 12 gauge copper wire which was connected by one end to the ground wire of the D.C. voltage output source and the capacitor plates were connected to the positive terminal wire. To reverse the polarity of the field the capacitor plates were connected to the ground wire from the D.C. voltage output source and the single copper wire was connected to the positive

Table 1. Accumulated mean % egg hatch. Eggs subjected to inhomogeneous electrostatic fields.

Treatment	Hours after egg count 20	21	22	23	# eggs
Control	8.5	44.0	85.6	90.5	327
0.3 kV/cm (-)	5.9	40.9	84.1	89.8	405
0.3 kV/cm (+)	6.5	44.7	86.6	91.5	344
Control	8.1	41.3	84.6	91.1	738
0.6 kV/cm (-)	6.3	42.7	87.3	92.3	761
0.6 kV/cm (+)	5.3	42.1	86.7	92.2	519

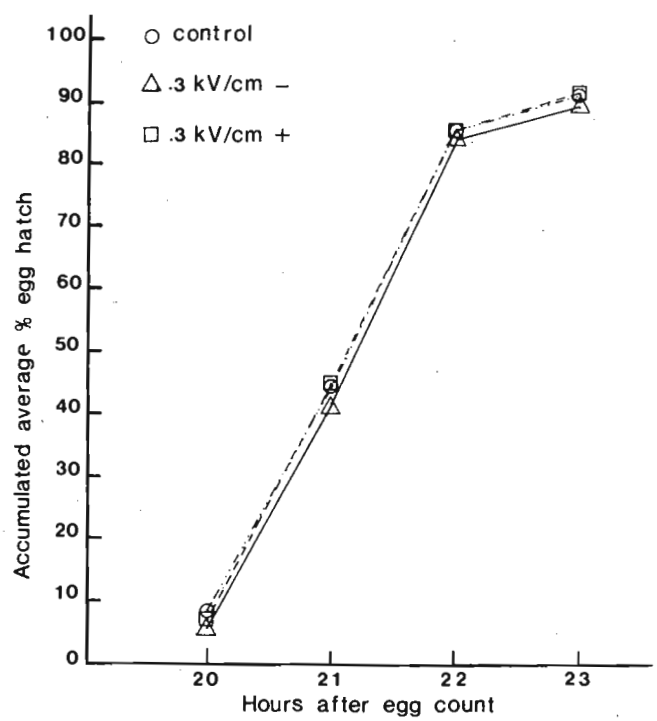

Figure 1. The relationship of eggs subjected to a 0.3 kV/cm inhomogeneous, (+) or (-) polarity, electrostatic field for 23 hours to percentage hatch.

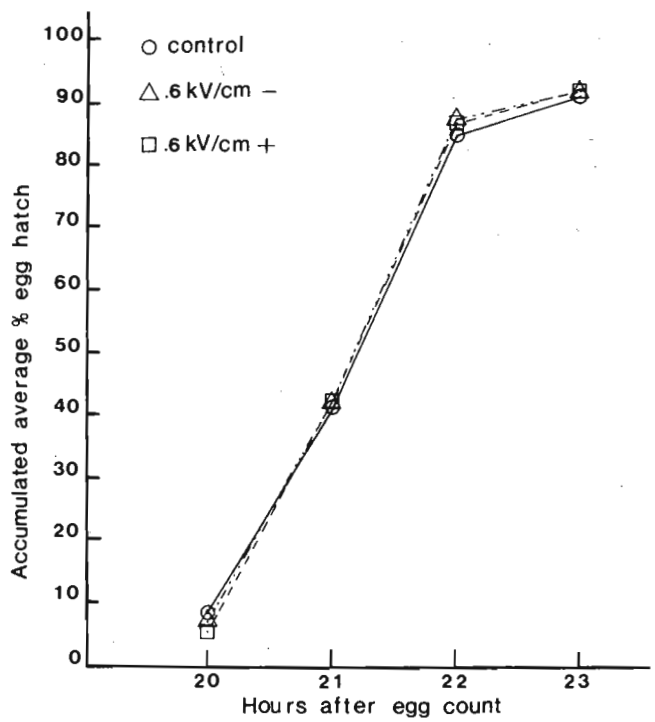

Figure 2. The relationship of eggs subjected to a 0.6 kV/cm inhomogeneous, (+) or (-) polarity, electrostatic field for 23 hours to percentage hatch.

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Hollis, R.J. College of William and Mary, Williamsburg, Virginia. Allozymic variation in D. melanogaster from Virginia.

Drosophila melanogaster populations were collected using baited traps at four locations (Toano, Short Pump, Afton Mt., and Monterey Mt.) in Virginia. Individual flies were then assayed via starch gel electrophoresis for

Table 1. Data for Esterase 6

Site	Miles*	n	Genotypes S/S	F/S	F/F	Frequency of S
Toano	0	50	12	27	11	0.51
Short Pump	56	56	20	23	13	0.56
Afton Mt.	130	35	13	21	1	0.67
Monterey Mt.	182	36	16	19	1	0.71

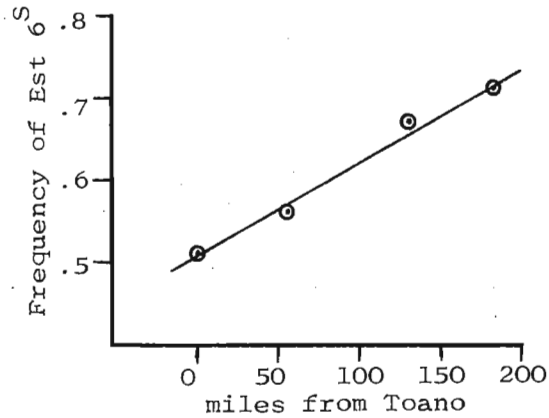
* approximate air males west of Toano

Table 2. Alcohol dehydrogenase data

Site	Miles*	n	Genotypes S/S	F/S	F/F	Frequency of S
Toano	0	96	36	39	21	0.58
Short Pump	56	68	37	28	3	0.75
Afton Mt.	130	41	16	16	9	0.59
Monterey Mt.	182	35	14	12	9	0.57

* approximate air miles west of Toano

Figure 1.



Esterase 6 and Alcohol dehydrogenase using the methods of Johnson (p.c.). These allozymes are described in Wright (1963) and Johnson and Denniston (1964).

Tables 1 and 2 summarize the results of this study. Both of the loci were found to segregate in all populations sampled. As the sample sites lie on an approximate east-west line which passes through several topographic regions (coastal, piedmont, and montains), linear regressions were performed by least squares analysis using miles from the most easterly site as the abscissa and allele frequency as the ordinate. No apparent pattern was observed for Adh. For Est 6, a cline is suggested, with $r^2 = 0.94$. A graph of the Est 6 data, including the regression line is presented in Figure 1. I fully recognize that both the sample sizes and numbers were extremely limited in this preliminary study; however, this cline, if it does indeed exist, would indicate that selection is operative.

References: Johnson, F.M., personal communication; Johnson, F.M. and C. Denniston 1964 Nature 204:906-907; Wright, T.R.F. 1963, Genetics 48:787-801.

Supported in part by NSF GZ 2153.

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terminal wire.

From 80-100 isogenic Canton-S wild type females were collected and placed in each of several 1/2 pint bottles along with several males, on fresh, yeasted cornmeal medium for 24-48 hours. The flies were then very lightly etherized and 20 females were placed in each of several vials for 1 hour to lay eggs after which time the deposited eggs were counted. The vials containing the eggs were then subjected to the treatment field or were used for the control study. The control vials were placed between capacitor plates but were not subjected to the treatment field. The temperature in the treatment field or in the control field was $24 \pm 0.5^{\circ}C$.

Egg hatch counts were begun 20 hours after the egg counts and continued for 3 hours. Egg hatch was scored by counting the number of empty egg cases per vial.

The accumulated average number of eggs hatching at each counting time was calculated. Table 1 shows the percent egg hatch for each experimental treatment. Figures 1 and 2 show the relationship of the accumulated average percent egg hatch to time of count for eggs subjected to a 0.3 kV/cm and 0.6 kV/cm electrostatic field respectively.

The electrostatic fields used have no effect on egg hatch time or frequency of egg hatch.

References: Avio, C.M. and G. Tarozzi 1956, Riv. Biol. 48:49-74; _____ 1958, Riv. Biol. 48:145-152; Steen, H.B. and P. Oftedal 1967, Experentia 23:814.