

begin on Sunday morning, August 13, at nine o'clock and will continue through Monday. Sessions of the association will be held on Saturday. The twenty-sixth colloquium will consist of four lectures on selected topics in the theory of semi-groups by Professor Einar Hille, of Yale University. These lectures will be given at 9:00 A.M. and 2:00 P.M. on Sunday and Monday. At 3:15 P.M. on Sunday there will be an address "On the Composition of Algebraic Forms of Higher Degree" by Professor C. C. MacDuffee, of the University of Wisconsin. A joint session with the Institute of Mathematical Statistics will be held. The council will meet at 8:00 P.M. on Sunday. There will be a reception on Saturday evening and a dinner on Sunday evening, followed by a musical entertainment.

THE thirty-sixth annual meeting and war conference of the American Phytopathological Society will be held from December 9 to 11 at the Netherland-Plaza Hotel, Cincinnati. Dr. W. D. Valleau is chairman of the committee on general arrangements. Officers for 1944 are: *President*, J. J. Christensen, University Farm, St. Paul, Minn.; *Vice-president*, J. B. Kendrick, University Farm, Davis, Calif.; *Secretary*, C. C. Allison, the Ohio State University; *Treasurer*, R. M. Caldwell, Purdue University.

THE large collection of literature on galls and gall insects accumulated by Dr. Mel T. Cook has been presented by him to the library of the Ohio State Univer-

sity and has been catalogued and deposited in the botanical and zoological library.

THE *Journal* of the American Medical Association states that approval has been given to a contract between the Federal Office of Scientific Research and Development and Wayne University College of Medicine, Detroit, to conduct a study on the influence of the oral administration of sodium lactate solution. The Government will provide the sum of \$7,500 to cover the cost of the project, which will be carried out under the direction of Dr. John W. Hirshfeld, assistant professor of surgery at the College of Medicine.

A CHAIR of social medicine has been founded at the University of Chile with a view to facilitating the application of the law of preventive medicine now in force.

Erratum: In the article by Dr. Carl E. Duffy entitled, "Interference between St. Louis Encephalitis Virus and Equine Encephalomyelitis Virus (Western Type) in the Chick Embryo," printed in *SCIENCE* for June 23, p. 51, the lines of the fourth sentence of the first paragraph were misplaced. This sentence should read: "Data obtained from the experiments reported here indicate that the 'interference phenomenon' is not limited to those viruses which are closely related, but that interference may occur between such unrelated viruses as St. Louis encephalitis and equine encephalomyelitis."

DISCUSSION

NEW VOLCANOES AND A NEW MOUNTAIN RANGE

AN article by Professor William H. Hobbs, of the University of Michigan, published in the issue of *SCIENCE* for April 14 under the above title has been given considerable publicity by a review and abstract headed, "New Mountain Range Rising. Central American Volcanic Threat," in the Scripps-Howard newspapers. Inasmuch as the original article as well as the review contains various misstatements of fact and erroneous conclusions, it should not remain unanswered in the pages of a scientific publication.

Omitting consideration of Dr. Hobbs's geological theories, his description of Central American topography is inaccurate and his inferences misleading. He seems to make no distinction between the long periods of geological time and the shorter intervals which concern the human race. There is no continuous mountain range along the Pacific Ocean beginning with Mexico and extending to Panama behind which lies a

chain of volcanoes, nor is there any apparent evidence that there has been any material change of elevation along this coast for the last four centuries.

Sierra Madre del Sur is the name of a mountain range in Mexico and neither the name nor the range extends through Central America. The Central American volcanic chain consists mainly of isolated groups of volcanic cones situated not behind a rising mountain range but along the coastal hills fronting the Pacific shore. In Dr. Hobbs's list there are only two Central American volcanoes and of these only one, in El Salvador, shows signs of present activity. In addition to the break in the coastal range at Tehuantepec, there is a similar interval caused by the Gulf of Fonseca and again where the basin of Lake Nicaragua in a former geological age was a gulf with an outlet to the sea.

There are various high volcanic peaks in Guatemala. Santa Maria, near the Mexican frontier, opened a new vent some twenty years ago burying a neighboring town in a flow of hot mud. Fuego, twelve thousand

feet high, blew off its head in 1932 spreading ashes in a radius of fifty miles. Izalco in El Salvador commenced its career, as stated, in 1769 and has been more or less active since. San Miguel in the eastern part of El Salvador near the coast is apparently inactive. A large lava flow at its base is intersected by the line of International Railways of Central America. Other volcanic peaks around the Gulf of Fonseca include Cosegüina in western Nicaragua which in the last century had one of the most noted eruptions in history. Eastward in Nicaragua extends a line of coastal volcanoes, terminating with Momotombo at the western end of Lake Managua, which has been quietly smoking for many decades. Southeast of the lake the Nicaragua Railway crosses lava beds near Santiago, which, after many years of quiescence, started smoking in 1925 and for several years threw out great clouds of sulphurous gas, which extended many miles offshore and damaged coffee plantations on the nearby hills until an earthquake started cinder slides closing the vents in the crater and the smoke ceased. There are inactive craters near the western end of Lake Nicaragua and on islands in the lake, but no other considerable volcanic activity between Mexico and Costa Rica.

Dr. Hobbs's comments in reference to a Nicaragua Canal indicate lack of familiarity with the various projects studied previous to the construction of the Panama Canal. The line indicated on his map never received any serious consideration nor was there any plan for a lock at Managua. The route across Nicaragua has been surveyed many times without material variations and most recently between 1929 and 1932. It utilizes the lowest natural divide between the oceans throughout the Americas, only 155 feet above sea level between the Pacific and Lake Nicaragua. At its nearest point, this line is sixty miles distant from Managua.

In general there seems to be little connection between earthquakes and volcanic eruptions in Central America. The most destructive in the Caribbean area in recent years was that at Kingston, Jamaica, in 1906, an island which has only vestiges of former volcanic activity.

The possibility of earthquake damage to an Isthmian Canal was considered by various commissions, in preliminary studies. The fact that earthquakes have damaged Central American cities does not prove that massive structures like those at Panama necessarily would be affected. On the other hand there can be no guarantee against the occurrence of earthquakes at any site. As there is no sure way of predicting the occurrence or magnitude of earthquakes, their possibility must be accepted and designs made based on our present knowledge of earthquake resistant structures. The Managua earthquake destroyed more than

a third of the city and killed an estimated 2,000 people. The buildings destroyed had stone or adobe walls unsupported against lateral shocks. Framed timber, steel and reinforced concrete structures were largely undamaged including a five-story building and a million-gallon reservoir. Proper engineering design now includes provision against lateral stresses due to earthquake shock. Such precautions have been taken in all design of important structures since the earthquake at San Francisco. Proximity to volcanoes is no reason for abandonment of construction activity, as is evidenced by the continued existence of the Port of Naples.

As concerns Dr. Hobbs's recommended canal at the Isthmus of Tehuantepec, this is a location which has never been seriously considered except for the ship railway proposed by Captain Eads about 1885. On this route there would be a long summit level at some seven hundred feet elevation and a doubtful water supply, two factors which eliminated it from consideration by the Isthmian Canal Commission. The author's recommendations amount in fact to a rejection of an impractical route in favor of another in the same category.

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COMPARATIVE STUDIES IN HUMAN BIOLOGY

SERIOUS reservations must be entered to certain points made by Professor Dice in his proposal for a program to study the problems of human biology by means of a concerted attack by the various disciplines concerned.¹ The following paragraph may be cited to give an example of the points to which exception is taken:

The characters of man that are inherited include not only his anatomical features, but also his physiology and his psychology. For instance, each of the races of man is distinguished by certain physical characters, but it is recognized by anthropologists that many races also exhibit clearly marked peculiarities of physiology and psychology. It will of course be admitted that psychological and physiological characters are perhaps somewhat more subject to modification by the environment than are anatomical ones.²

Quite aside from the looseness with which the term "psychological" is employed—since there is no indication in statement or context whether an inborn neural system or learned behavior mechanisms are implied—it must be pointed out that it is simply not true that anthropologists recognize that races exhibit psychological or, to a lesser degree, physiological differences. The fact of the matter is that practically all anthro-

¹ SCIENCE, N.S., 99: 457-461, 1944.

² *Ibid.*, p. 458.