subject for its first publication as a university text.

Mr. F has been investigating certain important problems presented by the club-mosses, among which the origin of the seed-habit is prominent.

Mr. G is engaged in investigating the causes of the forms assumed by plant bodies, as shown chiefly by lower plants. He has shown experimentally that form is in the main a phenomenon of chemistry and physics, and not to be explained by any mystical vitalistic theory.

Mr. H is investigating the ecological problems that underlie scientific forestry, his field of operations having been chiefly in the Rocky Mountains of Montana. He has just made an important report to the government on that region.

Mr. J has in preparation a book for students of plant physiology in which for the first time the subject will be considered from the standpoint of modern chemistry and physics.

THE DEPARTMENT OF BACTERIOLOGY.

Mr. A is engaged upon a study of some of the poisonous substances produced by bacteria, especially those that affect the red blood-corpuscles. He is also preparing evidence to be used in the suit between the states of Missouri and Illinois concerning the Chicago Drainage Canal.

Mr. B. has nearly completed a piece of work upon some disease-producing organisms found in human blood and closely related to the typhoid bacillus.

THE DEPARTMENT OF PALEONTOLOGY.

The work upon which Mr. A is at present engaged, and which will occupy the large part of the next two years, is a monographic study of the extinct orders of Mesozoic reptiles known as the Pterodactyls and Plesiosaurs. This investigation is aided by a grant from the Carnegie Museum.

Under the combined direction of Mr. A and Mr. B, and with Mr. C's cooperation, Mr. D, a fellow, is engaged upon a study of the fossil diptera of America, based chiefly upon a collection loaned to the Department by the U. S. National Museum.

THE SCHOOL OF GEOGRAPHY IN THE SUMMER SESSION OF CORNELL UNIVERSITY.

Interest in geography as a school subject has grown rapidly within the past ten years. Courses have multiplied in the summer sessions of the universities, and an increasing number of teachers in secondary and grade schools have awakened to their need of better training both in subject matter and in methods of treatment. More than a dozen of the larger universities now accept the subject for admission, and examinations are regularly offered by the College Entrance Examination Board.

These facts give special meaning to the organization of the Cornell School of Geography under the direction of Professor R. S. Tarr. Although following upon the discouraging typhoid epidemic of last winter, the health of the school was excellent, and the attendance much larger than was expected, including grade, normal and high school teachers and superintendents from seventeen states.

The courses and instructors were as follows: Physiography and geography of Europe, Professor R. S. Tarr; dynamic geology and geography of the United States, Professor Albert P. Brigham, of Colgate University; home geography and type studies in geography for grammar grades, Dr. Chas. A. McMurry, of Northern Illinois Normal School; commercial geography, Principal Philip Emerson, of Lynn; class-room problems and laboratory methods for the grades, Supervisor R. H. Whitebeck, of Trenton State Normal and Model Schools; laboratory in geography, Assistant Principal Frank Carney, of Ithaca; laboratory in geology, Mr. Geo. C. Matson, of Cornell University.

A large number of field excursions were made, in the vicinity of Ithaca, and to more remote points such as Watkins Glen, Lake Ontario and the coal region about Wilkesbarre. On one evening of each week a round table conference gave opportunity for informal dis-

cussion of school problems in geography and comparison from a wide range of experience.

It is expected that the school will be continued in 1904 with the same faculty. All the courses given this year, and some additional work, will be offered. A. P. B.

THE MALARIA EXPEDITION TO THE GAMBIA.

AN abstract in *Nature* states that the Liverpool School of Tropical Medicine has issued a report on the prevention of malaria in the tropics with reference to the Gambia. Dr. Dutton, who conducted the expedition shows how a great deal of disease is due to the want of knowledge of the nature of malaria, and that during the dry season the residents are largely to blame for the appearance of the disease. The object of the expedition was to investigate the conditions under which mosquitoes were propagated in the town of Bathurst and at the principal stations of the colony, and to suggest methods of destroying these insects. Malaria was found to be prevalent in the colony; 80 per cent. of the native children examined harbored malaria parasites in their blood. The liability to infection of the Europeans commences soon after the rains are established, lasting up to the end of November. The various breeding places of mosquitoes are described in detail in chapter IV. of the report, particular mention being made of the wells, canoes, boats, lighters, cutters on the foreshore, and of the grass-clogged trenches in many of the streets, which together supply Bathurst with the majority of its mosquitoes during the wet season and for part of the dry season. The number of mosquito breeding places present in compounds was found to vary with the social position of the occupier. They increased in extent and number in proportion to the wealth and position of the occupier.

In one factory yard were found six barrels, and in the garden there were seventeen tubs and eight small wells, all breeding quantities of *Culex, Stegomyia,* and *Anopheles* mosquitoes. Besides these dry season breeding places, discarded domestic utensils were scattered about the yard and garden which, in the wet season, would have acted as breeding places. It is pointed out that during the dry season, from November to May, natural breeding places for mosquitoes in Bathurst cease to exist, and from this period the people breed mosquitoes solely in their own compounds.

In chapter V., which deals with the prevention of malaria in Bathurst, a campaign against the mosquito is advocated; the town is judged especially suitable for its success. Thus Bathurst is situated on a practically isolated piece of land surrounded on nearly all sides by a broad expanse of sea water. The amount of land to be dealt with is comparatively small, viz., about a square mile. The surface is fairly level, sandy, absorbing water readily. In this area the breeding places of mosquitoes are a known quantity, the artificial, or those made by man, being in excess of the natural. The rainfall is very small, and rain occurs only during four out of the twelve months of the year.

The probability of the introduction into Bathurst of yellow fever from Senegal is pointed out as another reason for attacking the mosquito. The expedition was informed by His Excellency, the acting Governor, H. M. Brandford Griffith, of the intention on the part of the Colonial Government to enter upon a crusade against the mosquito, and on November 18 the preliminary removal of rubbish from houses and compounds began; a sanitary inspector was appointed, and received special instruction in the work. Under him worked a gang of laborers, and at the time of the departure of the expedition (January 10) 363 houses and compounds had been inspected. From these 131 cartloads of old tin pots and other rubbish were removed. On the return of His Excellency the Governor, Sir George C. Denton, the inspector and a sufficient staff of laborers were appointed permanently, and a grant of £200 per annum was given for the special anti-mosquito work. Anti-mosquito regulations have been drawn up by the Colonial Government.

An appendix, by Mr. F. V. Theobald, is attached to the report; in it are described the various species of mosquitoes collected by the expedition, many of which were new to science.