prime of his life, when his ability was entirely obvious, James taught logic to beginners, extra courses in Radcliffe, and courses in summer schools!

EDWARD L. THORNDIKE

## SPECIAL ARTICLES

### NON-DISJUNCTION OF THE FOURTH CHROMOSOME OF DROSOPHILA

IN *Drosophila melanogaster* the gene for "eyeless" (e) and its normal allelomorph (E) are situated in the small fourth chromosome. Normal eye is dominant.

When heterozygous Ee normal flies are crossed with eyeless ee, a ratio of 1:1 is expected. Actually this ratio is approached, although the greater viability of the normal type modifies the ratio to approximately 1.3:1.

In a single mating of this sort a count of 171 normal to 206 eyeless was obtained. Breeding tests of the descendants of this mating indicate that in all probability non-disjunction of the fourth chromosome has taken place.

If an Ee fly formed non-disjunctional gametes Ee and—, the cross with an ee individual would give rise to Eee flies. Here two doses of "eyeless" meet one of "normal" eye. The opportunity is given for an upset in the balance of dominance between E and e. The excess of eyeless flies, mentioned above, suggests that such an upset has taken place. Further matings make it appear that the Eee form may be *either* normal or eyeless in appearance, certain individuals being extremely difficult to classify.

In the course of the breeding work several interesting results were obtained. Among these was the isolation of *eyeless* flies, theoretically of the formula Eee, which when crossed *inter se* or with other eyeless ee, gave *normal eyed* progeny in considerable numbers. Ratios of 8, 9, 10 or even 12 normals to 1 eyeless were also produced from matings presumably EEe × Ee. Both these conditions were expected on the hypothesis of non-disjunction.

Using the appearance of eyeless flies as a test, it seems that the mitosis of the Eee flies is in the vast majority of cases, if not always, Ee and e; while similarly that of the EEe flies is Ee and E.

The variation in somatic appearance of the Eee form and the selective type of mitosis, referred to above, make it difficult to demonstrate genetically the presence of EeEe individuals. If flies of this type have occurred their mitosis is commonly Ee and Ee. One mating only indicates a possible exception to this type of mitosis. This mating shows a peculiar ratio possibly due to the presence of eee eyeless forms.

A further detailed report of the work will shortly be published. I am greatly indebted to Dr. E. G. Anderson for helpful suggestions and discussion and to the Misses E. E. Jones and D. M. Newman for assistance in the laboratory.

C. C. LITTLE

COLD SPRING HARBOR, N. Y.,
January 6, 1921

## THE AMERICAN ASSOCIATION FOR THE ADVANCEMENT OF SCIENCE

### REPORT OF THE TREASURER FOR 1920

IN conformity with Article 2, Section 6, of the By-Laws and by direction of the Council, the Treasurer has the honor to submit the following report for the period December 20, 1919, to December 23, 1920.

The total cash receipts during the period in question is $13,096.05. These include $4,381.21 from the W. Hudson Stephens estate; $1,850 from 32 Life Membership commutations, and $5,707.75 from interest on securities of the association.

The total disbursements made during the period in question amount to $10,272.56. These include an aggregate of $4,500 for 19 grants authorized by the council, and $4,431.31 paid for $4,500 face value Victory Loan 4¾% bonds.

The total amount of funds of the association consisting of cost value of securities purchased, appraised value of securities received from the Colburn Estate, and cash in banks, is $125,723.59.

A balance sheet, showing assets and liabilities, and tables showing details of receipts and disbursements, are appended hereto.

(Signed) ROBERT S. WOODWARD,
*Treasurer*

Dated December 23, 1920