Dr. R. Rodriguez-Mollina and by Dr. F. Hernandez Morales.

A COMPREHENSIVE survey of employment, unemployment and related labor conditions is being conducted in St. Paul, Minn., by the Employment Stabilization Research Institute of the University of Minnesota, of which Dean R. A. Stevens is director. The present study is jointly directed by Professor Dale Yoder, of the School of Business Administration, and Professor Donald G. Paterson, of the department of psychology. Professor R. L. Kozelka is assisting as consulting statistician. The work is being financed by a grant of $50,450 from the Rockefeller Foundation.

THE twenty-eighth Congress of Americanists will be held in Santiago, Chile, in March.

A MEETING of the northern California section of the Institute of Food Technologists will be held on December 4 under the presidency of B. E. Lesley, of California Packing Corporation. Dr. T. L. Swenson, director of the Albany Regional Research Laboratory of the U. S. Department of Agriculture, will preside at the dinner, and Dr. J. Murray Luck, of Stanford University, will speak on Great Britain's food supply.

THE twenty-sixth annual dinner and meeting of the Institute of Medicine of Chicago will be held at the Stevens Hotel on December 2. The presidential address will be delivered by Dr. Rollin T. Woodyatt on "The Story of Acidosis."

THE Southern District meeting of the American Institute of Electrical Engineers will be held at New Orleans from December 3 to 5.

THE next meeting of the trustees of the Elizabeth Thompson Science Fund will be held in April, 1942. Previous awards from the fund were reported in SCIENCE on May 16, 1941, and earlier. Applications for grants should be made to the secretary, Dr. Jeffries Wyman, Jr., Biological Laboratories, Harvard University, Cambridge, Mass.

DISCUSSION

UNRECOGNIZED ARID HAWAIIAN SOIL EROSION

WATER is the most important product of the forests of Oahu island, and forage is the most important product from the large areas of non-forested and non-agricultural lands of this and other Hawaiian islands. The continued production of these resources is intimately dependent on soil for absorption and percolation of the precipitation. Absorbed water is necessary for the continuance of plant growth *in situ*. Water percolated through the lava beds maintains the supply that is obtained from an elaborate system of tunnels and wells, and which is used for agricultural and urban purposes. Water neither absorbed nor percolated is largely surface runoff, which feeds the streams and generally flows to the sea, unused by man. The retention of the high rainfall for the production of forage and of usable water is therefore seen to depend on the maintenance and preservation of the soil mantle. Soil erosion is thus a critical factor in the economy and production of a country which is becoming increasingly important to the welfare of continental United States.

The United States may justly boast that it is the first nation in history to recognize incipient stages of soil erosion and to institute elaborate and effective management methods for the perpetuation of the soil mantle under active land uses.[1, 2] The United States furthermore is largely responsible for the recognition in northern Africa and southwestern Asia of the direful results of unchecked soil erosion and the poverty of land stripped to bed-rock and without the mediating influence of developed soil and vegetation.

Americans, however, need not have gone to other flags to find lands in which erosion had proceeded unchecked, and where, with no more soil to erode, a new equilibrium has been attained as stricken as areas in Africa and Asia known to the author. Since N. E. Winters[3] states that "The problem of soil erosion is not so wide-spread and serious in Hawaii as it is on the mainland of the United States," he is obviously referring to areas in which erosion is now actively occurring and which locally may be as striking as that of our southeastern Piedmont.

Adjacent to these eroding lands in Hawaii and in areas of lower precipitation and lower elevation is a zone, admittedly often narrow on Oahu but widespread on other islands, where soil no longer remains and where the annual increment of rock weathering is not retained by the stable sparse vegetation, but is removed by surface runoff. The theory that these lower arid slopes once bore heavy soil mantles capable of supporting a more luxuriant vegetation than that now existing depends on five lines of evidence: (1) the existence of several relict soil mats, stable on the surface, but eroding rapidly at the margins by undercutting; (2) a stage of rapid alluviation in many valleys which in some cases has buried still living trees to their crowns; (3) the development of narrow

[1] H. H. Bennett, Science Supplement, 94: 2429, 8, 1941.
[2] W. C. Lowdermilk, *loc. cit.*
[3] N. E. Winters, *Hawaii Territorial Planning Board Progress Report*, 81–82, 1939.

coastal plains known to have been built by recent sedimentation from the hills; (4) the existence of indigenous floristic elements which could develop a more mesic soil-holding vegetation; (5) the inability of such species to maintain a vegetation in the face of grazing and fire.

Reparation of a region in which soil erosion has been carried to its ultimate conclusion may demand the application of methods quite different from those where it is desired merely to reduce accelerated erosion to normal erosion. Present techniques of reforestation in this zone have not been successful and an intimate knowledge of the requirements of soil-binding species and of a complex plant succession are necessary. The problem commands the ingenuity of conservationists, and upon it hinges the greatly increased productiveness of large acreages in a country where productiveness is becoming more critical.

This consideration of soil erosion in arid Hawaii is based upon field investigations on Oahu during 1936–37 while the author was research fellow of Yale University and the Bishop Museum (Honolulu). The interpretation has been strengthened by subsequent work of the author in this and other countries. The vegetational aspects of the problem are being discussed in a manuscript now in preparation.

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CONCERNING GASTROPODS ADHERING TO FOREIGN OBJECTS

IN the discussion of *Potadoma agglutinans,* a melaniid snail from the Congo Estuary which cements itself to rocks, we stated that we knew of no other comparable case among fresh-water Gastropoda.[1] In a recent conversation, Dr. Teng-Chien Yen called our attention to the small Chinese "enigmatic shells" described by E. Lamy as *Helicostoa sinensis.*[2] It is interesting to compare this mollusk with our *P. agglutinans.* The flattened, disk-like snail of *H. sinensis* adheres by one of its faces to the free surface of immersed rocks, apparently soon after hatching. At first it is normally coiled, but the spiral eventually spreads out and becomes irregular, much as in certain species of the marine genus *Vermetus.* The mode of adherence is therefore different from that of *Potadoma agglutinans,* which remains turreted, although much deformed, and adheres only where it presses against foreign objects as growth progresses. The smaller, young snails of *Helicostoa* appear to be of two types and the largest, presumably adult snails, reach 10 to 12 mm in diameter. Lamy recognized that *Helicostoa* was operculated, but did not attempt to place it in any of the known families. More recently, Mrs. A. Pruvot-Fol described the operculum, tentacles and radula from the original material.[3] She proposed for *Helicostoa* a special family Helicostoidae, of the *Prosobranchiata taenioglossa.* She also suggested that the two forms of the young snails were the two sexes, the tentacles and radula being present only in one of them, presumably the male. It would seem to us that the soft parts and radula of *Helicostoa* agree sufficiently with those of either Valvatidae or Bulimidae (Hydrobiidae), the radula being insufficiently known to decide between the two. It is unfortunate that the precise habitat and ecology of this snail are unknown. It was described from specimens attached to a limestone rock labeled merely "Kouei-Tcheou," a city on the upper Yangtse Kiang, more than 1,200 kilometers from Shanghai. It may be surmised that the rock was immersed in swiftly running water, either on the banks of the Yangtse Kiang itself or in the rapids of one of its smaller affluents. The present note is written for the purpose of interesting Chinese naturalists in this remarkable snail. Moreover, a thorough investigation of its habitat may well lead to the discovery of other equally interesting types of rheophilous mollusks, similar to those known from the swift waters of the Congo Estuary.

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[1] *Bull. Mus. Comp. Zool.,* 88: 3, 1941.
[2] *Jour. de Conchyl.,* 70: 51–56, 1926.
[3] *Bull. Soc. Zool. France,* 62: 250–257, 1937.

ANOPHELES MACULIPENNIS MEIGEN AND ANOPHELES PUNCTIPENNIS SAY FROM NORTH DAKOTA

TWO species of malaria-carrying mosquitoes have been found in North Dakota. Specimens of *Anopheles maculipennis* were taken by the authors in fairly large numbers under a concrete bridge over a swampy marsh near Grand Forks on September 20, 1941. Additional specimens of *Anopheles maculipennis* and three specimens of *Anopheles punctipennis* were collected from the ceilings and walls of outhouses in a park near Hillsboro on the same day. The presence of these mosquitoes in the state is not surprising in view of the fact that these species are known to occur in Manitoba and the states surrounding North Dakota.

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COLLEGES AND THE CHANGING HIGH SCHOOLS

THE article entitled "Colleges and the Changing High Schools," by M. H. Trytten, under "Discussion"