Jungen, H. University of Zürich, Switzerland. Abnormal sex ratio, linked with inverted gene sequence, in populations of D. subobscura from Tunisia.

Male samples of D. subobscura from Tunisia contained a new complex structural type (gene arrangement) of the A chromosome. It has not been fully analyzed as yet, but seems to differ from the standard sequence by about 5 inversion steps covering almost the whole of the chromosome. Provisionally the sequence will be named "complex A". Males carrying complex A leave offspring of predominantly female sex, as seen from the data below which are based on samples from 2 localities in Tunis. The males collected were crossed with homokaryotypic females carrying either A_{St} or A_{1+2}. From the offspring of these matings, 8 larvae were determined as to sex. Similar abnormal sex ratios were found among hatched flies.

X-chromosome of male parent	A_{1+2}	A_2	complex A	other sequences
number of male parents	86	26	22	6
female/male larvae among offspring	355/333	115/93	159/17	27/21
χ^2 based on 1:1 expectation	.7	2.3	114.5	.7

Daughters produce offspring with normal sex ratio, and so do granddaughters when crossed with males not carrying complex A. However, grandsons carrying complex A have again predominantly females among their offspring.

So far, samples have been studied from Tunis as well as from Gabès, 310 kms south of Tunis, and Tabarka, 120 kms west of Tunis. Complex A was found in all these samples, at an average frequency of 0.2.

The induction of abnormal sex ratio seems to be a concomitant of the complex A, either of its structural sequence, or of its gene content.

Parkash, O. University of Vienna, Austria. On the so-called conditioned (incomplete) and absolute lethals in D. melanogaster.

The different types of lethals and the terms used for them have been discussed by Hadorn (1949). In 'conditioned lethals' the penetrance of lethality is dependent on additional genic or environmental factors, the penetrance for the absolute lethals being independent of any such changes. Dobzhansky (1946) reared a genotype of Drosophila pseudoobscura at different temperatures and found that its viability was almost normal at 16.5°C, whereas at 21°C it behaved as a semi-lethal and at 25.5°C as a full lethal. Though very many similar cases have been reported for other organisms (see Hadorn 1955) for Drosophila melanogaster the reports are rather scanty.

In the present pilot-experiment, a group of 8 sex-linked lethals was reared at 16°C, 23°C and 28°C respectively. Whereas at 16°C and 23°C all of these behaved as full lethals, at 28°C one out of the present group behaved as a normal, representing, so to say, a conditioned lethal. In another parallel experiment, the females heterozygous for the lethal factor ($y\ sc^{S1}$ In49 sc^{8}/1;Cy or/Bl L^{2}) from various cultures were separately mated to FM6 males (Grell and Lewis, 1956) and a set of 8 cultures each reared at the above mentioned temperatures, thus changing both the genic and the environmental factors. At 16°C two out of the 8 lethals behaved as normal. The normal males in these cases were sterile and showed anomalies of the wing-veins. At 23°C one of the lethals (the same one which behaved as normal at 28°C in the first experiment) behaved as semi-lethal and at 28°C as almost normal. Further, it was found that this particular lethal could be repeatedly converted into normal when reared at 28°C; however, the reversal from normal to lethal could not be obtained.

It will be interesting to determine the percentage of such incomplete lethals in lethals induced by radiation and other chemical means. Further, this phenomenon may play some part in population genetics.