been completed and published for California and Illinois, and other studies are planned for Massachusetts and Maryland.

The division has announced as special subject for its attention during the coming year the effect of the present tendency in the government of certain states toward the centralization of administration and particularly the effect of increased financial and commercial control in the progress of scientific matters established under state auspices.

Division of Educational Relations.—The council's division of educational relations, which has for special interest the relations of higher education and general educational methods to research and the training of research workers, has been engaged in making a survey of the research situation in the colleges and universities of the country. This work has been carried on by questionnaires, correspondence and most importantly and effectively by visits to the educational institutions by representatives of the council. Over 200 colleges and universities have been thus visited.

During the past year the division has given a special attention to the important matter of the methods in vogue—and the absence of such methods—in the colleges and universities of the country for the discovery, encouragement and special training of students of superior capacity from among whom alone the future research workers of the country are to be recruited. In connection with this study of "the problem of the gifted student" the division has had a series of special visits made to a total of about 100 institutions by men especially interested in and informed with regard to this problem, and has prepared and distributed to presidents, deans, professors and graduate and upper-class undergraduate students a series of reports and bulletins which have attracted much attention and been, apparently, gratefully received by the colleges and universities. Among these bulletins is the series of career bulletins for distribution to advanced students which are referred to elsewhere in this report under "Publications."

The division has been enabled to carry on its work of survey and stimulation by means of a special appropriation made by the General Education Board.

VERNON KELLOGG
Permanent Secretary

(To be continued)

COLLECTING PERIPATUS IN NEW ZEALAND

EVER since I have read anything about entomology and of the forms of life related to the Hexapoda, I have had a desire to see and to study under natural conditions Peripatus, one of the most primitive of the group to which the insects belong. Since this lowly arthropod does not occur in North America and is more or less circumscribed in its distribution, being confined largely to the South American, West Indian, African and Australasian regions, not many scientists in the United States have the privilege of observing the animal alive. Indeed, I feel sure that a considerable number of entomologists have never seen even a preserved one.

Therefore, it was with a good deal of satisfaction to myself that, as a participant in the South Sea expedition from the University of Iowa in the summer of 1922, I was able, in New Zealand, to do one of the things which I set out to accomplish, namely, to see and collect specimens of this unique and interesting animal as well as to bring back for our collections a goodly supply of examples. Incidentally, the privilege and opportunity thus offered represents one of the reasons for which such expeditions are organized at this institution.

The Dominion of New Zealand, comprising about 105,000 square miles, lies between 34° and 47° south latitude and 174° and 178° east longitude. Its topography is rough, and the soil, largely of volcanic origin, supports a fairly luxuriant and, in many ways, peculiar native vegetation. North Island, the scene of the hereindescribed activities, possesses a bright breezy climate, the mean annual temperature being about 55° Fahr. and the precipitation averaging a little more than 50 inches.

The native forests, many of which have been much depleted of late, consist largely of totari, tawa, remu, matai and beech; they are always green but the introduced trees all lose their leaves during the winter season (our summer).

About one and one half miles northwest of the city of Wellington and seven hundred feet above the sea there remains a remnant of one of these forests some fifty acres in area which is being maintained by the government as a reserve. In Wilton's Bush, as it is called, a considerable tract remains untouched by the forester's ax. Deep valleys, dense, hilly woods and a fine stream lend attractiveness and beauty to the place. The spiny bush lawyer (*Rubus* sp.) is plentiful and affords good beating for insects in the winter season. On the partly cleared hillsides the green, prickly gorse grows abundantly and, with its bright yellow flowers, adds a touch of color to the scene. Here, in the wooded portion of the bush within the damp and much decayed remu stumps and in the moldering down-timber of the cleared areas Peripatus abounds in some numbers.

In company with Mr. Harold Hamilton, of the Dominion Museum, a visit was made to this place on August 3 and again on August 7 for the purpose of securing specimens of this unique arthropod. Armed with sharp, heavy metal instruments the moist, de-

cayed wood of dozens of remu stumps and logs was exposed in the all-absorbing search.

Occasionally a specimen would be found under a log which rested well down in the earth but by far the largest proportion of the more than one hundred specimens taken was discovered in decayed wood. In the last log that I examined—a small one at that—six of these velvety-black, slug-like creatures were exposed. Specimens of both sexes and all sizes are included in the lot secured on the above dates.

Mention need not be made here of the structural characteristics of Peripatus since all this and much more has been so admirably done by Hutton, Moseley, Sedgwick and others. However, I should like to say a word concerning my own observations on its activities.

As is well known, Peripatus is nocturnal and shuns the light at all times. As soon as an individual is exposed it moves unerringly though slowly and deliberately toward some crevice or burrow or other hiding place. When irritated, as for example when it is picked up suddenly by the tweezers or squeezed lightly between the fingers, it ejects with some force and to a distance of from four to six inches the contents of the slime glands through the oral papillae. While the force is supplied largely by the sudden contraction of the muscular body wall, the direction and dispersal of the slime threads seems to be effected chiefly by the rapid side-to-side movements of the head and anterior part of the body.

After leaving the oral papillae the clear fluid hardens into a series of viscous strands bearing, at fairly regular intervals, minute droplets. Although harmless it is very sticky coming away easily from the animal itself but adhering tenaciously to other objects including one's fingers. I can not agree with Hutton's statement (*Ann. Mag. Nat. Hist.*, XVIII, 362, 1876) that "This viscid fluid is for offensive and not defensive purposes," for in my experience, it was certainly used in a defensive capacity. And I do not doubt that a spray of this fluid would, to say the least, prove very disconcerting to any enemy such as spiders or predaceous beetles, both of which live in the same situations as Peripatus. In 95 per cent. alcohol the slime collects in the form of a flocculent mass.

Specimens are most satisfactorily killed by immersing in water to which a little 95 per cent. alcohol has been added. They succumb, through suffocation, in a surprisingly short time—four or five minutes—and are best preserved in spirits of the above strength.

The now generally prevalent conviction regarding the affinities of Peripatus was well summed up by Hutton years ago (*l. c.*, 368) when he said in substance that it does not form a direct link between the other tracheate arthropods and the annelids, but is best regarded as an offshoot from the base of the arthropodan stem.

DAYTON STONER
THE STATE UNIVERSITY OF IOWA

THE SECOND PAN-PACIFIC SCIENCE CONGRESS

THE Pan-Pacific Science Congresses have been held on the initiative of the Pan-Pacific Union with headquarters at Honolulu, where the first of such gatherings met August 2–20, 1920. The second has been held August 13 to September 3 of the present year under the special auspices of the Australian National Research Council, with its president, Sir David Orme Masson, president of the congress. A considerable number of "assisted passages" were offered to distinguished scientists in over-seas Pacific countries, and to this inducement were added free railway transportation and housing while in Australia.

In all, between eighty and ninety over-seas delegates attended, the list including Col. Sir Gerald Lenox-Conyngham and Dr. Haddon among others from the British Isles; Drs. Brock, McMurrich and Fraser from Canada; Dr. Sakurai, and Professors Omori, Yamasaki and Oshima in a strong delegation from Japan; Drs. van Romburgh, van Leeuwen, Brouwer, Braak and others from the Netherlands. From New Zealand came Professors Kirk, Marshall, Speight and Benson and Mr. Morgan.

The delegation from the United States was exceptionally large—sixteen from the States, six from the Hawaiian and four from the Philippine Islands. The States delegation was as follows: In agriculture, Babcock, Mead and Stakman; in physics, Benfield, Moore and Wait; in geology, Brooks, Hobbs, Hovey and Vaughan; in geography, Fenneman and Huntington; in zoology, Pillsbry and Ritter; and in hygiene, Sayers. Professor Gregory, the president of the first congress, was in the Hawaiian delegation, and Merrill and Selga in that from the Philippines.

The program was one of exceptional interest to students of Pacific problems. In addition to a number of general sessions to hear important papers of general interest, there were special sections in: I, agriculture; II, anthropology; III, botany; IV, entomology; V, forestry, VI, geodesy and geophysics; VII, geography and oceanography; VIII, geology; IX, hygiene; X, veterinary science, and XI, zoology.

The geologists assembled in unusual strength both from Australia and from overseas, and their programs were contributed to by a considerable number of authorities in special fields. The topics included: The structure of the Pacific region; Post-Mesozoic volcanic activity within it; the distribution of ores, oil and water resources; the correlation of the Tertiary