Pursuant to recommendations by Chancellor Andrews and the board of regents, the state legislature early in 1905 voted the sum of fifty thousand dollars for the erection of a portion of the first wing of a fireproof museum. With the assurance of safe and ample room and increased facilities Mr. Morrill again offered substantial support to the amount of one thousand dollars annually for paleontological research and exploration.

This is an important sum, especially to a young institution and to those living near the fossil fields where student labor is to be depended upon, and where through friendly interest in scientific investigation the railroads of the commonwealth stand ready to extend to the university free transportation and other courtesies.

Early in the summer a small party of students was organized, and, in response to invitations from Mr. James Cook, of Agate, Nebr., camped and collected on his extensive ranch, which includes some twelve miles of Loup Fork exposures along the Niobrara River. The season was spent at one spot where, in a thin layer, the bones occurred in such numbers that they were literally quarried. As heretofore the Burlington and Missouri River Railroad offered free transportation for men and material.

Personnel of the tenth expedition: L. J. Pepperberg, H. J. Cook, M. L. Lee, J. H. Miller, W. D. Steckelberg and the writer, who was in charge.

Field work in Nebraska is not necessarily confined to summer, for fall is a protracted and open season, and many excursions are yet to be made before the year ends. Collections of the economic resources of the state at large are being made by Dr. George E. Condra. Special collections of the economic resources and fossils of Sarpy County are being made by Mr. L. J. Pepperberg, and the work of collecting is now being extended to eastern and southern fields by Mr. Charles N. Gould, professor of geology in the University of Oklahoma, while pursuing courses of study leading to his doctorate.

Plans for a new state museum are drawn and approved, and it is promised that the first portion of a fire-proof wing will be ready for occupancy within a year.

This, coupled with the fact that funds are available from several sources, brightens the outlook for geological and paleontological work in the University of Nebraska, where for the past year more than one ton a week of the best state collections have been boxed and lowered in an abandoned steam tunnel under the campus.

An account of the Morrill Geological Expeditions 1892 to 1900 by Miss Carrie Adeline Barbour may be found in SCIENCE, Vol. XI., No. 283, pages 856–858, entitled 'Report on the Work of the Morrill Geological Expeditions of the University of Nebraska.' An account of these expeditions may also be found in Vol. I., pages 18–24, of the Nebraska Geological Survey, under the title 'History of the Morrill Geological Expeditions.'

ERWIN HINCKLEY BARBOUR.
THE UNIVERSITY OF NEBRASKA,
LINCOLN, NEBRASKA,
November 1, 1905.

REPORT TO THE TRUSTEES OF THE ELIZABETH THOMPSON SCIENCE FUND OF PROFESSOR BOVERI'S RESEARCHES.

THE following report has been received from Professor Boveri and is now published by order of the trustees:

I herewith permit myself to make report concerning the investigations which I have carried out with the support of the Elizabeth Thompson Science Fund. I spent seven weeks at the Zoological Station in Naples, where I occupied myself, in connection with earlier experiments, on the development of dispermic sea urchin eggs with the following questions:

1. It is of fundamental importance for the whole problem of dispermy to determine whether dispermic germs develop pathologically because they have taken in two spermatozoa or because they were already pathological. I have, therefore, tested this question experimentally. One of the experiments succeeded in every respect so perfectly that the assertion can now be made with complete certainty that the same egg which, if impregnated by a single spermatozoon would have

developed normally, will, if impregnated by two spermatozoa, develop pathologically.

2. As I have previously stated,[1] the isolated blastomeres of dispermic eggs differ extremely in their developmental potency; but it was formerly not possible for me to follow the single blastomeres in their development so as to be able to assert with complete positiveness that there had not been during the isolation an unequal degree of injury to the blastomeres which might have been the cause of the inequality of the development. This I have succeeded in accomplishing in my new experiments. It has been possible to show that the early development up to the blastula stage proceeds identically in the isolated blastomeres of a dispermic germ, and that only later does one partial germ strike out in one direction, the other in another direction.

3. In connection with this I have studied thoroughly the early development of uninjured dispermic germs and they confirmed the corresponding original similarity and later unlikeness of the single germ areas.

4. A further question concerning the development of dispermic germs was whether the so-called primary mesenchyme cells which later group themselves to form the regular mesenchyme crown for the formation of the calcareous skeleton always occur only in that area of the germ in which they arise, or whether the mesenchyme represents an indifferent material, the cells of which are distributed by accident to the crown of mesenchyme. By means of the difference in size of the cells and nuclei in dispermic germs, it became possible for me to decide this important question in favor of the last alternative.

5. Against the theory which I formerly advanced upon the basis of my experiments on dispermic development of the different valence of chromosomes, the objection might be raised that it was not, as I had suggested, the false combination, but the incorrect number of the chromosomes which was of pathological significance, for it might be said that only when the requisite quantity of chromatin is present that the proper relation of nucleus and protoplasm can exist which is necessary to the normal functioning of the cell. In order to exclude entirely this objection it must be shown that for any given quantity relation of nucleus and protoplasm in the starting cell, the proper relation of the two constituents can be reached in the larva cell. This could be proven by the rearing of fragments of eggs of all sizes in which, therefore, the amount of the nuclear material remaining constant various amounts of protoplasm were present. These experiments were so carried out that the egg fragments were reared in quantities and in these cultures every thinkable size of normal larvæ was found. Again, various sized egg fragments were measured accurately and reared isolated, and these also developed into normal larvæ of all sizes.

6. The important task which I had set myself was the following of dispermic eggs in which only one sperm nucleus united with the egg nucleus while the other remained independent. I succeeded in rearing twenty-two specimens in which this rare and theoretically especially important type of dispermy occurred. From these I obtained a considerable number of gastrulæ and plutei. These larvæ consist of one part with large nuclei and one with small nuclei, and by this mark it may be determined with complete certainty what part contains paternal nuclear substance and what part contains paternal and maternal nuclear substance combined.

The various experiments enumerated will enable me to finish my work on double impregnation, and I hope that the completed memoir will be published in the spring of 1906.

Charles S. Minot,
Secretary.

[1] 'Über mehr polige Mitosen als Mittel zur Analyse des Zellkerns,' *Verh. d. phys.-med. Ges. Würzburg*, 1902.

THE CONGRESS OF THE UNITED STATES.

On January 6 a bill was introduced by Mr. Kahn, to provide for celebrating the four hundredth anniversary of the discovery of the Pacific Ocean by Vasco Nunez Balboa by holding an international exhibition of arts, industries, manufactures, and products of the soil, mines, forest and sea, at the city of San