

the cytoplasm, thus giving rise to large multinucleated forms containing as many as thirty or forty nuclei. When these multinucleated forms are placed in contact with an abundant supply of free oxygen the cytoplasm immediately begins to divide. Furthermore, the free oxygen supply starts off many of the multinucleated forms and their nuclei divide simultaneously.

These findings have raised the question, in my mind, as to the validity of the multinucleated genus *Pelomyxa* and the binucleated genus *Sappina*.

It may be of interest to describe here a reaction which I believe indicates the presence of peroxides in the living cell. When these amoebæ are grown in ovomucoid containing a trace of sodium carbonate and then mounted in an aqueous solution of Grüber's methyl green, the granules within their cytoplasm exhibit a purple color in a few minutes. The nucleus does not give this reaction. Now methyl green is split by peroxides into a purple compound and this reaction occurs in the test tube only, in my experience, in the presence of traces of sodium carbonate.

If this reaction really indicates the presence of peroxides, it shows that the so-called "nutritional granules," or "plastids" in reality perform an important part in the oxidations of the cell, and would seem to add significance to the observation of Kite and Chambers, who found that the nucleus of the spermatogonia of the squash bug was composed of powerful reducing substances.

The complete details of this work will be sent to the *Archives für Protistenkunde*.

WM. B. WHERRY

CINCINNATI, OHIO

THE ILLINOIS STATE ACADEMY OF SCIENCE

THE fifth annual meeting of the Illinois State Academy of Science was held at Bradley Polytechnic Institute, Peoria, Illinois, on February 21 and 22, 1913, under the presidency of Professor Henry Crew, of Northwestern University. After the opening business was transacted, the president's address was given by Professor Crew upon

the title, "An Italian Academician." This address presented Galileo as an experimenter of the highest type—one who used the method of science in discovering some of the truths of nature at a time when the common practise was to deal with assertions about nature, or if the apparent facts of nature seemed to controvert assertions "to stare nature out of countenance." It is hoped that this excellent address will receive wide publication, for Professor Crew's special studies of the work of Galileo have resulted in the presentation of Galileo as a man of very much more far-reaching significance to modern science than most scientists have thought. Another special feature of the program was a symposium upon the "Science of Sanitation." The topics and speakers in this symposium were: "The Influence of Shallow Wells on Health," by Edward Bartow, director of the Illinois Water Survey, University of Illinois; "The Control of Stream Pollution," by Paul Hansen, Illinois Water Survey, University of Illinois; "Sanitary Aspect of Milk Supply," by P. G. Heinemann, department of bacteriology, University of Chicago; "Housing in Relation to Health," by Marion Talbot, department of household administration, University of Chicago; "Birth and Death Registration," by Frederick R. Green, American Medical Association, Chicago. This symposium proved unusually interesting to all the members who were present, and it is hoped by means of the annual volume of the academy's *Transactions* to give the symposium papers wide distribution throughout the state.

After an informal reception for members and friends of the academy, an excellent dinner was served by the department of domestic science of Bradley Polytechnic Institute; and in a period when efficiency in education is being demanded everywhere, it is a pleasure for the members of the academy to attest the efficiency of the service given by Bradley's domestic science department. The dinner and the service was entirely by students in the department, and no better dinner has been served to the academy. The after-dinner program consisted of a series of short addresses outlining the nature and significance of the past year's discoveries in each of several branches of science. This apparently impossible task was performed in such a way as to give the members a good perspective regarding the chief occurrences and the dominant points of view prevailing at present. The speakers were John M. Coulter, Henry B. Ward, Stephen A. Forbes, William S.

Bayley and E. W. Washburn. One of the purposes of the academy is to make science the property of the people, and no part of the program better met this purpose than these brief addresses which gave specialists in one science clear notions of the things being done in other sciences. The evening address was by Professor E. E. Barnard, Yerkes Observatory, University of Chicago, upon "Some Late Results in Astronomical Photography," and was illustrated with lantern slides made from the most recent and most valuable astronomical photographs. As the lecture ended doubtless a good many members felt as one said: "There is no mind-stretcher equal to astronomy."

The academy has had several committees at work during the past year, among which are the following: on conservation, on legislation, on calendar reform, on leaflets on high school science, on pure and applied science in high schools, on ecological survey. All of these committees are continued so that they may make further report next year, but the report of the ecological survey committee, S. A. Forbes, chairman, should be especially mentioned. The districts actively investigated and made the basis of special reports, printed or to be printed, are: the Chicago area; the Beach area of northeastern Illinois; the county of Jo Daviess in the northwestern part of the state and Fulton County in the central part of the state; the sand prairies of the state; the Charleston area with extensions over the eastern Illinois; and the Illinois River, with extensions to the Mississippi and the Ohio rivers. A statistical survey of the bird life of the entire state, made four years ago, showing numbers, distribution and ecological relations of the species is now being prepared for publication. The ecological relations of the crawfishes of Illinois are being investigated by a special student. The work upon the animal life of the Chicago area is soon to be published by the Geographic Society of Chicago. While this is not a part of the work of the academy, it has been done by one of its members, Dr. Shelford, and constitutes a part of the ecological work of the state. Dr. E. N. Transeau is publishing a report upon the algæ of eastern Illinois, a report which notes 245 species, 23 of which have not previously been collected in North America, almost all these new forms having been found in old prairie ponds. Mr. T. L. Hankinson reports a most interesting and careful study of the distribution of the fishes of Coles County, a county drained partly by the Wabash system and partly by the Kaskaskia sys-

tem, thus offering peculiarly good opportunity for such a study.

The individual papers upon the program of the academy follow:

"A Celestial Sphere," an apparatus to be used in the study of descriptive astronomy, constructed and installed at the Chicago Academy of Science (illustrated), W. W. Atwood, Chicago Academy of Science.

"Chicago Academy of Science—An Educational Force in the Community" (illustrated), W. W. Atwood, Chicago Academy of Science.

"Annotated List of the Algæ of Eastern Illinois," presented in form of a summary, E. N. Transeau, Eastern State Normal School.

"The Sexton Creek Limestone in Illinois," T. E. Savage, University of Illinois.

"A Plea for the Organization of Local Natural History Societies," Ruth Marshall, Rockford College.

"A New Species of Marionina from Illinois," Frank Smith and Paul S. Welch, University of Illinois.

"A Black-crowned Night Heronry" (illustrated), Charles W. Finley, Western State Normal School.

"Reproduction by Layering in the Black Spruce," George D. Fuller, University of Chicago.

"Studies of Evaporation and Soil Moisture in the Prairie of Illinois," George D. Fuller and E. M. Harvey, University of Chicago.

"The Stratification of Humidity in the Forest," Wade McNutt, Highland Park High School, and J. R. Locke, Streator High School.

"The Distribution of the Fish in the Streams about Charleston, Illinois," T. L. Hankinson, Eastern State Normal School.

"The Disappearance of the Beaver," Elliot R. Downing, University of Chicago.

"The Stratigraphy of the Chester Group in Southern Illinois," Stuart Weller, University of Chicago.

"Cloud Studies" (illustrated), M. L. Fuller, United States Weather Bureau, Peoria.

The new officers for the following year are:

President—F. W. Dewolf, State Geological Survey, Urbana.

Vice-president—H. S. Pepoon, Lake View High School, Chicago.

Treasurer—J. C. Hessler, James Millikin University, Decatur.

Secretary—E. N. Transeau, State Normal School, Charleston.

The academy has a membership of over four hundred, forty-five new members having been elected at the recent meeting.

OTIS W. CALDWELL,
Secretary

SOCIETIES AND ACADEMIES

THE HELMINTHOLOGICAL SOCIETY OF WASHINGTON

The fourteenth regular meeting of the society was held at the residence of Dr. Stiles, February 6, 1913, Dr. Stiles acting as host and Dr. Cobb as chairman.

Dr. Stiles presented a note on "The Value of Protozoa in Determining Fecal Contamination of Foods." *Entameba coli*, *Lambliia duodenalis* and *Trichomonas intestinalis* are obligate intestinal parasites having an easily recognizable spore stage. Any given case of infection is *prima facie* evidence of fecal contamination of food, and of insanitary surroundings. The indicator value of these protozoa, a thing which has been overlooked heretofore, is greater than that of *Bacillus coli*. In some parts of the south, infection with these protozoa will range from 10 to 60 per cent. of the persons examined.

Dr. Stiles presented a note by Stiles and Boatwright on "Subjective Symptoms of Thymol." The paper notes the results of 464 administrations of thymol to 244 patients, each patient receiving 1 to 7 treatments. Of the 464 administrations, 55.8 per cent. had no untoward effect; 44.2 had effects of some sort; 14 per cent. had nausea due to thymol or to Epsom salts; 13 per cent. had weakness due to thymol, Epsom salts or the lack of breakfast; 9 per cent. had a burning sensation referred to "the stomach," due to thymol; 9 per cent. had dizziness; 3 per cent. had headache; 2.8 per cent. had attacks of vomiting; 1.7 per cent. had a burning sensation in the throat; 1 per cent. had pain in the stomach; 1 per cent. complained of sleepiness. There was one case of dyspnea due to idiosyncrasy to thymol, and one of fainting due to idiosyncrasy to Epsom salts.

Mr. Crawley presented the following note on "Initial Stages of *Sarcocystis* Infection."

According to Erdman, the spore of *Sarcocystis muris* germinates in the intestine of the host and liberates a toxin, sarcocystin, which causes the adjacent digestive epithelium to be thrown off. The spore sets free an amebula which penetrates the denuded area and attains the lymph spaces of the submucosa, where it establishes itself and remains for 28 to 30 days.

My own observations indicate that the above account is far from correct. Feeding experiments carried on during the past few years show that the spore, under the form in which it occurs in the cysts, bores its way into the cylinder cells of the epithelium, occurring in some cells two or three hours after feeding, and there comes to rest. The spore changes in shape, becoming broadly elliptical or round, concomitant internal changes resulting in the production at the periphery of a row of masses of chromatin closely resembling stages in the schizogony of a coccidian. This point may be attained twelve hours after feeding. At the end of twenty-four hours the parasites appear to have abandoned the intestine.

According to my observations, the epithelial denudation mentioned by Erdman follows instead of preceding the invasion of the cells, a phenomenon well known as a sequel of heavy infections by other protozoan parasites.

Dr. Cobb presented some figures and specimens of free-living nematodes. Some marine forms have structures suggesting similar structures in insects and birds. One of them has a proboscis which might function in much the same way as analogous organs which in birds or insects are used for extracting food from flowers.

Dr. Cobb suggested that the clumsy term *lateral organ* be dropped as a descriptive term, since there are many other nematode organs which are also lateral. Since we do not know the true nature of this structure, he suggested the substitution of the new term *amphid*, which is compact, descriptive and yet non-committal as to function. For somewhat similar reasons he suggested that the *ventral gland* be called the *rennette*. Nematodes possess many other ventral glands. He has previously published a note on the urea content of this structure, thus justifying the functional implication carried by the diminutive *rennette* (*ren*, kidney).

The secretary presented a note by Dr. Albert Hassall, on "Nomenclatural Oddities." Certain rules of the code of zoological nomenclature are not observed by some writers, and some practises not contrary to the code are nevertheless undesirable from many standpoints. Disregard of the code and of good usage makes considerable trouble for the bibliographer, cataloguer and indexer. Common offences are: The casual introduction of unnecessary synonyms or the deliberate substitution of new names for old on grounds that never had recognition in the code; the proposal of new