and involved both careful work in the study and much "mean and manual labor" in experimentation. Plato would certainly have been shocked and alarmed at the conditions under which Mr. Campbell carried on his beautiful and delicate studies of rotating and fluttering discs. He solved a special problem in the kinematics of stress and left as his monument what the writer believes will be recognized as an important piece of pioneer work in a new division of the science of the mechanics of materials.

The writer is not one of those who would meet the attitude of "intellectual aloofness" of the old-time classical philosopher with a scorn of "theory" which characterizes a certain type of "practical" man. He believes that both intellectual aloofness and self-satisfied practicality are signs of a narrow mind. There have come to all departments of science contributions from the study, the library and the laboratories of the sciences which are little concerned with the immediate practical results of their experimentation; there have come contributions also from the machine shop, the structural shop and the engineering laboratory.

May we not picture pure science as occupying quarters in an impressive stone building at one end of a busy street, and applied science as occupying quarters in a plain well-lighted shop at the other end. Between the two structures many messengers go back and forth carrying books and papers and driving trucks loaded with machines and apparatus. The highway between pure science and applied science is *not* a one-way street.

H. F. MOORE

UNIVERSITY OF ILLINOIS

SCIENTIFIC EVENTS

COOPERATIVE ETHNOLOGICAL AND ARCHEOLOGICAL INVESTIGATIONS BETWEEN THE SMITHSONIAN INSTITUTION AND STATE, EDUCATIONAL, AND SCIENTIFIC INSTITUTIONS

AT the past session of the Congress, the following act authorizing cooperation in ethnological and archeological investigations was enacted:

Be it enacted by the Senate and House of Representatives of the United States of America in Congress assembled, That the Secretary of the Smithsonian Institution is hereby authorized to cooperate with any State, educational institution, or scientific organization in the United States for continuing ethnological researches among the American Indians and the excavation and preservation of archeological remains.

Sec. 2. That there is hereby authorized to be appropriated, out of any money in the treasury not otherwise appropriated, the sum of $20,000, which shall be available until expended for the above purposes: *Provided,* That at such time as the Smithsonian Institution is satisfied that any State, educational institution, or scientific organization in any of the United States is prepared to contribute to such investigation and when in its judgment such investigation shall appear meritorious, the Secretary of the Smithsonian Institution may direct that an amount from this sum equal to that contributed by such State, educational institution or scientific organization, not to exceed $2,000, to be expended from such sum in any one State during any calendar year, be made available for cooperative investigation: *Provided further,* That all such cooperative work and division of the result thereof shall be under the direction of the Secretary of the Smithsonian Institution: *Provided further,* That where lands are involved which are under the jurisdiction of the Bureau of Indian Affairs or the National Park Service, cooperative work thereon shall be under such regulations and conditions as the Secretary of the Interior may provide.

Approved, April 10, 1928. (Public—No. 248—70th Congress.)

The appropriation of $20,000 authorized by the above act was made in the Deficiency Act, approved May 29, 1928.

1. From the above appropriation, the Secretary of the Smithsonian Institution may approve expenditure of a sum equal to that provided by any state or educational or scientific organization, not exceeding $2,000 in any one state in any one year, when satisfied that such state or organization is prepared to contribute to such investigation, and when in his judgment cooperation by the Institution in such investigation is justified.

A. Requests for cooperation should be made by the responsible officer of the State, educational institution or scientific organization interested.

B. Applications should be accompanied by full explanatory statements of the work proposed, the location, purpose and any other pertinent details, the name of the field representative, if any, of the applicant, and should state whether any supervisory salaries are to be paid from that portion of the joint fund provided by the applicant, and if so, the amount thereof. It is intended that all funds provided for such cooperative work shall be devoted strictly to the prosecution of definite projects contemplated by the act, and shall not be used for the payment of regular salaries or other regular expenses of any organization.

C. Applicants must present suitable evidence of the availability of funds for cooperative use and will present at regular intervals detailed accounts of expenditures therefrom. Full instructions will be furnished regarding expenditures from allotments by the Institution, which must be made to conform with the accounting regulations of the United States Treasury Department.

D. A report covering each cooperative investigation, including copies of all maps, charts, photographs or other notes relating to the work shall be filed with the Smithsonian Institution by the leader of the joint investigation within a reasonable period following its completion. It is contemplated that a proper report embodying the results obtained will be prepared for publication by the leader or his agent within a reasonable time.

2. The act provides that "all such cooperative work and division of the result thereof shall be under the direction of the Secretary of the Smithsonian Institution." The leader of any joint investigation must be approved or designated by the Secretary, who may at any time, if in his judgment it be desirable, send a representative to the scene of operations to inspect the work, at the expense of the allotment made for the particular investigation concerned.

3. Any cooperative investigation involving lands under the jurisdiction of the Departments of the Interior, or of Agriculture, will be subject to such rules as the secretary of the department having jurisdiction may impose.

C. G. ABBOT,
Secretary
SMITHSONIAN INSTITUTION

PROPAGATION OF THE GIANT TORTOISE IN THE UNITED STATES

THE hunting party sent by the New York Zoological Society to the Galapagos Islands in March returned in May with 180 giant tortoises, all of which are to be devoted to attempts at propagation.

The director of the expedition has already located colonies of 15 to 30 tortoises at Balboa, Canal Zone; San Diego, California; Superior, Arizona; San Antonio and Houston, Texas, and New Orleans, Louisiana. Other breeding stations will be located in southern Florida and probably at other points nearer the tropics.

All the tortoises have been numbered, weighed and measured. These and other scientific records will be made annually until the little known changes due to growth and age are ascertained.

The tortoise colonies already established are under the protection of scientific or other responsible organizations. They have in each case an acre of range, more or less, are behind tight fences and before December will have shelters to which they can retreat during chilly weather or unusual dampness. There have been no losses and all are in thriving condition.

The Galapagos tortoise is now known to be extinct on all islands of the group except Albemarle and Indefatigable, with the possible exception of Duncan Island. All of the tortoises secured were found in the mountains of southern Albemarle, which involved a week's journey with pack animals.

We confirm the opinions of other observers who have visited the Galapagos during the past 30 years, that the giant tortoise cannot long survive on those islands, where all its eggs and young are destroyed by wild dogs, pigs, cats and rats. Hunting by parties from passing vessels seems to be ended, as tortoises are now to be found only among mountains difficult to reach.

The expedition found in a cave a dozen large and fairly complete skeletons of the long-extinct tortoise of Charles Island. No other scientific work was attempted, except the securing of rooted plants of an absolutely spineless cactus discovered by the director, which is now being propagated at Balboa, C. Z., and at the Desert Arboretum at Superior, Arizona.

The U. S. Bureau of Fisheries cooperated with the Zoological Society to the very important extent of lending a ship, the *Albatross II.*

C. H. TOWNSEND,
In charge of Expedition

FIELD TRIP OF OHIO GEOLOGISTS

THE annual field trip of the geological section of the Ohio Academy of Science was held in the vicinity of Dayton and Springfield, Ohio, on June 1, 2 and 3. Thirty-eight people representing thirteen institutions were in attendance.

J. Ernest Carman, of Ohio State University, and C. F. Moses, of Muskingum College, acted as guides on the first day of the excursion, when the party visited the outcrops of the Devonian in the Bellefontaine outlier. On the second and third days August F. Foerste acted as guide taking the party to outcrops of the Silurian in both the Springfield, Ohio, region and the area near the western boundary of the state.

Saturday evening, at the Engineers' Club of Dayton, the group was addressed by Arthur E. Morgan, president of Antioch College, formerly chief engineer of the Miami Conservancy District, on the problems of flood prevention at Dayton.

A fifteen-page mimeographed pocket field guide was published for the convenience of the members of the party. The booklet contained routes, sections to be visited, and a short account of the general relations of the formations.

The colleges and universities represented on the trip included: Antioch, Bowling Green, Kenyon, Miami, Muskingum, Ohio State, Ohio Wesleyan, Toledo and Wooster.

A. C. SWINNERTON
ANTIOCH COLLEGE,
YELLOW SPRINGS, OHIO