tendency of some of the botanists to include in the flora cultivated plants or plants escaped from cultivation which do not properly belong there was criticised, as was also the practice of publishing plants in the lists of additions without seeing specimens and depositing them in some accessible collection.

F. A. LUCAS, *Secretary*.

NEW YORK ACADEMY OF SCIENCES, FEB. 11.
BIOLOGICAL SECTION.

The following papers were presented :

The Occurrence and Functions of Rhizobia.

DR. ALBERT SCHNEIDER. A discussion of the discovery of the adaptability of rhizobia to other plants than leguminous. Some conclusions based on investigations carried on at the Illinois experiment station were given to show that it is probable that rhizobia may be so modified as to grow in and upon roots of gramineous plants (ex. Indian corn).

An Undescribed Ranunculus from the Mountains of Virginia. PROF. N. L. BRITTON.

On the So-called Devil's Corkscrews of Nebraska. DR. J. L. WORTMAN. A visit to the locality during the past summer had enabled him to study many problems in connection with their occurrence, which tend to throw considerable light upon their nature. The formation in which they occur was positively identified as the Loup Fork division of the upper Miocene, which is a true sedimentary deposit. The Diamonhelix occurs in a stratum of from 50 to 75 feet in thickness always standing vertically, and their tops are not confined to any one level. They vary much in size and character, but so far as observed always present the spiral twist. The fact that they occur in true sedimentary rocks, that their tops occupy many levels, together with the lack of evidence to show that there was any disturbance of level during the time the sediment was being laid down, was considered to totally disprove the theory that they represent the

burrows of animals, which has been so extensively held in explanation of their curious nature. The invariable presence of plant cells, together with other facts, leads to the conclusion that they very probably represent the remains of roots or stems of some gigantic water plant.

The excretory System of Clepsine and Nephelis. DR. ARNOLD GRAF. The results of H. Bolsius have proved to be erroneous. The different parts of the nephridium are classified as follows: (1). *Infundibulum*, consisting in *Nephelis* of six bilobed ciliated cells, in *Clepsine* of a peduncle cell, pierced by a ciliated canal, and two bilobed ciliated cells attached to the peduncle. (2). *Receptaculum excretorium*. A vesicle which is in open communication with the funnel and in osmotic communication with the following parts of the nephridium. It is similar in both genera, and filled with disintegrating material. (3). *Portio afferentia*. The part of the gland, consisting of a single row of round cells, pierced by a sometimes bifurcated canal, which gives off branched canals. Similar in both genera. (4). *Portio glandulosa*. Row of cells, pierced by a smooth canal without side branches or bifurcation. This part is the largest part of the whole organ. Similar in both genera. (5). *Vesicula terminalis*. In *Nephelis* a vesicle, lined by a ciliated epithelium, in *Clepsine* a simple pouch of the *epidermis*, without cilia. (6). *Canalis terminalis*. The short canal by which the terminal vesicle communicates with the exterior. Present in *Nephelis*. In *Clepsine* it is equivalent to the terminal vesicle.

The cells formerly called *Chloragogen cells* should now be called *Excretophores*. A preliminary account of these cells has been sent to the 'Zoologischer Anzeiger.' The investigation has been carried out mainly on living tissues, and every source of error has been eliminated.

BASHFORD DEAN, *Rec. Sec'y*.