F_1 progeny 28 kar and 8 cu stocks were recovered over the TM3 balancer. The kar stocks were crossed to Df(3R)kar^{3J} and Df(3R)kar^{3Q} deficiencies deleting the kar locus and 10 of the established stocks proved to be single kar point mutations. All the isolated cu stocks produced cu progeny when crossed to cu point mutation, i.e., they represented new cu alleles. It is in accordance with the presence of a minute locus nearby to cu locus (Lindsley et al. 1972).

All the putative kar deficiencies were crossed to ru cu ca flies and 3rd instar larvae from the progeny were dissected and salivary gland chromosome preparations were made (Yoon et al. 1973) to determine the breakpoints of the deficiencies. With the aid of these deficiencies, we mapped the coding locus for kar to 87C8 band.

The new stocks carrying a deficiency in the 87A-C region were mated to In(3R)Na flies and 3rd instar larvae from the progeny were heat-treated (30 minutes at 37°C) to show either the presence or absence of 87A and 87C puffs. The data are listed in Table 1.

Table 1. List of new kar deficiencies and their breakpoints.

Deficiency	Breakpoints		Formation of puffs	
	Proximal	Distal	87A	87C
Df(3R)kar^{Sz-5}	86E20-F1 ;	87F3-4	-	-
Df(3R)kar^{Sz-8}	87C1-3 ;	87D14-15	+	+
Df(3R)kar^{Sz-11}	87C7-8 ;	87E5-6	+	+
Df(3R)kar^{Sz-12}	87B1-3 ;	87C8-9	+	-
Df(3R)kar^{Sz-13}	86E6-7 ;	87C9-D1	-	-
Df(3R)kar^{Sz-15}	87B1-2 ;	87E1-2	+	-
Df(3R)kar^{Sz-16}	87C1-2 ;	87C9-D1	+	+
Df(3R)kar^{Sz-21}	87C6-7 ;	87C8-9	+	+
Df(3R)kar^{Sz-23}	86E6-7 ;	87C9-D1	-	-
Df(3R)kar^{Sz-27}	87C7-8 ;	87E12-13	+	+
Df(3R)kar^{Sz-29}	87C3-4 ;	87C9-D1	+	+
Df(3R)kar^{Sz-28}	87C7-8 ;	87E9-10	+	+
Df(3R)kar^{Sz-30}	87B2-4 ;	87D2-3	+	-
Df(3R)kar^{Sz-31}	86C6-7 ;	87C9-D1	-	-
Df(3R)kar^{Sz-33}	87C1-2 ;	87E4-5	+	+
Df(3R)kar^{Sz-37}	87C5-6 ;	87D14-E1	+	+
Df(3R)kar^{Sz-40}	87B2-3 ;	87D1-3	+	-
Df(3R)kar^{Sz-72}	87E1-3 ;	87F13-14	+	+

References: Costa, D. et al. 1977, DIS 52:140; Ish-Horowicz, D. et al. 1977, Cell 12:643-652; Lindsley, D.L. et al. 1972, Genetics 71:157; Yoon, J.S. et al. 1973, Experientia 29:639.

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Additional data on putative insertion mutations in wild populations of D. melanogaster.

In several recently published papers (Golubovsky 1977, Golubovsky et al. 1977, Green 1975, Ising and Ramel 1976, Ivanov and Golubovski 1977, Rasmusen and Green 1974) interesting data have been presented on unstable heredity variations in D. melanogaster presumably caused by insertion mutations. The significance of these data is increased by the fact that at least one of these mutations, the sex-linked recessive mutation singed bristles (sn), was found in several wild populations of this insect. In this connection I think it worthwhile to draw attention to similar findings (seemingly the first of this kind) made by me more than 40 years ago. These findings were described in a report of the genetical laboratory of the Institute of Zoology (Academy of Sciences of the Ukrainian S R) which was published in May or June, 1941. Because of the subsequent invasion of Hitler's army, this book reached only very few libraries in the USSR and no reprints have been prepared of the papers contained therein so that they remain unknown to most geneticists. Here follows a brief summary of a part of my paper (Gershenson 1941) published in this book.

Table 1. Sex-linked mutants in F_1 of females caught in nature.

No. of ♀♀ which gave mutants in F_1	Mutations	No. of F_1 ♀♀	No. of wild-type F_1 ♂♂	No. of mutant F_1 ♂♂
16	yellow	27-59	22-47	1-4
1	yellow-2	33	28	1
2	yellow-ruby	34+29	19+34	1+1
1	white	57	61	2
1	mottled (allele of w)	40	34	2
1	singed	39	37	1

Table 2. Results of inbreeding wild-type descendants of female No. 515 caught in nature.

Generation	Total no. of crosses	No. of crosses showing mutants in offspring	Segregation among ♂♂	
			♂♂ +	♂♂ yellow
F_1	1	1	45	2
F_2	32	5	28	1
			44	1
			26	22
			31	1
			24	1
F_3	28	3	35	1
			37	1
			52	1
F_4	66	5	16	11
			36	3
			18	1
			29	1
			32	2

Table 3. Results of inbreeding wild-type descendants of female No. 103 caught in nature.

Generation	Total no. of crosses	No. of crosses showing mutants in offspring	Segregation among ♂♂	
			♂♂ +	♂♂ yellow
F_1	1	1	61	2
F_2	26	2	44	5
			19	3
F_3	31	3	105	9
			41	32
			51	5

Two sex-linked recessive mutants were found among 723 D. melanogaster males caught in the fall of 1937 in an orchard near Kiev: one male showed yellow body color (y), another had ruby eye color (rb). Out of 547 phenotypically normal females caught at the same time, 22 produced some recessive sex-linked mutant males in their F_1 (Table 1).

As seen from Table 1, in the progeny of each individual female only a single or very few mutant sons appeared among a much greater number of wild-type brothers.

In subsequent generations obtained from females which gave mutants in their F_1, the same mutations always appeared in some of the cultures. As typical examples, in Tables 2 and 3 are shown the results of several generations of inbreeding of wild-type descendants of two of the females caught in the wild.

Similar results were obtained in the progeny of all the other 20 wild females which gave mutant males in their F_1. In subsequent generations the majority of crosses between wild-type descendants produced only wild-type flies, some crosses gave a few mutant sons and in rare cases a typical 1:1 segregation took place among the male offspring. Throughout all the generations only the same kind of mutants appeared as were initially observed in the F_1 of a given female. Only in the lines which gave yellow-ruby males, non-yellow ruby males sometimes appeared, probably as a result of crossing over in their mothers, and in one of the lines which gave yellow males, a yellow-2 male was found in one of the later generations.

The instability of certain genes located in the X chromosome derived from females caught in the wild was maintained after all the autosomes were substituted by autosomes from laboratory stocks, so it is caused evidently by some factor inher-

ent to the wild X chromosomes, probably insertions.

All the mutant males found in the experiments described above bred true when crossed to attached-X females and the mutant stocks thus established remained stable in the following generations.

An analysis of salivary-gland chromosomes in one of the lines in which ruby-eyed males sometimes appeared showed that the X chromosome of this line contained a large duplication including the locus of ruby.

Besides the 22 females which produced mutant males in their F_1, the progeny was studied of 102 wild females the F_1 of which consisted only of wild-type flies. In the F_2 of three of these females several yellow males were found and such males continued to appear in later generations of these lines.

The same wild population of D. melanogaster was again investigated in 1938 and 1939 and both times the results closely resembled those of 1937.

References: Golubovsky, M.D. 1977, Genetika (Moscow) 13:1030-1041; Golobovsky, M.D., Yu.N. Ivanov and M.M. Green 1977, Proc. Natl. Acad. Sci. USA 74:2973-2975; Green, M.M. 1975, Mutat. Res. 29:77-84; Ising, G. and C. Ramel 1976, In: The Genetics and Biology of Drosophila, ed. M. Ashburner and E. Novitski, 1b, 947-954; Ivanov, Yu.N. and M.D. Golubovsky 1977, Genetika (Moscow) 13:655-666; Rasmuson, B. and M.M. Green 1974, Mol. Gen. Genet. 132:265-289; Gershenson, S. 1941, In: Memoirs on Genetics (Inst. of Zoology, Acad. Sci. of the Ukrainian SSR) 4-5:3-39.

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Preliminary studies on the effects of a mercurial fungicide Ceresan on fecundity in D. melanogaster.

It is well known that both life span and fecundity in Drosophila are extremely sensitive to a great variety of direct environmental factors (Lints 1971). Indeed, the activity and the number of ovarioles, in turn fecundity of a fly depend on age, genotype and the conditions to which larvae have been submitted (Gruwez et al. 1971). So, investigations were undertaken to evaluate the effects of a residual mercury fungicide Ceresan on fecundity of D. melanogaster.

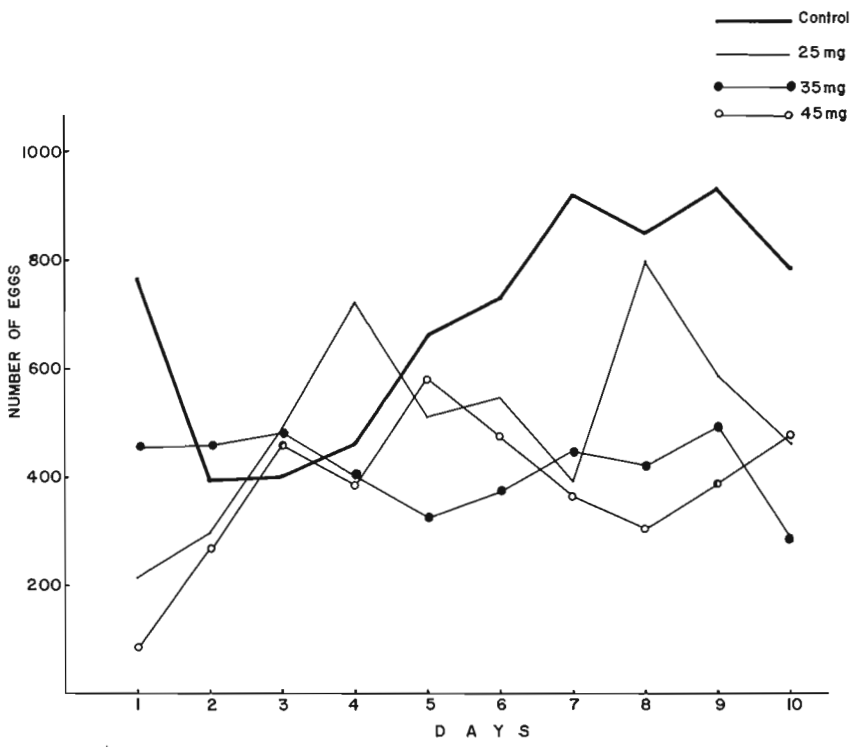

Fig. 1. Egg-laying pattern of Ceresan-treated and control flies.

Ceresan (Universal dry seed dressing; active ingredient: 1% Phenyl mercury acetate, Bayer) in concentrations of 25, 35 and 45 mg was mixed with 100 ml wheat cream agar medium. D. melanogaster flies of Oregon K strain were allowed to lay eggs on this chemical supplemented and normal food media so that the emerging larvae were exposed to Ceresan supplemented and control diets throughout the development. Parents were removed after 3-4 days; virgin flies (males and females) emerging from treated and control food media were isolated, aged for 5-6 days, and pair matings were made. The number of eggs laid by the control and treated flies during the following 10 days were scored. From this data, the pattern of egg laying, total fecundity and mean daily egg production were calculated and presented in Fig. 1 and Table 1.