some weeks' study to the insects of this family and called attention to the excellent use which may be made of characters in the mandibles, palpi, antennæ, frontal fovea, clypeus, wings, abdomen, pygidium and legs. He would give generic rank to the sub-genera of Fox and Kohl, and would divide the family into four sub-families. He showed that all of the Fabrician species of *Crabro*, 17 in number, have been placed in other genera, and he finds himself embarrassed to indicate the type of the genus *Crabro*.

L. O. HOWARD,
Secretary.

BIOLOGICAL SOCIETY OF WASHINGTON—298TH
MEETING, DECEMBER 30TH.

PROFESSOR A. D. HOPKINS exhibited some diagrams illustrating a system devised by him for showing in a graphic manner the evolutionary development of families, genera and species.

Mr. Charles L. Pollard discussed 'Floral Asymmetry in *Chamæcrista*,' explaining with the aid of diagrams the peculiar irregularity in the corolla and calyx whereby the banner petal, instead of occupying a normal uppermost position, has undergone a torsion of 90° to the left. This remarkable discovery was made originally by Professor E. L. Greene, who considered that it entitled the Chamæcristoid *Cassias* to rank as a distinct genus. Other generic characters were pointed out by Mr. Pollard.

Mr. Herbert J. Weber spoke of 'The Affinities of *Casuarina*,' discussing the external resemblance of *Casuarina* to *Equisetum* and the very close resemblance to *Ephedra* of the Gnetales. The theory of their probable derivation from this group was accepted.

The subject of Chalazogamy in *Casuarina* was discussed somewhat in detail, the speaker taking exception to Nawaschin's theory that Chalazogamy is a primitive type of fecundation from which porogamy has been developed. The principal reasons advanced for thinking Nawaschin in error were:

1. Porogamy is the general type of fecundation in the Angiosperms, and is of special interest, as regards the Monocotyledons, which doubtless had a separate origin from *Casuarina* and other Dicotyledons, but were, neverthe-

less, derived from the Gymnosperms, where uniformly a slightly different type of porogamy from that occurring in the Angiosperms exists. As in the Monocotyledons, porogamy developed from a Gymnospermous type of fecundation, the speaker thought it more reasonable to think that the same type of fecundation had also appeared first in the ancestors of the Dicotyledons.

2. From the universal presence of the micropyle in all Gymnospermous and Angiospermous plants.

3. From the universal location of the egg cell in all Angiosperms in close proximity to the micropyle, instead of the chalaza.

The speaker took the ground that Chalazogamy may probably be looked upon as a degenerate form of fecundation rather than a primitive type.

Mr. O. F. Cook presented a paper entitled 'Four Categories of Species,' in which it was claimed that the general problems of taxonomy are four in number, and that from the standpoint of the work of investigation they may be looked upon as practically distinct. The term species has been employed in treating all four lines, being used (1) for arbitrary section of lines of individual succession, the 'species' of phylogeny and paleontology. (2) The insular or segregated species, the original and still the leading use of the term. (3) The incipient species, more properly called the subspecies. (4) The artificially selected or hybridized 'species.' It was insisted that the fact of segregation is capable of establishment by sufficiently careful and extended observation; that it gives our most important clew to the present tendencies of evolution, and that the term 'species' should be restricted to naturally segregated groups of individuals.

F. A. LUCAS,
Secretary.

THE NEW YORK SECTION OF THE AMERICAN
CHEMICAL SOCIETY.

THE local Section held its regular meeting at the College of the City of New York on the 9th inst., Dr. William McMurtrie presiding, and ninety-five members and visitors were present. An unusually long and interesting pro-