These larger chromosomes are always found at the periphery of the spindle.

The sex chromosomes are hardly distinguishable from the autosomes in the gonial divisions. In the primary spermatocyte division one of the larger chromosomes appears at the side of the spindle. In the prophase it is very slow in taking its place on the spindle and is often prematurely divided by the time it reaches its position on the equatorial plate. The daughter chromosomes of the prematurely divided sex chromosomes then precede all the autosomes, reaching the pole of the spindle long before the autosomes. Since each resulting secondary spermatocyte receives one of the two daughter chromosomes, which are identical, the condition is interpreted as one in which the male is homogametic. It would be inferred that the female would be heterogametic and the sex chromosomes would therefore represent the ZZ″–WZ type.

An unusual condition appears in the primary gonial division in *Xiphophorus* which is interpreted as a presynaptic pairing of the diploid chromosomes. A condition comparable to this may be present in *Platypoecilus,* but has not been seen in the hybrid.

E. M. RALSTON

NORTHWESTERN UNIVERSITY

INFLUENCE OF GREGARINES ON GROWTH IN THE MEALWORM

SOME *Tenebrio molitor* eggs were placed with sterilized food in a Petri dish. It was noted that larvae hatched away from adults did not develop as rapidly as did those hatching from eggs remaining in the culture with adults. It appears that the young may derive the gregarines either directly from the adults or from food in which the adults have remained for some time. Larvae reared with adults are larger and the mortality rate is less than those reared in sterile food in the absence of adults. Computation shows that 241 days after the beginning of the experiment the larvae reared without adults were on the average 6 mm shorter than larvae reared with adults.

It is known that the intestinal tract of Tenebrio larvae contains the protozoon, Gregarina. It was found that no larva from cultures lacking adults contained a gregarine and that no larva examined from the cultures containing adults lacked gregarines. Apparently these gregarines are essential for growth. It has not been learned whether the parasites have a function in digestive processes or not. This study is being continued.

RUTH SUMNER

UNIVERSITY OF COLORADO

SOCIETIES AND MEETINGS

THE NORTH CAROLINA ACADEMY OF SCIENCE

THE thirty-second annual meeting of the North Carolina Academy of Science was held at Davidson College, Davidson, N. C., on May 5 and 6. Papers were presented before the general section of the academy on Friday morning and afternoon. On Friday evening the retiring president, J. B. Bullitt, professor of pathology in the University of North Carolina, gave the presidential address on "Early Man, Some Comparisons, Not Odious." On Saturday morning the academy met in the following sections: general section, chemistry section, mathematics section and physics section. Sixty-nine papers and six exhibits were on the program. Abstracts of most of these papers and complete papers of several will appear at an early date in the *Journal of the Elisha Mitchell Scientific Society,* Vol. 49, No. 1.

Resolutions of respect were passed in honor of Dr. Clarence A. Shore, director of the State Laboratory of Hygiene at Raleigh, and for the Reverend George W. Lay, of Chapel Hill.

The executive committee reported the election of thirty new members during the year, and the reinstatement of five former members. One hundred and thirty-three registered at the meeting.

Lane Barksdale, of the Greensboro Senior High School, for his essay, "Orchid Hunting in Guilford County," was declared the winner of the High School Science Prize, a silver loving cup, for the best essay submitted by a high-school student. Essays for 1933 were confined to the fields of biology and geography.

The officers elected for the year 1934 were:

GENERAL ACADEMY

President, B. W. Wells, State College
Vice-president, Helen Barton, Woman's College
Secretary-treasurer (for three years), H. L. Blomquist, Duke University
Representative to the American Association (for two years), C. F. Korstian, Duke University

CHEMISTRY SECTION

Chairman, H. D. Crockford, University of North Carolina
Vice-chairman, J. E. Saylor, Duke University
Secretary-treasurer, R. W. Bost, University of North Carolina
Councilor, N. Isbell, Wake Forest College

MATHEMATICS SECTION

Chairman, E. L. Mackie, University of North Carolina
Secretary, E. R. C. Miles, Duke University

PHYSICS SECTION

Chairman, E. K. Plyler, University of North Carolina
Secretary, C. N. Warfield, Woman's College

The thirty-third annual meeting of the North Carolina Academy of Science will be held at the University of North Carolina, Chapel Hill, N. C., in the spring of 1934.

H. R. TOTTEN,
Secretary

THE INDIANA ACADEMY OF SCIENCE

THE Indiana Academy of Science met from May 25 to 27, 1933, at Clifty Falls State Park for its regular spring meeting. The formal address was given by Mr. Curtis Marshall, president of the Jefferson County Historical Society, on "Some Incidents in Local History." The primary purpose of the spring meeting is to study regions of particular geological, botanical or zoological interest, so that one whole day was spent in field trips to the Fourteen-mile Creek area, Rose Island, and to the Forestry Farm near Henryville.

The forty-eighth annual fall meeting of the academy was held at South Bend, from November 17 to 19, 1932, the academy being the guests of the University of Notre Dame. Dr. Fernandus Payne, Indiana University, was chairman of the meeting. A total of 116 papers on bacteriology, botany, chemistry, geology and geography, physics and mathematics and zoology were presented. The meeting closed with the annual dinner, held in the faculty dining room of the University of Notre Dame, at which the following officers were chosen for 1933: Marcus W. Lyon, Jr., South Bend, *president;* H. S. Markle, Earlham College, *vice-president;* Ray C. Friesner, Butler University, *secretary;* Paul Weatherwax, Indiana University, *treasurer;* Stanley A. Cain, Indiana University, *editor;* Will E. Edington, DePauw University, *press secretary.* The fall meeting for 1933 will be held from October 12 to 14, at Indiana University.

WILL E. EDINGTON,
Press Secretary

REPORTS

APPROPRIATIONS FOR GRANTS-IN-AID BY THE NATIONAL RESEARCH COUNCIL

THE Committee on Grants-in-Aid of the National Research Council made seventy-four grants last spring for the support of individual research, as follows, from 249 applications received:

Kenneth T. Bainbridge, Bartol Research fellow, Bartol Research Foundation of the Franklin Institute, isotopes of light chemical elements; S. J. Barnett, professor of physics, University of California at Los Angeles, a gyrostatic method for the process of magnetization in strong fields; J. W. Beams, professor of physics, University of Virginia, magneto-optical method of chemical analysis of solutions; Samuel L. Boothroyd, professor of astronomy, Cornell University, the spectra of O, B and A type stars at the Lowell Observatory Mountain Station, Arizona; G. Breit, professor of physics, L. P. Granath, instructor in physics, and J. L. Rose, instructor in physics, New York University, measurement of hyperfine structure of spectral lines; Jesse W. M. DuMond, research associate in physics, California Institute of Technology, the construction of a high energy x-ray tube; S. A. Mitchell, director, Leander McCormick Observatory, University of Virginia, the spectra and photographic magnitudes of faint stars; Harald H. Nielsen, professor of physics, Ohio State University, the infrared region of the spectrum; Thomas C. Poulter, professor of physics, Iowa Wesleyan College, physical observations in connection with the second Byrd Antarctic Expedition; Francis G. Slack, associate professor of physics, Vanderbilt University, the magnetic rotation of the plane of polarization of light; J. C. Stearns, professor of physics and mathematics, University of Denver, distribution of the intensity of cosmic rays at high altitudes.

Corbin T. Eddy, associate professor of metallurgy, Michigan College of Mining and Technology, development of a thermo-analyzer; Richard H. Frazier, assistant professor of electrical engineering, Massachusetts Institute of Technology, Thompson effect in electric circuits; Kenneth G. Merriam, assistant professor of aeronautical engineering, Worcester Polytechnic Institute, air flow around standard pitot-static heads.

Francis E. Blacet, instructor in chemistry, University of California at Los Angeles, the effects of monochromatic ultra-violet radiation upon organic substances in the vapor phase; Charles B. Hurd, professor of chemistry, Union College, the process of setting of silicic acid gels; I. M. Kalthoff, professor of analytical chemistry, University of Minnesota, internal structural changes taking place in fresh precipitates of lead sulfate; Gilbert N. Lewis, professor of chemistry, University of California, the separation and properties of pure isotopes; James W. McBain, professor of chemistry, Stanford University, construction of an ultracentrifuge; William A. Noyes, Jr., associate professor of chemistry, Brown University, absorption spectra of organic compounds, particularly ketones; H. I. Schlesinger, professor of chemistry, University of Chicago, hybrides of boron.

Charles I. Alexander, assistant professor of geology, Texas Christian University, fossil Ostracoda of Texas; Ira S. Allison, professor of geology, Oregon State Agricultural College, Pleistocene history of the Willamette Valley, Oregon; Ralph L. Belknap, assistant professor of geology, University of Michigan, upper air conditions over the Greenland Ice Gap; Margaret Fuller Boose, Madison, Wisconsin, granites of the Front Range, Colo-