

Watson, J. E., E. Scheinberg, and L. A. Dittmar. Purdue University. Effects of ether on fitness traits.

stock which had been subjected to etherization periodically since 1955 and (2) W101 is a laboratory wild derived in 1963 from a collection in the wild and had never been exposed to ether, having been maintained by mass adult transfer. The ether treatment consisted of a 15-20 second uniform exposure to males and females at ages of 3-4 hours. Four types of matings were made: 1-♀ and ♂ non-etherized (N.E.), 2-♀ and ♂ etherized (E.), 3-♀ (N.E.) and ♂ (E.), 4-♀ (E.) and ♂ (N.E.). Twenty single pair matings for each strain x mating were made. The females laid eggs on caps spread with a charcoal media while in inverted 1/2 pint milk bottles. Each 48 hours the caps were replaced until 4 successive broods had been isolated from each parental pair. The experiment was thus analyzable as a 2 x 4 x 4 factorial experiment with 20 observations per cell.

A cursory look at the analysis of variance yields the following information - Eggs laid: There is no significant difference between (or among) strains or matings in the total number of eggs laid. The brood fraction of the variance is highly significant which is what one expects due to the known maternal-age-effect on number of eggs laid. It appears that etherization has a stimulatory effect on the onset of egg lay for although the differences are not significant (at $\alpha=.05$) in the crosses where one or both of the parents were etherized the mean number of eggs laid is 2 to 3 times that of the control value. This holds true, however, only for the first 48 hours, after which an adjustment in the respective means occurs such that the 8 day totals for each strain x mating are essentially equal.

Egg hatchability: A significant difference in percent hatch was obtained between W101 and WSB. W101 had an overall hatch percent of 90.1% while the non-previously etherized strain yielded 85.2%. That this difference was not due to undetected and unanalyzed lethals present in this "natural" wild strain can be supported by the observation that the unetherized control matings of each strain yielded essentially the same hatch percentages. The significant difference arose because in the Number 4 matings (only ♂ etherized) of the WSB strain, the hatch percentages were noticeably lower than those obtained for W101. This holds across all four broods. This result is of interest and will be studied further. Also, the fourth brood percentages of the WSB strain are lower than those for W101, in both etherized and control matings. This could be due to the non-acclimatization of this strain to laboratory conditions. Sex Ratio: In a sub-analysis of this experiment no significant differences were detected in the sex ratios of the progeny obtained.

A more detailed analysis of this data is in progress. (We wish to acknowledge the use of the facilities of Dr. A. E. Bell and the Population Genetics Institute).

Barigozzi, C. University of Milan, Italy. New Data of the transmission of Freckled.

New data have been collected proving that Frd behaves erratically as a non entirely mendelizing unit.

New investigations have been brought about to know more precisely its localization, and, provisionally, it can be taken that its locus may be between brown (104.5) and speck (107.0), thus near the right tip of the 2nd chromosome. The localization, on the other hand, in some crosses is not possible, owing to unexpected facts.

Besides several cases of backcrosses of the type: $\frac{++}{Cy L} \times \frac{Frd}{++}$, where there is a low recombination between the markers and Frd in the female, and no recombination in the male, several others have been found, which can be classified as follows: a) considerable or very high frequency of recombination in males, even in proportions of 50 and 100%, giving rise to symmetrical complementary classes; b) recombinations in the male in presence of inversions on the homologous chromosome (Cy L and Pm), sometimes with statistically significant differences between the complementary classes; c) complete lack of one of the complementary classes, which often denotes lethality of the chromosomes originally carrying Frd; d) loss of Frd in offspring of crosses, where its presence was expected in the 50% of the individuals; e) sudden changes in expressivity and penetrance of Frd, followed by loss of the unit. All these phenomena have been found in both sexes. The findings point to a peculiar behaviour of Frd, interpretable as a changing relationship between Frd and the carrier chromosome.