POLYTENE CHROMOSOMES IN THE HOVER FLY *MERODON EQUESTRIS* FAB.  
(DIPTERA: *SYRPHIDAE*)

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A method is described for preparing polytene chromosomes from fat body tissue and malpighian tubules of hover flies.

**Introduction**

Chromosome numbers in Syrphids have been studied in great detail by Boyes & van Brink (1964, 1966, 1967, 1970, 1972, with Boyes (1971), with Mehta (1968)). A good summary of work on Diptera before 1951 is given by Makino (1951). So far as I am aware polytene chromosomes, though widespread in the Diptera, have yet to be reported in the Syrphidae.

**Material and Methods**

Fat body tissue and malpighian tubule tissue of *Merodon equestris* were examined for evidence of polyteny. They were dissected from the hibernating last instar larvae. The tissues were dissected under saline, passed through 1N HCl for a short time (usually under 10 minutes) before staining in acetic orcein (full commercial strength – G. T. Gurr) for 5–10 minutes. The tissue was then squashed under a coverslip and left for 5 minutes, examined under the microscope and, if promising, taken through absolute alcohol to be mounted in Euparal. The fat droplets were largely removed by keeping the tissue as long as possible in HCl (keeping the tissue too long in HCl made the chromosomes fragile and also affected staining).

**Results and Discussion**

The chromosomes obtained are very large (see Fig. 1) and banding is
Fig. 1. Detail of polytene chromosomes of the nucleus of a fat body cell of the last larval stage of *Merodon equestris*.

very clear. Polytene chromosomes have also been found in the fat body tissue of overwintering *Eumerus tuberculatus* Rond. larvae using similar techniques.

This observation is highly significant in a naturally colour polymorphic species (CONN (1972)) as it means that it is possible to study natural changes in gene and morph frequency and see if these are in any way allied to changes in the configuration of the polytene chromosomes.

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References


