H. J. Muller Extension of third chromosome. A translocation recently studied, known by the name of the mutant character "scute^{J4}", involved in it, has shown that the third chromosome extends at least several units (4?) to the left of roughoid, since this much crossing-over occurs between the attached piece of the X-chromosome (containing y and scute^{J4}) and the locus of roughoid, while the locus of hairy remains with that of roughoid during this crossing over. Stock is available containing scute^{J4}, roughoid and hairy in the same chromosome, and having yellow in all the X-chromosomes (attached X's of females and detached X of male) so that yellow may here be used as if it were a marker for the left end of chromosome 3.

N. Timoféeff-Ressovsky Temperature-experiments with Drosophila melanogaster. The finding of Muller and Altenburg (1919) and of Muller (1928) that the spontaneous rate of mutation follows the Vant'Hoff's rule was confirmed: the rate of sex-linked mutations is in 25°C about 3 times as high as in 15°C, the difference being statistically significant (Diff/m diff=5,8).

Temperature-shocks (15-24 hours in 35° - 37 C) were applied at different developmental stages in males (adult, 3-6 days old larvae), using the "ClB"-method and the "attached X"-method for detection of sex-linked lethals and visibles; the results of these experiments (started in October 1927) showed only a slight, if any, increase of the rate of mutation: a.11:2993 as compared with 4:1862 lethals in the controls ("ClB" experiments) and b.13:65997 sex-linked visibles as compared with 6:58453 in the controls ("attached X"-experiments).

N. Timoféeff-Ressovsky A comparison of the mutation-inducing effects of X-rays and Gamma-rays. The dosages (in r-units) of Gamma-rays of Ra published in the last papers of Hanson and Heys suggested (according to the mutation-rates induced by these dosages) that Gamma-rays are about 3 times less effective than X-rays in inducing mutations (0,78% sex-linked lethals per 1000r Ra in Hanson's experiments, as compared with about 2,5% per 1000r X-rays). Since there are no theoretical means to admit the existance of such a pronounced difference, and the measurement of Ra-rays in r-units offers some difficulties, and exact comparison of the mutation-inducing effects of equivalent dosages of Gamma- and X-rays was made (using the "ClB"-methos and raying adult males). Different dosages were applied and the mean rates of sex-linked mutations per 1000r were; 2,48% mutations per1000r Gamma-rays of Ra and 2,43% mutations per 1000r X-rays, the difference being insignificant.