the primary spermatocytes. The heterochromosome in the vesicular nucleus of the primary spermatocytes is a small element composed of two halves lying to one side of the two tetrads. In the first maturation division the two halves of the heterochromosome are distributed to the two daughter cells and in the second maturation division, the now simple heterochromosome passes over undivided to one spermatid. So one half of the spermatozoa contain the well-known two rod-formed elements, while the remaining spermatozoa possess in addition to the two large chromosomes, the small heterochromosome. There can be scarcely any doubt that this element is identical with the "small chromosome" described by Miss Boring for a part of the fertilized eggs.

In *Ascaris lumbricoides* I have found the sex-determinant in the form of a group of five univalent chromosomes passing undivided to one daughter cell in the first maturation division so that one half of the secondary spermatocytes, and consequently one half of the spermatozoa, have 19, the other half, 24, chromosomes. This type has some similarity with that of *Gelastocoris* described by Payne,[2] but differs from it in this respect that in *Ascaris lumbricoides* all five constituents of the group go to one daughter-cell.

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THE AMERICAN FEDERATION OF THE TEACHERS OF THE MATHEMATICAL AND NATURAL SCIENCES

THE annual meeting of the council of the American Federation was held on Monday, December 27, 1909, at the Massachusetts Institute of Technology in Boston, Mass. There were twenty-two representatives of eight associations present. The report of the executive committee showed that six associations had joined the federation during the past year. The total number of paid-up members in the associations that belong to the federation now amounts to 2,040.

Reports were presented from the local associations showing activity and progressive work in all.

The committee on bibliography of science teaching reported that its work was completed and urged the federation to get the bibliography printed as soon as possible.

The committee on a syllabus in geometry reported that work was well under way. The committee has been divided into three sub-committees, one on logical considerations, one on lists of basal theorems and one on exercises and applications. The committee expects to have its work completed during the coming year.

The committee on college entrance requirements had gathered a large amount of information which showed the great variation in the requirements of the different colleges and showed that it was impossible for any school to meet them all. The committee recommended that the federation take up this matter with the College Entrance Examination Board and see what can be done toward bringing about uniformity. The report was accepted as a report of progress and the committee continued and urged to carry on the work.

The committee on publication recommended that the federation publish its reports in *School Science and Mathematics* and such other journals as would accept them and urged that the local associations send their reports of their meetings to *School Science and Mathematics* promptly and regularly. The report was accepted as a report of progress and the committee continued.

The New England Association of Chemistry Teachers presented a request that the federation appoint a committee to make suggestions for changes in the definition of the requirement in chemistry and that the federation should bring this matter to the attention of the College Entrance Examination Board. The request was approved.

A letter from the College Entrance Examination Board asked cooperation of the federation in determining what form of logarithm tables were best to study for examination purposes. It was voted that a committee be appointed by the chair in accordance with the wishes of the college board.

The question of the publication of a journal for mathematics alone was discussed at some length and it was voted that a committee be appointed to consider this question and report at the next meeting.

Informal reports of progress were presented by members of the International Commission on Teaching of Mathematics.

The nominating committee reported nominations

[2] *Biol. Bull.*, V. 14, 1908.

for the coming year, and these officers were unanimously elected:

President—C. R. Mann, University of Chicago.

Secretary-Treasurer—Eugene R. Smith, Brooklyn Polytechnic Institute.

Members of the Executive Committee—J. T. Rorer, William Penn High School, Philadelphia; W. Segerblom, Phillips Exeter Academy; I. N. Mitchell, State Normal School, Milwaukee, Wis.

Professor C. H. Judd, of the University of Chicago, addressed the federation on the topic, "Scientific Experimental Investigation of Education." The speaker indicated that opinions concerning education were usually based upon rather vague and uncertain data. He urged that problems in education were capable of solution by scientific experiment and that they should be solved in that way. Several experiments were presented as types which might be followed.

Mr. H. R. Linville, of Jamaica, N. Y., presented an address on "Old and New Ideals in Biology."

The meeting adjourned subject to the call of the executive committee. C. R. Mann,
Secretary

THE AMERICAN ASSOCIATION OF ECONOMIC ENTOMOLOGISTS

The twenty-second annual meeting of the American Association of Economic Entomologists was held at the Harvard Medical School (Brookline), Boston, Mass., December 28 and 29, 1909. The first session was called to order by President W. E. Britton, of New Haven, Conn., who presided throughout the meeting, and who delivered the annual address on "The Official Entomologist and the Farmer." The program was crowded with papers which were of great economic importance to the entomologist and the agriculturist, although a few were more technical in character and dealt with some of the fundamental principles of scientific investigation of entomological matters. A discussion of different methods used in research work was of particular interest, as were also the reports of the progress that is being made in the field and parasite work in New England for the purpose of controlling the gypsy and brown-tail moths. A report by Dr. W. P. Headden, of Colorado, concerning the injury to fruit trees caused by arsenical spraying and the discussions that followed brought out many new ideas on this important subject. An exhibit made by the local entomologists and members which was held in an adjoining room contained samples of apparatus and breeding devices, as well as insect collections, which added much interest to the meeting. On Tuesday evening the association and the Entomological Society of America were the guests of the Cambridge Entomological Club and on Thursday morning the members had the opportunity of witnessing a spraying demonstration at Arlington with high power sprayers, as the guests of Mr. H. L. Frost.

The attendance at each session numbered over 100 members and visitors, nearly every section of the United States and Canada being represented.

The association commended the work which is being done to control the gypsy and brown-tail moths in New England, endorsed the bill before Congress to provide for the establishment of standards of purity of insecticides and fungicides and advocated the passage by Congress of a national law to prevent the importation of dangerously injurious insects and fungus diseases from foreign countries.

The report of the secretary showed that the association was increasing in membership and was in good financial condition. The *Journal of Economic Entomology*, which is the official organ of the association, was also reported by the business manager to be in a thriving condition.

The following officers were elected for the ensuing year:

President—Professor E. D. Sanderson, Durham, N. H.

First Vice-president—Dr. H. T. Fernald, Amherst, Mass.

Second Vice-president—Professor P. J. Parrott, Geneva, N. Y.

Secretary—A. F. Burgess, Washington, D. C.

SOCIETIES AND ACADEMIES

THE GEOLOGICAL SOCIETY OF WASHINGTON

At the 226th meeting of the society, held at the George Washington University on Wednesday, January 26, 1910, Mr. Edson S. Bastin informally exhibited specimens of pegmatites whose quartzes had been tested by Messrs. Wright and Larsen.

Regular Program

Some Pegmatites from Southern California: W. T. Schaller.

The pegmatites of Southern California which have been exploited for their valuable gem minerals (tourmaline, spodumene, etc.) are granitic rock bodies filling fissures in gabbro. Many of these bodies consist of two parts of approximately equal thickness—namely, an upper coarse granite and a lower fine-grained banded garnet aplite.