above a high basement, and measures 340 feet front by nearly 200 feet in depth. All along the front are arranged small rooms for research, rooms for the professors and assistants, a library, etc.; these open into a private corridor, so that the men employed in these rooms may pursue their work without interruption from students passing through the main halls. The second floor is devoted exclusively to pathology. The entire north front of the building is devoted to laboratories for advanced students in pathology and pathologic bacteriology, and to the special research and assistants' rooms.—*American Medicine.*

BOTANICAL NOTES.

ADIRONDACK PLANTS.

MRS. ANNIE MORRILL SMITH publishes in the 'Adirondack League Club Year Book' a corrected and enlarged list of plants found on the Adirondack League Club Tract, in which are enumerated 455 species, distributed as follows: Lichens, 29; hepatics, 40; mosses, 82; ferns and their allies, 27; conifers, 11; flowering plants, 266. The nomenclature of the higher plants is that of Britton's 'Manual.' The list has been reprinted in a neat twenty-page pamphlet. The botanists of the club are to be congratulated upon this evidence of their activity in the field.

ALGAE IN WATER SUPPLIES.

GEORGE T. MOORE and Karl F. Kellerman, of the Division of Plant Physiology of the United States Department of Agriculture, have prepared a bulletin on the algae in water supplies which has been issued by the Bureau of Plant Industry (as No. 64). It appears that the investigation was first begun in order to find some cheap and practical method of preventing or removing the algal contamination of cress beds. This naturally extended to all cases of algal contamination of waters, including such growths in reservoirs in connection with water supplies for cities and towns. The importance of the matter is such that a preliminary publication is made in this bulletin in order that what has been found out as to preventives and remedies may be laid before boards of health and officers in charge of public water supplies.

It is here shown that 'it is entirely practicable to cheaply and quickly destroy objectionable algæ in small lakes, ponds, storage reservoirs and other similar bodies of water by the use of extremely dilute solutions of copper sulphate or of metallic copper.' Although copper sulphate is a poison it is to be used in such very dilute solutions as to render it harmless to man or other higher organisms. In the tests made in the cress beds it was possible to kill all of the algæ without injuring the cress, and still the solutions were so dilute that they were 'not considered injurious to man or other animals.'

The bulletin devotes some pages to the microscopical examination of drinking water, the wide distribution of trouble caused by algæ, the methods hitherto used for the abatement of the nuisance, the difficulties encountered, and then takes up the examination of the effects of various strengths of copper sulphate on different organisms. Among the organisms experimented with are *Chlamydomonas, Raphidium, Desmidium, Stigeoclonium, Draparnaldia, Navicula, Scenedesmus, Euglena, Spirogyra, Conferva, Closterium, Synura, Anabaena* and *Uroglena.* Some of these were killed in solutions as dilute as one part of copper sulphate to three million parts of water, while others endured solutions as strong as 1 to 2,000. It is evident that in order to apply this remedy the organisms must be fully known, and the authors emphasize the statement that it is impossible to tell what strength of solution to use without a thorough study of the organisms in any particular case. Incidentally they find that such treatment of the water supply is likely to destroy many pathogenic bacteria and also the larvae of mosquitoes.

STRUCTURE OF THE PLANT NUCLEOLUS.

HAROLD WAGER discusses the structure of the nucleolus of the cells of the bean (*Phaseolus*) in the January number of the *Annals of Botany,* and concludes 'that not only is the nucleolus concerned in the formation of the chromosomes, but that there is a definite morphological connection between them.' He says further that "it is found that the nucle-

olus is intimately connected with the nuclear reticulum; that it contains nearly all the chromatin of the nucleus; that this is transferred, previous to division, into the nuclear thread, which is then segmented into chromosomes; and that in the reconstitution of the daughter-nuclei, the chromosomes become fused into a number of more or less spherical or irregular masses which unite to form the daughter nucleoli."

NUMBER OF POLLEN GRAINS IN INDIAN CORN.

In the *American Naturalist* for December, 1881, the writer published a note giving the results of a large number of careful counts and estimates made a few years earlier as to the number of pollen grains produced by Indian corn (maize). Briefly, the results were as follows: Average number of stamens in a 'tassel,' 7,200; average number of pollen grains in an anther, 2,500; average number of pollen grains produced by a plant, 18,000,000.

A recent bulletin (No. 77) prepared by Professor P. G. Holden, of the Iowa Experiment Station, gives considerably higher results, the statement being that "careful counts made at this station last year of the number of pollen grains found in an ordinary anther taken from different parts of a great many tassels showed that between 49,000,000 and 50,000,000 pollen grains were borne on an average by each tassel."

THE EARLY FALLING OF BOX-ELDER LEAVES.

Every one who has watched the box-elder tree (*Acer negundo*) carefully has noticed that the first leaves to appear in the spring are by no means typical, often being simple, but deeply cleft, so as to resemble those of the maples, and never having more than three leaflets when compound. These cataphyllary leaves occur on the first and second nodes of the shoots of the season, and even on the third and fourth in extreme cases, gradually approaching the typical five-foliate compound leaves. Within a fortnight of the appearance of the first leaves, and shortly after the typical leaves have developed the cataphylla begin falling from the trees. When this defoliation is at its maximum the ground under large trees is covered with the discarded leaves, much as in the autumn. This is so marked that it is one of the objections to this tree on lawns and well-kept grounds. Why these leaves are discarded so soon is not plain. We are reminded of the discarding of the primary leaves of the pines, where the matter has gone so far that none of the first crop of leaves are retained. The streets of Lincoln, Nebr., which have many box-elder trees planted along their sides, are now (May 21) littered with these fallen cataphyllary leaves.

PHILIPPINE PLANT NAMES.

On request of Captain G. P. Ahern, Chief of the Forestry Bureau of the Philippine Islands, the botanist of the bureau, Mr. Elmer D. Merrill, has prepared a very useful 'Dictionary of the Plant Names of the Philippine Islands,' which has been published at Manila by the Department of the Interior of the Islands. It consists of two parts, the first of which is an alphabetical list of the native names with the corresponding scientific names, while the second list includes an alphabetical arrangement of the genera and species, with native synonyms and short explanatory or descriptive notes. The extent of the undertaking may be inferred from the fact that between 4,500 and 5,000 native names are enumerated. And yet the author himself calls attention to the fact that the present enumeration records the native names for 'perhaps twelve to fifteen of the seventy or eighty dialects spoken in the archipelago.' There is evidently much more work of this kind to be done, and Mr. Merrill is entitled to much credit for the excellence of his list as far as he has carried it.

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EXPEDITION FOR SOLAR RESEARCH.

With the aid of a grant of $10,000 from the Carnegie Institution, for use during the current year, the Yerkes Observatory of the University of Chicago has sent an expedition to Mt. Wilson (5,886 feet) near Pasadena, California, for the purpose of making special in-