have been derived may be read in these characters.

The second paper by Mr. A. A. Tyler, on 'The Nature and Origin of Stipules,' presented conclusions derived from studies extending through several years. The subject was treated at length in the light of geological, morphological, anatomical and developmental evidence. Discussing Mr. Tyler's paper, which will shortly be published in full, Dr. Britton remarked that "the outcome of this very important paper is most interesting; it emphasizes the significance of basal scales and those of buds and rootstocks; and it is the more convincing from the nicety with which it accords with the seemingly haphazard distribution of stipules widely but irregularly here and there through the vegetable kingdom."

Mrs. Britton discussed the paper further, referring to the different phases presented in *Fissidens*.

Of the remaining papers, that by Mr. Nash was read by title and will appear in the *Bulletin*; and that by Dr. Small was, on account of the lateness of the hour, deferred till the next meeting.

EDWARD S. BURGESS,
Secretary.

NEW YORK ACADEMY OF SCIENCES—SECTION OF
ASTRONOMY AND PHYSICS, MARCH 1, 1897.

F. L. TUFFTS presented an abstract of work recently done by him in further testing the correctness of the results obtained with the original form of the Rood flicker photometer. By a very elaborate series of tests by various methods, he found that the true 'flicker,' which appears when the speed is just sufficient to give a uniform background, is independent of color and depends only upon differences of luminosity.

The paper was discussed by R. S. Woodward and W. Hallock. W. Hallock described several forms of maximum thermometers used in subterranean temperature work, and described a new form which it is believed will obviate some of the difficulties of the U. S. signal service form, which has been used so successfully.

Mr. Hallock also reported upon recent work on subterranean temperatures referring espe-

cially to the Sperenberg well, near Berlin, 4,300 feet; the Wheeling, W. Va., well, 4,500 feet; the new Pittsburg well, 5,386 feet; the Schladebach well, near Leipzig, 5,740 feet, and the incomplete well at Paruschowitch, near Reibnik, which two years ago was 6,600 feet deep and was planned to go 2,700 meters (8,800 feet). The well at Pittsburg gave results practically identical with those obtained in the Wheeling well, which is forty miles distant but in practically the same geological strata. The observations at Pittsburg were preliminary, and it is hoped that a very complete and satisfactory series of temperatures will be obtained, owing to the generous public spirit of the Forest Oil Co., who have practically placed the well at the service of science. It is planned to drill it much deeper.

W. HALLOCK,
Secretary of Section.

THE ACADEMY OF SCIENCE OF ST. LOUIS.

At the meeting of the Academy of Science of St. Louis, of March 1, 1897, Mr. William H. Rush presented a demonstration of the formation of carbon dioxide and alcohol as a result of the intramolecular respiration of seeds and other vegetable structures in an atmosphere containing no free oxygen. The theory of the dissolution and reconstruction of the living nitrogenous molecules was explained in connection with the experiments, and the different behavior of these molecules when supplied with or deprived of free oxygen was indicated.

Mr. H. von Schrenk briefly described certain œdematous enlargements which he had observed at the beginning of the present winter, near the root tips of specimens of *Salix nigra*, growing along the edge of a body of water. The speaker compared these with the œdemata of tomato leaves and apple twigs which were studied some years since at Cornell University.

Professor J. H. Kinealy exhibited a glass model illustrating the mode of action of the Pohle air-lift pump, the efficiency of which he had discussed at the preceding meeting.

One name was proposed for active membership.

WILLIAM TRELEASE,
Recording Secretary.