Glancy, E. A. and R. B. Howland. Histology of developing bristles. A study of the histology of bristle growth in normal and mutant flies, especially in the mutants used previously for transplantation studies, is being carried on. The tormogen and trichogen cells in the mutant singed do not differ from wild type cells in relationship to each other or to the hypoderm, nor can they be distinguished from the wild type cells cytologically. Yet the singed bristle, from the moment it can be recognized (approximately 30 hours after puparium formation at 25° C.), is conspicuously stouter than the wild type, and is curved or otherwise distorted.

Goldschmidt, Richard. A note on so called mass mutation. Thus far 5 cases of so called mass mutation in Drosophila are on record (Spencer has in addition pointed to the existence of this phenomenon in a general way). Two of these have occurred in pure Florida stock (Goldschmidt '29, erroneously attributed to the simultaneous heat treatment, Demerec '37 ("explained" by a gene for mutation). The third (Plough and Holthausen '37) occurred in a Florida-cross. A fourth set of cases was found in Goldschmidt's plexus-blistered stock and a fifth by the same author in a cross bs x Oregon. In studying a certain position effect which is common to most third chromosome inversions Mr. Gardner found that crosses involving pure Florida stock produced the same effect. A salivary analysis by Mr. Kodani revealed a large inversion in the third chromosome of this stock (Meanwhile also found by others). The plexus-blistered stock (this is a purely descriptive name) is a very complicated translocation stock, as will be described in detail later. The standard bs, supposed to be an ordinary recessive, turned out, both genetically and in salivary analysis (latter by Mr. Kodani) to contain a translocation with strange position effects upon the bs expression. Thus all stocks which thus far produced the mass mutation phenomenon contained major chromatin rearrangements. A detailed description of our material is being prepared.

Green, Melvin. Variations in the expression of vesiculated-29c. The mutant vs^{29c} usually manifests itself as a liquid-filled vesicle in the region of the first and second posterior cells of the wings. Deflation of the vesicle soon after emergence results in a glassy, ruffled condition of the wing. Individual variation is frequently encountered in size of vesiculation; and in a few cases flies appear with one wing completely wild type. The effects of temperature on vs^{29c} are now being studied. Preliminary experiments in which development took place at a temperature of 30 degrees ± 1 degree C (except for a 2 hour egg-laying period at room temperature) gave the following results: 25/545 males or 4.6 ± 1.03%SD had wild type wings; 53/452 females or 11.7 ± 4.1%SD had wild type wings. The wild type males and females showed by tests to be genotypically vs. In two years handling of the stock at room temperature no males or females with both wings wild type have been observed.

Honer, E. Cytogenetic investigations on a complex dumpy. A single dumpy♂ arose in the F_2 of a cross of X_8 x Oregon. This dumpy was found to manifest itself only within a special genotypical milieu where it behaves like a dominant, homozygous lethal. Flies which contain the milieu only have quite normal wings but tend to give phenocopies of dumpy when bred at higher temperatures (28-30° C). The milieu is built up by modifiers which are about to be classified. As dumpy gives a strong compound effect with the known dumpy (dp-2-13,0) (the wings are much more shortened

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 cyclotrone 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 "Lemarck" (130 generations up to date). Immediately after hatching the flies have their wings and halters 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-muxcles 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 "Lemarck" 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. Temperatur experimente an Drosophila melanogaster, insbesondere zur Bestimmung der sensiblen Perioden für die Induktion einiger Arten von Modifikationen.

Eier, Larven, Vorpuppen und Puppen eines lang ingezüchteten Oregon-Wildstammes wurden in verschiedenen Entwicklungsstadien mit Letaltemperaturen von 38,5° bis 41° C. gereizt. Es wurde dafür gesorgt, dass die Knostanz der gevrauchten 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 Häutungsperiode)