to phenomena in cultures, exactly similar to those found in Oenothera and Drosophila.

An investigation of the meiotic divisions in the reproductive organs of *Drosophila melanogaster* by the quantitative methods indicated above has resulted in the securing of large numbers of mitoses. These are throughout thoroughly abnormal and of the hybrid type. The normal simultaneous movement of the chromosomes (metaphase) to the equator of the cell, to constitute the so-called equatorial plate, is conspicuous by its absence in this species. Abnormalities in the anaphase are equally obvious, as there is the same lagging of the chromosomes in their progress towards the poles as manifests itself in the earlier equatorial migration. I have examined hundreds of divisions of the spermatocytes of *D. melanogaster,* without observing a single normal mitosis in the so-called heterotypic (meiotic, reduction, maturation) division. The all-important reduction divisions of *D. melanogaster* are undoubtedly aberrant and present the identical peculiarities of those observed in known hybrids. The cytological investigation of *Drosophila melanogaster* seems accordingly to establish beyond any reasonable doubt that the species is of hybrid origin and that accordingly very large and indeed fundamental reservations must be made, in any general conclusions, regarding the origin of species, and the laws of heredity, which can be drawn from the experimental study of this species.

These erroneous results, which have apparently been reached as a consequence of too superficial study in the case of *Drosophila melanogaster,* present an excellent example of the dangers of what may be called the *in vitro* or purely experimental study in the biological sciences. A number of biologists are apparently of the opinion that studies carried on in glassware, greenhouses or laboratories have a fundamental value and transcend in importance other kinds of biological investigation. It is necessary, however, to correlate the results seen at best, but darkly, in the glass experimental houses with those obtained by the study of living matter in the open, in other words, in nature. This was essentially the method pursued by Charles Darwin, who compared the only experimental evidence in general available in his time, namely, that furnished by cultivated plants and domesticated animals, with the conditions presented by plants and animals in nature. A large part of the perennial value of the "Origin of Species" is the result of this broad and solid method.

The extreme experimentalists, moreover, have apparently forgotten a very old and extremely prudent adage, namely, that those who live in glass houses should not throw stones. Professor Morgan in his "Critique of the Theory of Evolution," which has enjoyed a tremendous vogue in recent years, has damned with faint praise or attempted to controvert many of the fundamental principles of the biological sciences and has attempted to set up in place of them an evolutionary hypothesis based on the study of a single aberrant species of Drosophila. There is an interesting contrast between the Morgan hypothesis and that of Charles Darwin. The latter was able to buttress his views with the conclusions reached by morphologists, paleontologists, embryologists and biogeographers. In spite of the strong support supplied by the general biological situation in Darwin's time his hypothesis met with the bitterest opposition. The Morgan hypothesis of mutation based on the study of *Drosophila melanogaster* by contrast runs counter to practically all the inductive conclusions of the biological sciences. In contrast to the Darwinian hypothesis, moreover, it has been acclaimed at once by almost the entire body of biologists. The history of science appears to warrant no expectation of long life for the mutation hypothesis. It is, moreover, inconceivable that a science which has reached as its supreme achievement the theory of evolution should itself progress by unreasoning revolution and the subversion of the fundamentals of the biological sciences. It is in fact not impossible that before many years have elapsed the doctrine of mutation will appear to the eyes of men as a fantastic Fata Morgana, appropriately staged on the exaggerated skyline of the lower Hudson.

EDWARD C. JEFFREY

BOTANICAL LABORATORIES,
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REPORT OF THE COMMITTEE OF THE NATIONAL ACADEMY OF SCIENCES ON FORESTRY PROBLEMS

THE Special Committee of the National Academy of Sciences on Forestry Problems in the United States appointed at the annual meeting in April, 1924, respectfully reports as follows:

1. There is urgent national need for the clearer definition and active prosecution of a sound forestry policy. (Herewith is submitted Exhibit A—a report on forestry research by a sub-committee under chairmanship of Henry S. Graves.)

2. The formulation and development of this policy must be based upon researches in the fundamentals of science underlying forestry, including plant morphology, physiology, taxonomy, genetics and pathology correlated with biochemistry and biophysics and recognizing certain aspects of economics.

3. Such researches are especially difficult because of the time element involved and therefore are to an

unusual degree dependent upon assured permanence of plan and reliability of support.

4. Plans for the improvement of present conditions should give consideration to:

(a) The finding and training of especially promising young men for constructive effort and future leadership in this field of research.

(b) The encouragement of mature investigators working on pertinent problems.

(c) The possible increase of that which is of best import in researches supported by federal funds.

(d) Additional support of pertinent work in existing educational and research institutions other than federal.

(e) The possible need and place of a new research institution or agencies and the proper correlation of such with existing educational and research institutions or agencies.

Recognizing these factors it is evident that further progress in detailed consideration of these matters requires adequate understanding of pertinent existing undertakings and agencies by which the needs are now being met or may be met.

6. It is, therefore, recommended that a special committee of the academy be appointed to advance the realization of these objectives with the understanding that the first step should be the securing of the financial support for a survey.

L. R. JONES,
Chairman

The above report and recommendations of the committee on forestry problems in the United States was considered by the council of the National Academy of Sciences at its meeting on April 26, 1925, and the following motion was adopted:

Moved: That the council recommend to the Academy that the Academy express its continued interest in the forestry problem, and that a special committee of the Academy be appointed to advance the needs recommended in the report of the committee on forestry problems as presented.

Adopted.

The recommendation of the council of the Academy, including the report of the committee on forestry, was presented to the Academy at its business session on April 27, 1925, and after discussion the following resolution was adopted:

Resolved: That in approving the recommendation of the council, the National Academy of Sciences expresses its continued interest in the forest problem, and authorizes the appointment of a committee to advance realization of the objectives set forth in the report as presented, with the understanding that the first steps will be the securing of financial support for the survey, and the supervision of such a survey.

Adopted.

The committee on forestry is as follows: L. R. Jones, chairman; I. W. Bailey, H. S. Graves, R. A. Harper, J. C. Merriam, E. D. Merrill, C. D. Walcott.

HENRY M. THOMAS

IT is thirty-six years since the Johns Hopkins Hospital opened its doors. The little group of men that were gathered together in its early years is dwindling. How fast they have gone!—Gilman, Mall, Osler, Halsted and now "Harry" Thomas.

> As life runs on the road grows strange
> With faces new, and near the end
> The milestones into headstones change,
> 'Neath every one a friend.

Beneath the new headstone will rest one who filled a large place in the hearts of his remaining colleagues and students. A neurologist whose learning and ability and discrimination were widely recognized and valued, Thomas is a sad loss to the medical profession. Modest, unassuming, unobtrusive, he was a careful, thorough, learned student, a keen observer, a wise adviser, a judicious teacher; unselfish, devoted, self-sacrificing, he made every student his friend. It is doubtful if there was one among the faculty, unless it were the "Chief," whose personal relations with the students were so close. These students he taught to approach their problems deliberately, thoughtfully, thoroughly; to reach their conclusions only after the most careful collection and consideration of all available evidence.

"What is scientific reasoning?" said Duclaux, "simply this: reasoning exercised with the salutary fear of self-deceit and the firm resolve to avoid it." This lesson Thomas taught his students well. And then he taught them another lesson, a lesson of gentleness and consideration and humanity and tolerance toward patient and fellow man, high and low.

He was a gentleman and whosoever came into his presence—patient or colleague or student—left him with the sense that he had been treated as a gentleman. Few lessons are more precious than this.

With his patients he had an extraordinarily bright, fresh, cheering manner, and a capacity for diverting small talk on all occasions which was the despair of his less favored colleague and the joy of many a discouraged invalid.

He was a member of the Society of Friends—a member of the Society of Friends—pleasant words, and in how many senses true!

W. S. T.