

Special Haustorial Apparatus in connection with the Embryo Sac of Angiosperms: JOHN M. COULTER, University of Chicago.

A Note on the Vitality of the Spores of Marsilea: MARSHALL A. HOWE, N. Y. Botanical Garden, Bronx Park, New York City.

The Ascent of the Transpiration Stream: EDWIN BINGHAM COPELAND, Stanford University, California.

Chemical Stimulation and the Evolution of Carbon Dioxide: EDWIN BINGHAM COPELAND, Stanford University, California.

HERMANN VON SCHRENK,
Secretary.

ASSIGNMENTS OF GEOLOGIC AND PALEONTOLOGIC PARTIES.

THE following assignments of geologic and paleontologic parties of the U. S. Geological Survey have been made for the present field season:

Dr. Geo. I. Adams will make an areal and economic survey of the Yellville quadrangle in Arkansas, with special reference to the preparation of a report on the Arkansas lead and zinc district. He will be assisted by Professor A. H. Purdue and Mr. Ernest F. Burchard.

Dr. Geo. F. Becker will continue the supervision of the Division of Physical and Chemical Research and the preparation of a report embodying his investigations on the conditions of gold deposition in the Mother Lode of California.

Mr. J. M. Boutwell and Dr. J. D. Irving will study the mining geology of the Park City district, Utah.

Dr. J. C. Branner will continue areal surveys on the Santa Cruz quadrangle, California.

Mr. M. R. Campbell will continue the supervision of areal and economic work

in New York, Pennsylvania, Ohio, Indiana, Kentucky, and West Virginia. He will be assisted by Messrs. Charles Butts, Lester H. Woolsey, Ralph W. Stone and Marcus Goldman in Pennsylvania; by Mr. Myron L. Fuller in New York and Indiana, and by Professors Geo. H. Ashley and L. C. Glenn in Kentucky.

Professor T. C. Chamberlin will continue the supervision of investigations in Pleistocene geology of the United States. He will be assisted by Professor R. D. Salisbury and Mr. W. W. Atwood in the Rocky Mountain region; by Frank Leverett and F. W. Taylor in Michigan, and by W. C. Alden in Wisconsin.

Professor W. B. Clark, with assistants, will continue the investigations of the geology of the Coastal Plain region in Maryland and Delaware, and of the Piedmont plateau of Maryland in cooperation with the Geological Survey of Maryland.

Dr. Whitman Cross will suspend his regular field work in Colorado for the present season and spend a portion of the year in the Hawaiian Islands for the purpose of investigating volcanic phenomena.

Professor T. Nelson Dale will continue his surveys in western Vermont and will survey the Slatington quadrangle in eastern Pennsylvania. He will be assisted by Professor Frederick B. Peck and Mr. Fred H. Moffit.

Dr. William H. Dall will continue his studies for the completion of the revision of the Tertiary faunas of Florida.

Mr. N. H. Darton will continue areal surveys in the Black Hills and the Big Horn Mountains, and will complete a reconnaissance of the Great Plains for the preparation of a map showing the geology and water resources of that region. He will be assisted by Mr. C. A. Fisher.

Mr. J. S. Diller will complete the areal and economic survey of the Redding quad-

rangle, California, and make a reconnaissance of the Klamath Mountains. He will be assisted by Dr. Geo. B. Richardson.

Mr. Geo. H. Eldridge, who has recently completed a study of the oil fields of California, will devote the coming year to the preparation of a report on this subject, and on the phosphate deposits of Florida.

Professor B. K. Emerson will continue his investigations on the areal and structural geology in central Massachusetts.

Mr. S. F. Emmons will continue the supervision of investigations in the Division of Metalliferous Minerals, visiting various mining regions in the West for the purpose of examining work in progress, and preparing plans for future work. He will be assisted by Dr. J. D. Irving in the completion of work on the Leadville mining district.

Dr. N. M. Fenneman will continue the investigation of the Boulder oil field, Colorado.

Mr. G. K. Gilbert does not expect to carry on any field work, but will be engaged throughout the year in the preparation of reports.

Dr. Geo. H. Girty will investigate the paleontology and stratigraphy in connection with the work of various geologists in Arkansas, Indian Territory, Texas, and elsewhere.

Mr. Arnold Hague will continue the preparation of his monograph on the Yellowstone National Park and will visit the Park for the purpose of obtaining necessary additional information.

Dr. C. W. Hayes will continue the supervision of investigations on non-metalliferous economic deposits, and will continue areal work in the southern Appalachians. He will be assisted by Mr. W. T. Griswold in the eastern Ohio oil field, and by Mr. Edwin C. Eckel in Alabama and Georgia.

Mr. Robert T. Hill will continue his

investigation of the economic geology, stratigraphy, physiography and vulcanism in the trans-Pecos region of Texas, New Mexico and Arizona. Dr. Girty will be associated with him in this work.

Dr. T. A. Jaggar will complete the areal work necessary for the preparation of the Boston Folio, and will prepare a report on the Bradshaw district, Arizona. He will be assisted by Dr. Chas. Palache and Mr. Laurence La Forge.

Mr. Arthur Keith will continue areal, structural and economic surveys in the southern Appalachians. He will be assisted by Mr. H. S. Gale.

Professor J. F. Kemp will complete the field work necessary for the preparation of the Mettawee folio in New York and Vermont.

Professor Wilbur C. Knight will continue the areal and economic surveys necessary for the completion of the Laramie folio, Wyoming.

Dr. F. H. Knowlton will devote the year to the completion of reports on the fossil floras of the Puget and Laramie formations.

Mr. Waldemar Lindgren has recently returned from a winter field season in Arizona, and will spend the greater part of the coming year in the preparation of reports.

Professor H. F. Osborn will continue his investigations on vertebrate paleontology, and under his supervision special examinations will be made of the stratigraphy of the Colorado Jurassic, by F. B. Loomis, and of the Bridger, Washakie and Uinta Basins, Wyoming, by W. B. Matthew and Walter Granger, for the purpose of determining the exact stratigraphic positions of beds from which fossil collections have heretofore been made.

Professor Chas. S. Prosser will continue areal work necessary for the preparation

of the Columbus folio, Ohio. He will be assisted by Mr. E. R. Cumings.

Dr. F. L. Ransome is at present engaged in the preparation of his report on the Globe, Arizona, mining district. Later in the season he will carry on areal and economic surveys for the preparation of the Bisbee folio, Arizona, and for a report on the Bisbee mining district. Dr. J. Morgan Clements will be associated with him in this work.

Dr. Geo. Otis Smith will continue areal surveys necessary for the preparation of the Snoqualmie folio, Washington. On the completion of his field season in the Cascade Mountains he will survey the Bluehill quadrangle, Maine. He will be assisted by Mr. Frank C. Calkins.

Dr. W. S. Tangier Smith will be associated with Mr. E. O. Ulrich during the early part of the season in the study of the lead, zinc and fluorspar deposits of western Kentucky, and later will continue his investigation of the lead and zinc deposits of the Joplin district. He will be assisted by Dr. C. E. Siebenthal.

Dr. A. C. Spencer will study the areal and economic geology of the Grand Encampment mining district, Wyoming. He will be assisted by Professor J. Volney Lewis.

Dr. T. W. Stanton will continue a general supervision of the paleontologic work of the survey, and will carry on field work in cooperation with Mr. J. S. Diller in the Klamath Mountains of California.

Mr. Geo. W. Stose will continue in charge of the editing of geologic maps and will spend a short field season in the continuation of work on the Chambersburg quadrangle, Pennsylvania.

Mr. J. A. Taff will continue his areal and economic surveys in Indian Territory. He will be assisted by Professor S. W. Beyer and Mr. J. W. Beede.

Mr. E. O. Ulrich will study the geology of the western Kentucky mining district in connection with Dr. Tangier Smith's investigation of the mineral deposits. Later in the season Mr. Ulrich will be associated with Dr. Adams in Arkansas and Mr. Taff in Indian Territory.

Professor C. R. Van Hise will continue the supervision of investigations on the pre-Cambrian and metamorphic rocks of the United States. He will visit various parties in the field for the purpose of verifying and coordinating work in his division. He will be assisted by Mr. C. K. Leith in the preparation of a final monograph on the Lake Superior region, by Dr. W. S. Bayley in the completion of field work in the Menominee district, by Dr. W. H. Hobbs in the continuation of surveys in Connecticut and Rhode Island, by Dr. Florence Bascom in the continuation of areal and structural studies in the Philadelphia district.

Mr. T. Wayland Vaughan has recently returned from field work in southern Louisiana, Alabama, Georgia and Florida. He will be engaged throughout the greater part of the coming year in the preparation of a monograph on the fossil corals of the United States.

Professor Lester F. Ward will continue the preparation of reports on the Mesozoic floras of the United States.

Mr. W. H. Weed will revisit Montana for the purpose of securing additional information required for the completion of his report on the Butte mining district.

Mr. David White will continue his investigations on the paleobotany of the Carboniferous, working in cooperation with various geologists in West Virginia, Ohio, Pennsylvania and Indian Territory.

Professor Henry S. Williams will continue his studies on the correlation problems of the Devonian in Pennsylvania,

New York and Maine. He will be assisted by Mr. E. M. Kindle.

Mr. Bailey Willis will continue the supervision of the investigations in areal and stratigraphic geology. He will visit field parties in various parts of the United States and will investigate the stratigraphy along the eastern base of the Rocky Mountains in Montana and Wyoming.

Professor J. E. Wolff will continue the investigation of the areal and structural geology in the crystalline areas of New Jersey and southern Vermont.

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SCIENTIFIC BOOKS.

Lehrbuch der vergleichenden Entwicklungsgeschichte der wirbellosen Thiere. Allgemeiner Theil. Erste Lieferung. Erste und Zweite Auflage. By E. KORSCHOLT and K. HEIDER. Jena, Gustav Fischer. 1902. Pp. x+538; 318 figs.

When the third and final instalment of the 'special part' of the 'Lehrbuch der vergleichenden Entwicklungsgeschichte der wirbellosen Thiere,' by Professors Korschelt and Heider, made its appearance, zoologists who had the good fortune to be familiar with the work began to look forward with no little eagerness to the appearance of the 'general part.' It was, however, a case of hope long deferred, but now, after a lapse of nine years, expectations are in the way of being fulfilled. Our knowledge of the embryology of the invertebrates has increased greatly in the interval and a demand has arisen for a new edition of the 'special part,' but the authors, feeling that they were still in debt to the public to the extent of the general part, have decided to complete the work as originally planned before beginning a revision. As a result we have now before us a first instalment of the 'general part,' which is at once an earnest for the completion of the first edition and the beginning of the second.

Zoologists will find, however, for the loss resulting from the long postponement of the volume, ample compensation in the greater

thoroughness with which it is now possible to discuss the general problems of development. In the last decade the standpoint from which these problems are regarded has shifted greatly; the mountain tops, from which they were formerly seen but dimly, have been left behind and we are now upon the nearer plains, with numerous difficulties, it is true, still to be overcome, but with the advantage that we have come into actual contact with them and can, at close range, lay our plans for their surmounting. And that this is the case is largely due to the results obtained from experimental embryology.

In the present volume will be found one of the clearest and fullest statements of the results and aims of this department of investigation which has yet been presented. The first three chapters or almost half the volume is devoted to it, the first chapter, after a brief introduction discussing the influence of external stimuli on development; the second, the determination problem; and the third, the effects of internal factors. To one familiar with the 'special part' of the work it will suffice to say that the facts are presented in the present volume with the same wealth of detail and clearness of exposition that characterized the earlier volumes and to these there is again added a critical and judicious estimate of the value of the facts. The authors have carefully avoided the advocacy of extreme positions and have maintained throughout what may be termed a broadly conservative attitude, compared with views which have been promulgated by some recent writers. It is impossible to discuss here in detail the various topics considered in the volume, but a few quotations may not be out of place to indicate the standpoint of the authors on some of the more general problems which confront us.

"It results from this that we err in endeavoring to give a general answer to the question whether it is preformation or epigenesis which controls the phenomena of development. We must particularize and endeavor by experiment to answer this question for each individual stage and each form. It will be found that in many cases the development of a certain organ or some morphological relation