Asada, N. and O. Kitagawa. Tokyo Metropolitan University, Tokyo, Japan.
Courtship behavior of D.niveifrons.

The basic pattern of courtship, courtship latency and the duration of copulation of D. niveifrons n. sp. (Okada and Carson 1982) belonging to the D. nasuta subgroup of the immigrans species group was analyzed to investigate the behavioral character especially in male courtship behavior.

Mating behavior and the duration of copulation of the D. nasuta subgroup was first reported by Spieth (1968), but on D. niveifrons, so far, there has been no information about behavioral studies. The material used here was one isofemale strain collected at Lae, Papua New Guinea in 1979, and has been kept as a laboratory stock at Tokyo Metropolitan University.

Flies were cultured at 25°C in the standard cornmeal-dry yeast-sucrose medium. The direct observation method of single pair mating was applied using the mating chamber (40 x 40 x 10 mm, Ø 30 mm) modified from Ellens and Wattiaux (1964).

The following items were examined: (1) male courtship behavior, (2) mean length of courtship latency, and (3) duration of copulation.

(1) Courting male went to female and oriented himself at the rear of female. When female moved apart from male, he followed her showing wing display with vibration and following flicking of one wing rapidly on successive occasions only at the rear of female, and immediately, male attempted to copulate. This pattern and position of one-wing flicking are the sex-specific behavioral characters shown by this species. Besides this character, crab-like walking occurred when he circled about her, as well. These two male courtship elements are characteristics of this species, so we suppose that the courtship pattern of D. niveifrons resembles the D. kohkoa type described by Spieth (1969).

(2) Courtship latency varied from only 5 seconds to 26 minutes; the average is 8 minutes and 27 seconds.

(3) Duration of copulation varied from 23 to 65 minutes, with an average of 48 minutes and 11 seconds. This average was similar to that of D. immigrans, which was about 53 minutes (Sturtevant 1942) or about 14-64 minutes (Wheeler 1947), but may be the longest duration in the D. nasuta subgroup compared with Spieth's (1969) results.

No correlation was found between courtship latency and the duration of copulation.

References: Ellens, A.A. and J.M. Wattiaux 1964, DIS 39:118-119; Okada, T. and H.L. Carson 1982, Kontyu 50:396-410; Spieth, H.T. 1969, Univ. Tex. Publ. 66:255-270; Sturtevant, A.H. 1942, Univ. Tex. Publ. 4213:5-66; Wheeler, M.R. 1947, Univ. Tex. Publ. 4720:78-115.

Baimai, V. Mahidol University, Bangkok, Thailand.
Spontaneous aneuploidy in four species of the D. montium subgroup.

I report here examples of nondisjunction which produce changes in chromosome number in four species belonging to the D. montium subgroup. These are: D. lacteicornis, D. nikananu, D. barbarae and D. kikkawai. Aneuploidy was discovered during the course of metaphase karyotype analysis of laboratory strains of these species, and is presumed to have occurred spontaneously in the laboratory. Metaphase chromosomes were prepared from the brain of third stage larvae using the conventional orcein staining method of Lewis and Riles (1960). Sample sizes used in this study were small (six to eight larvae in each case).

The general metaphase karyotype of the D. montium species subgroup, including these four species, consists of two pairs of metacentric (V-shaped) autosomes, one pair of fourth chromosome (microchromosome) of various configurations, and one pair of sex chromosomes (Baimai 1980). The spontaneous aneuploidy discovered in this study was as follows: XO condition in D. lacteicornis, XYY in D. nikananu, XXY in D. barbarae, and a trisomy for the V-shaped fourth chromosome in D. kikkawai (see Figs. 1-4 on following page). Potential phenotypic effects in adults of such chromosomal changes are not known since they were observed in the larval stage. It seems likely that spontaneous nondisjunction is common in my stocks of these species. They might well be generally common in any laboratory stocks.

References: Baimai, V. 1980, Japan. J. Genetics 55:165-175; Lewis, E.B. and L.S. Riles 1960, DIS 34:118-119.

[Figure on following page.]