

and the legs knobby) it is supposed to be connected with a small deficiency at the dp - locus. Slides of salivary glands did not show any typical aberration near the free end of 2L.

Law, L. W. Radioactive phosphorous and the lethal mutation rate in *Drosophila*.

The results obtained by use of X-rays in influencing the structure of chromosomes in *Drosophila*, have proved of invaluable aid to geneticists. It was thought worthwhile to attempt to influence the lethal mutation rate by

radioactive phosphorous. A 1% solution of radioactive Na_2HPO_4 was obtained from Dr. John Lawrence of the University of California. This substance had been removed from the cyclotron 15 days previously, so that at the time it was used it had a strength of 30 micro-curies per cubic mm. It gave off chiefly beta and gamma rays. A series of concentrations were then injected into 4 day old larvae of the Oregon-R strain (method of Beadle and Ephrussi) in order to determine the sub-lethal dosage. This was found to be 0.1%. Approximately 1 cubic mm. was then injected into Oregon-R males and lethals tested for in the usual CLB manner, using the stock of X-ple/CLB flies. No lethals were found in 250 tested X-chromosomes as compared with no lethals in 507 control chromosomes.

Ludwig, W. A Lamarckian experiment on *Drosophila*

In the Zoological Institute is bred since June 1933, a stock of *D. melanogaster* Oregon+, called "Lamarck" (130 generations up to date). Immediately after hatching the flies have their

wings and halteres cut off. The purpose is to find out if the wing-muscles show a reduction on account of the wings not being used. According to investigations on double-hemithorax-flies (DIS-7:17) which, in spite of lack of whole thorax-muscular-tissues, are able to run and spring nearly in the same way as the wild ones, it is certain that the wing-muscles are used for flying. Furthermore, from other species of flies which are not able to fly, it is known that this circumstance is accompanied by a reduction of the wing-muscles. An examination of "Lamarck" after 100 generations shows the following result in comparison to Oregon+. There is no difference in the total number of the nuclei in the muscles (= number of muscle-cells) the total number of fibres, and the total volume of the muscles, that is to say, up to now no influence in respect to Lamarckism could be detected. The investigations are continued, both from morphological and physiological point of view.

Ma, S. Y. Temperature experimente an *Drosophila melanogaster*, insbesondere zur Bestimmung der sensiblen Perioden für die Induktion einiger Arten von Modifikationen.

Eier, Larven, Vorpuppen und Puppen eines lang gezüchteten Oregon-Wildstammes wurden in verschiedenen Entwicklungsstadien mit Letaltemperaturen von 38,5° bis 41° C. gereizt. Es wurde dafür gesorgt, dass die Konstanz der verwendeten Methoden (mindestens innerhalb eines Stadiums oder einer Versuchsserie), die

Genauigkeit der Altersbestimmung und die Exaktheit der Hitzebehandlung stets aufrecht erhalten würden. Die Experimente und die Auswertung des Ergebnisses sind noch im Gange, die bisherigen Resultate zeigen aber bereits folgendes:
1. Es besteht ein Geschlechtsunterschied in der Entwicklungsgeschwindigkeit, d. h., ♀ entwickelt sich schneller als ♂. 2. Die Hitzesterblichkeit ist hoch in früheren, niedriger in späteren Entwicklungsstadien; innerhalb eines Stadiums ist sie am Anfang und am Ende (einschliesslich der Hautungsperiode)

gross, in der Zwischenzeit aber gering. 3. Es wurden in hohen Prozentsätzen verschiedene Arten von Modifikationen erhalten, welche spezifisch sind für die Entwicklungsstadien, auf denen die Hitzebehandlung stattfand, und in einigen Fällen auch für die angewandten Temperaturen und Reizzeiten. 4. Der quantitative Unterschied in der Sterblichkeit sowie in der Ausprägung der Modifikationen zwischen den beiden Geschlechtern scheint auf dem Geschlechtsunterschied in der Entwicklungsgewindigkeit zu beruhen. 5. Die sensiblen Perioden einiger erhaltener Modifikationen (Die Zahlen geben die Anzahl der Stunden nach dem Eintritt der bezeichneten Stadien an; die unterstrichenen die optimalen Zeitpunkte. E = Embryonales Stadium; LI, II, III = 1.2.bzw.3.Larvenstadium; P = Puppariumbildung): Flügel: (1) Überzahlige Querader, überzahlige Ader und Queraderunterbrechung. Spates LIII-P 30. (2) Ausfallen von Randhärchen. P 10-15-20. (3) Schmalflügelig (selten und asymmetrisch). P 15. (4) Dachförmig (nur nach langer Reizdauer). P 10-30. (5) Abgestutzt. P 10-20-25. (6) Abwärts gekrümmt. P 0-30-45. (7) Aufwärts gekrümmt. P 35-70-85. (8) Gespreizt (stark wenn lang gereizt). Fast im ganzen Vorpuppen- und Puppen-Stadium. (9) Aufgerichtet. P 70-94. (10) Blasenbildung (lang u. stark gereizt). P 30. Augen: (11) Gefurchte Augenoberfläche. Spates LIII-P 15. (12) Unregelmässige Verteilung von Facettenhärchen (rauh). Spates LIII-P 60. Beine: (13) Verkuppelt. E 10-20; LIII 22-P 12. Borsten: (14) Verkleinert, gegabelt und gedreht. LIII-P 30. (15) Verzweigt. P 25-40. (16) Hakenförmig. P 35-50. (17) An der Spitze geknickt, geknöpft. P 45-55. (18) Schwach bis ganz entfärbt. P 55-80. Aristae: (19) Härchen querlig verzweigt. P 30-35-40. Thorax: (20) Eingedellt. P 70-94. Scutellum: (21) Hornartige Auswüchse. P 10-20-30. Innere Gewebe: (22) Tumorartige, schwarze Körperchen. LIII.

Muller, William A. Possible sex influence upon the expression of a dominant blister wing.

The mutant blister-like is a dominant located 3.2 units from bw (965 total count). Small counts indicate no extreme chromosomal fragmentation. The character mainly involves wing venation and excess liquid causing a blister. All individuals do not

show a definite blister. Blistering may show a minute thickening of the veins, an absence of veins, or a definite blister of the wing. Usually only one wing has a blister; however, when one wing shows a blister, the other wing always has abnormal venation. In a study on the variation of the trait, individuals were classified as (1) slight; that is, with abnormal venation and no blister; (2) definite; that is, with one or both wings having a blister regardless of the abnormal venation. The expression of the character is usually more marked in the female than in the male. Males - total count: 984; slight 788; definite 196 (80.1%: 19.9%). Females - total count: 773; slight 155; definite 618 (20%: 80%).

Neuhaus, M. Triploid stock in *Drosophila simulans*.

In order to obtain new hybrid combinations between *D. simulans* and *D. melanogaster* it was necessary to have triploid females in *D. simulans*. For this purpose, yw females with attached X's were mated to sn males.

Gray females were looked for in the F¹ generation. 8 gray females were detected among 5380 yw females. Two of them gave the following progeny: One female gave 6 yw ♀♀; 1 y ♀; 3 sn ♀♀; 4+♀♀; 3 yw ♂♂; 1 yw sn ♂; 3 sn ♂; 3+♂♂; 1 yw ♂; 1 w ♀. The other female gave 4+♀♀ and 1 w ♀. These data indicate the possible triploidy of these females. All gray daughters of the first female proved in further crosses to be diploid. One of the gray daughters of the second female gave 9+♀♀; 14 sn ♀♀; 2+♀♀ and 1 w ♀. It is obvious that this female was triploid. It was noted, simultaneously, that among these gray females there happen females with somewhat thickened scutellars and some other macrochaetae on the thorax, a part of which was forked-like. It was surmized that these females were triploid. This was confirmed in further experiments.