mentioned, the ebony females of the strain e^{11} seemed to be preferred by the wild males; consequently, their level of sexual activity is significantly higher when they are in the presence of wild flies. However, the level of sexual activity of the females of the strain "B" is unchanged.

Further analysis will have to show if this initial frustrating inhibition of the ebony males could be compensated by a more constant success in the ulterior phases of the competition, as it could be conjectured from our previous observations (1973) and by analogy with the observations of Jacobs on the dragonflies (1955).

References: Ehrman, L. 1965, Evolution 19:459; Elens, A. and J.M. Wattiaux 1964, DIS 39:118; Elens, A., J. Van den Haute, J. Delcour 1973, Evolution (in press); Jacobs, M.E. 1955, Ecology 36:566; Mikheev, A.V., A.G. Kreslavsky and V.M. Solomatin 1973, Genetika (Russ.) 9:169.

Rapport, E. Simon Fraser University, Burnaby, Canada. On the action of the vital stain 2,2'-Dipyridyl.

A vital stain which colours imaginal discs, brain and ring gland of Drosophila, has been described (Rapport and Menon, 1973). The stain, 2,2-dipyridal (Dip) is known to chelate ferrous ions (Fe^{++}) and form a red product. Indeed this reaction is used quantitatively in Fe^{++} determinations. We wished to determine if the in vivo staining reaction could be used as a measure of high Fe^{++} concentration.

Larvae were grown on either cream of wheat media seeded with yeast or the same media made with water containing 1 mg $FeCl_2$ per cc. Larvae were removed from the media by flotation with NaCl solution at either 65 or 72 hours and placed in petri dishes with paper pulp and either water or a Dip solution. In addition to usual sites of staining the $FeCl_2$ fed larvae treated with Dip at 72 hours had deep red granules in the base of the gastric caecae. By visual inspection we could not detect enhanced colouration of organs which usually stain. These results are at variance with those of Poulson and Bowen (1952) whose histological studies using fixed material revealed a direct relationship between stainability and iron concentration in the media and who never detected ions in the caecae. The pulp in dishes with $FeCl_2$ treated larvae was stained pink apparently due to excretion of Fe^{++} ions by the larvae.

These results suggest that at least some of the stain in vivo could be the result of Fe^{++} localisation.

To further investigate the action of Dip in the living organism the effect of somewhat toxic levels of Dip on pupation ability and ability to evert imaginal structures was studied in the different feeding regimes. Table 1 gives the results of this study. Larval development was impeded by Dip treatment and this effect could be reversed to some extent by prior

Age removed from feeding	Treatment	Number of organisms	% failing to pupate	95% confidence interval	% pupae failing to evert heads	95% confidence interval
65	H_2O	153	2.0	0 - 4.2	1.3	0 - 3.2
65	Dip	225	89.3	85.5 - 93.1	18.5	3.8 - 33.2
65	Dip + $FeCl_2$	184	67.9	61.2 - 74.7	23.7	12.9 - 34.6
72	H_2O	214	1.9	0.1 - 3.7	0.5	0 - 1.4
72	Dip	218	55.0	48.4 - 61.7	33.7	24.3 - 43.0
72	Dip + $FeCl_2$	208	26.0	20.0 - 32.0	31.2	23.8 - 38.5

feeding with $FeCl_2$. Among the pupae, head eversion was not appreciably influenced by $FeCl_2$ feeding. These results weakly suggest that preventing Dip from chelating with normal cell constituents (by addition of exogenous ions) reduces its toxicity.

Clearly more work needs to be done to determine the substance(s) to which Dip binds in vivo. While detection of stain in gastric caecae only after $FeCl_2$ feeding suggests that Dip will bind to intracellular iron, the failure of our staining results to confirm those of Poulson and Bowen indicates that more work must be done to determine if this stain faithfully reflects ferrous ion concentration in Drosophila organs.

References: Poulson, D.F. and V.T. Bowen 1952, Exp. Cell Res. (Suppl.) 2:161-179; Rapport, E. and M. Menon 1973, Experientia 29:734-735.