BOTANY

Chairman: RAY C. FRIESNER, Butler University

A. T. GUARD, Purdue University, was elected chairman of the section for 1943.

Kodachrome studies of trees in winter. C. L. PORTER, Purdue University.—A photographic study was made of a number of species of trees in their winter condition. Identifiable aspects of form and bark were presented. Some pathological conditions of trees were shown and discussed.

A new type of key for the identification of gilled mushrooms. C. L. PORTER, Purdue University.—Use is made of multiple-entry cards with perforated edges to key the distinguishing characters of gilled mushrooms. The plan is one adapted from a similar scheme used by the Forest Products Laboratory at Princes Risborough, England, for the identification of hard woods. A similar key could be used for the identification of other members of the plant kingdom.

Development of the seed of the tulip tree. A. T. GUARD, Purdue University.—Collections of the flowers were made at five day intervals from the early bud stage until August 1 in order to study the development of the seed. There was a vigorous development of the nucellus in the early stages. The embryo and endosperm did not begin to develop until about four weeks after the flower had opened.

An ecological survey of Berkey woods, a remnant of forest primeval in Kosciusko county, Indiana. J. E. POTZGER and RAY C. FRIESNER, Butler University.—The paper is an addition to the quantitative and qualitative studies of comparatively undisturbed forests in Indiana. The specific aim is to perpetuate a record of their true composition. The study is based on 50 100-square-meter quadrats. Considered are the sociological factors frequency, density and basal area. The Berkey woods is a typical mesophytic climax forest of Indiana in which *Acer saccharum* and *Fagus grandifolia* play the most prominent role. Associated with them, however, are 16 species of tall trees, stamping the stand as mixed mesophytic. Both Acer and Fagus reproduce well. Woody species are represented by 18 tall trees, 3 small trees, 9 shrubs and 1 liana. *Ostrya virginiana* is the most important representative in the small tree stratum, and *Asimina triloba* in the shrub layer.

Notes on the venation patterns of the stipules and calyces of some legumes. LAWRENCE J. KING, Earlham College.—The venation pattern of stipules and calyces was studied in thirteen species representing six genera. These patterns were found generally to be distinct and

characteristic of each species. The characteristic patterns of each species were described.

The effect of different sources of Nitrogen on Phosphorus deficiency in tomato plants. W. R. MULLISON, Purdue University.—It has been reported that the application of N in a reduced form such as urea enabled calcium-deficient plants to continue growth for a much longer period of time than similar plants supplied with an oxidized form of N such as nitrates. It was thought that supplying N in a reduced form might have a favorable effect on plants given little or no P by slowing down the onset of that deficiency. The experiment was performed first with plants that had been grown the first month in quartz sand and supplied with a complete nutrient solution. Later the experiment was repeated with plants which were P-deficient from the time of germination. The results showed that N supplied in the form of urea and ammonia does not delay the appearance of P deficiency symptoms as well as N supplied in the form of nitrates.

Studies on the nutrition of *Collybia velutipes* (Curt.) Quel. BROTHER RAPHAEL MARCZYNSKI, University of Notre Dame.—*Collybia velutipes* (Curt.) Quel., an agaricaceous fungus, was grown in pure culture on a synthetic medium with the addition of various supplements. Yeast extract, malt extract, bacto-peptone, bacto-agar, thiamin, thiazole, pyrimidine, and biotin increased growth. Riboflavin, pyridoxine, and glycine had no effect.

Observations on the vitamin requirements of *Stereum frustulosum* (Pers.) Fr. N. L. NOECKER and MERTON J. REED, University of Notre Dame.—*Stereum frustulosum* was investigated concerning its vitamin nutrition. The basal medium consisted of ammonium tartrate, M/10; sucrose, M/5; potassium phosphate, M/20; magnesium sulphate, M/100; ferric chloride, 0.6 cc. of a one percent soln.; and distilled water to make 1000 cc., and was used with and without the following supplements: thiamin, intermediates of thiamin, biotin, pyridoxine, riboflavin and yeast extract. Of the vitamins tested, thiamin was the only one which had a beneficial action, being able to replace completely yeast extract as a growth stimulant. This vitamin, added to the basal medium, produced an increase in growth of approximately 50% (growth on the basal medium alone, 13.1 ± 0.70 mg.; basal medium + thiamin, 18.4 ± 1.83 mg.). The optimal concentration of thiamin was 0.1 gamma per 25 cc. The thiazole portion of thiamin was as effective as the whole molecule. Apparently the pyrimidine component is synthesized in adequate amounts. An active factor of strictly physico-chemical nature was suggested by the results obtained by the addition of a small amount of purified agar to the basal medium containing yeast extract.