gave a series of lectures and held clinics in their respective specialties before the Tampico Medical Syndicate of Tampico, Mexico, from June 14 to 18.

THE thirteenth International Congress of Zoology, which was to have been held this year in Rio de Janeiro, has been postponed. It will be held at Paris in July or August, 1940. The address of the general secretary is 55 Rue de Buffon, Paris (V°).

THE twelfth International Congress of Psychology will be held in Edinburgh from July 22 to 27, 1940. When the Committee of Organization is fully constituted formal invitations will be issued. Subjects for symposia, general discussion and lectures are under consideration by a preliminary arrangements committee. A volume of proceedings, containing abstracts of papers read, will be published, the cost of which is included in the congress fee for active members, which has been fixed at thirty shillings; the fee for associates is fifteen shillings. Arrangements are being made by which a large proportion of the members can be accommodated in university hostels.

THE sixteenth National Colloid Symposium met at Stanford University from July 6 to 8. The registration was one hundred and sixty, five foreign countries being represented. The papers will be published in the autumn in *The Journal of Physical Chemistry.*

THE Committee on Research Grants of the Illinois State Academy of Science announces that requests for small grants to aid research will be received up to February 1, 1940. Requests should be accompanied by detailed statements of preceding background, general purpose and estimated expenses, and supported by three letters of recommendation sent directly by the writers. Individual grants can probably not exceed $75 per project. It is the custom to make grants only to those connected with smaller institutions within the state. Correspondence should be directed to C. H. Behre, Jr., department of geology and geography, Northwestern University, Evanston, chairman of the committee.

THE University of Minnesota Expedition to Richmond Gulf (Province of Quebec, Canada) left Senneterre, P. Q., on June 25 on the first leg of its flight to Richmond Gulf on the east coast of Hudson Bay. The objectives of the expedition are primarily botanical. The great variety of habitats, both from the physiographical point of view and the variety of soils associated with differing geological formations, make the region a promising one for a study of local factors affecting the distribution of plants in a region apparently glaciated recently. Associated problems, such as geochronology and tree ring chronology, will also be studied. The region being in a zone transitional to the barren grounds makes tree-line studies also possible. The personnel consists of Ernst C. Abbe, assistant professor in the department of botany of the University of Minnesota, organizer of the expedition; Mrs. Lucy B. Abbe and John Marr, assistant in the department of botany. The expedition is supported by grants in aid of research from the Graduate School of the University of Minnesota, the Bache Fund of the National Academy of Sciences, the American Academy of Arts and Sciences, the American Philosophical Society (Penrose Fund), the Smithsonian Institution and the Minnesota Academy of Sciences.

Museum News reports that the administration of the Blaskley Botanic Garden has been separated from the Santa Barbara Museum of Natural History and that the garden is now being conducted independently under the name of Santa Barbara Botanic Garden. Title to the property, however, remains in the name of the museum. The endowment provided by Mrs. William H. Bliss in memory of her father, Henry Blaskley, and heretofore adequate for the garden's maintenance, is no longer sufficient because of the decline in income from investments. In order to carry it on a group of those interested has formed the Santa Barbara Botanic Garden, Incorporated, and is appealing for contributions. Officers of the new corporation are William Lassiter, *president;* Mrs. Anne Stow-Fithian, *vice-president;* Frederick B. Kellam, *secretary;* and Frank J. McCoy, *treasurer.* Elmer J. Bissell, formerly director of the garden, is honorary president. Maunsell Van Rensselaer continues as director of the garden.

DISCUSSION

CENTERS OF POPULATION OF LEARNED GROUPS

A FEW years ago one of the learned societies announced that in response to requests for an annual meeting held in the Far West, the next meeting would be in Richmond, Va. To the members residing many miles west of the Mississippi River, this statement seemed ludicrous. However, some one raised the question: With respect to the membership of the organization, could it be possible that Richmond is *far west?*

The study reported is an attempt to determine the center of population for the membership of certain of the learned societies in the United States. The method used is essentially that of the Bureau of the Census in determining the center of population of the United States, as described on page 20, Volume II, 15th Census of the United States:

> The center of population may be said to represent the center of gravity of the population. If the surface of the

United States be considered as a rigid level plane without weight and the population distributed thereon, all individuals being assumed to have equal weight, the point on which this plane would balance would be the center of population. This pivotal point would be the center of gravity of the hypothetical plane; and its location would be affected not only by the numbers of persons on the different parts of the plane, but also by the distance of each individual from the "center."

In making the computations for the location of the center of population it is necessary to assume that the center is at a certain point. Through this point a parallel and a meridian are drawn, crossing the entire country. In making the computations for 1930, the same point was selected as in 1920; this intersection is assumed to be where the parallel of 39 degrees north latitude intersects the meridian of 86 degrees west longitude, which lines were taken as the axes of moments.

The product of the population of a given area by its distance from the assumed parallel is called a north or south moment, and the product of the population of the area by its distance from the assumed meridian is called an east or west moment. In calculating north and south moments the distances are measured in minutes of arc; in calculating east and west moments it is necessary to use miles, on account of the unequal length of the degrees and minutes in different latitudes. The population of the country is grouped by square degrees—that is, by areas included between consecutive parallels and meridians—as they are convenient units with which to work. The population of the principal cities is then deducted from that of the respective square degrees in which they lie and treated separately. . . . The population of each square degree north and south of the assumed parallel is multiplied by the distance of its center from that parallel; a similar calculation is made for the principal cities; and the sum of the north moments and the sum of the south moments are ascertained. The difference between these two sums, divided by the total population of the country, gives a correction to the latitude. In a similar manner the sum of the east and of the west moments are ascertained and from them the correction in longitude is made.

In this study, no attempt was made to use square degrees; rather the latitude and longitude of the stated post-office address of each member were determined as accurately as possible. In the absence of other figures, the data were estimated from a large-scale atlas. This task was in itself no slight one, in one case it required determination of the latitude and longitude of over 2,000 towns and cities.

The selection of the groups studied was somewhat arbitrary. The first group studied was not one of the learned societies, but consisted of all college students in the United States, as listed in the *World Almanac*. In the selection of societies to be studied a very important factor was the availability of a fairly recent membership list. The growing tendency toward stability of the respective centers made it seem probable that the study of other societies of a non-specialized nature would not show marked differences from the results here reported.

In the case of the American Chemical Society, the secretary advised that a complete list of the individual membership was not available for the purposes of this study. The society has 84 local sections scattered throughout the United States. It was assumed that a fair approximation would be obtained by assuming the entire membership of a local section concentrated in the city or at the center of the region for which the section takes its name, and this method was used in this situation. It should be emphasized that this method neglects altogether approximately 2,700 members, who are unattached to any section. This might produce a definite change in the center of population.

Table 1 summarizes the available information regarding the various centers of population studied. The nearest city was interpreted to mean a city of 150,000 or more.

TABLE 1

Organization	Number of individuals	Center of population		Nearest city
		Latitude	Longitude	
College enrolment..	885,282	39°19′	84°45′	Cincinnati
American Chemical Society by sections	17,469	40° 5′	83°49′	Dayton
Geological Society of America	562	39° 1′	87°32′	Indianapolis
American Historical Society	2,926	39°54′	82°13′	Columbus
Mathematical Association of America	1,928	39°32′	84°57′	Cincinnati
American Association of Petroleum Geologists	2,448	35° 6′	98°12′	Oklahoma City
American Physical Society	2,653	40° 1′	83°23′	Columbus
American Psychological Association	2,269	40°15′	83°35′	Columbus
American Association of University Professors..	11,165	39°30′	84°27′	Cincinnati Dayton
American Association for the Advancement of Science	17,141	39°41′	84°10′	Dayton
American Speech Correction Society	206	40°44′	87° 7′	Chicago Indianapolis
American Society of Zoologists	797	40° 5′	83°39′	Columbus Dayton

Obviously, the effect of the western oil fields is felt upon the center of population for the American Society of Petroleum Geologists. For the other groups, however, there is a definite tendency for the centers of population to cluster. In fact, all are found within a rectangle about 200 miles from east to west and about 100 miles from north to south.

It is interesting to note that with the single exceptional case noted, these centers of population tend to

be slightly north and very definitely east of the center of population of the United States, which in 1930 was 39°3′45″ north latitude and 87°8′6″ west longitude. On the other hand, it seems hard to find any national group for which Richmond, Va., or even Pittsburgh could be considered "far west." Quite possibly some eastern members fail to realize the size of the United States as a whole.

From one point of view, the ideal place for an annual meeting of one of these societies would be the nearest city to the center of population, for the total number of miles of travel necessary for every member to attend would thus be a minimum. From this point of view, it would certainly seem that Columbus and Cincinnati are excellent convention cities.

The writer wishes to acknowledge his indebtedness to students working under the National Youth Administration, without whose help in the routine details this study would have been impossible.

CECIL B. READ

UNIVERSITY OF WICHITA

A NEW DISEASE OF SNAP BEANS

IN June of 1938 while the writer was making a disease survey of his hybrid progenies and varieties of snap beans in connection with a bean-breeding program, he discovered a very destructive disease which has not previously been described. During the present growing season the disease has again appeared and is even more destructive than during 1938.

The end result of this disease is a severe chlorosis followed by wilt and death of the host. Perhaps the most characteristic symptom of the disease throughout its course is a pronounced deep brown to black discoloration of the inner phloem and outer xylem of the entire plant. Of course, the extent of vascular discoloration varies with the extent and severity of infection.

When severely infected, the roots appear dark gray to black on the exterior, due to the intense discoloration of the vascular elements. Symptoms on the upper hypocotyl and stem appear as longitudinal streaks or stripes of varying width, varying in color from brown to brownish purple due to the masking effect of the chlorenchyma. The only external symptoms on infected pods is the presence of a brownish purple discoloration of one or both sutures, which might easily be mistaken for a slight anthocyanescence. In cross sections of infected pods few to all the vascular bundles are discolored, depending on the extent of infection. The chlorenchymatous pulp of severely infected young pods often presents an "inky" appearance.

This disease takes its greatest toll about blossoming time. Although some less severely infected plants survive and mature seed, fatalities are extremely high.

Numerous attempts to isolate a causal organism in culture have consistently failed. This fact, combined with other data at hand, indicates that the disease is caused by a virus. Certain experiments indicate that the virus has a long incubation period, since plants from seed taken from infected pods remain apparently healthy until about blossoming time.

Further work on the etiology of the disease is in progress. From our records we find indications that the disease was brought in on western-grown seed. This note is being published with the hope that persons noting a disease with the above described syndrome will report to the writer.

WILBERT A. JENKINS

GEORGIA EXPERIMENT STATION

GENERAL ANESTHESIA BY CHILLING

THE use of ether, chloretone and other drugs as anesthetics preparatory to operating on lower animals is often objectionable because of the after-effects of the drugs. This difficulty can be overcome by the use of low temperatures for stupefaction. Fishes, amphibians and reptiles may be conveniently and fully anesthetized by immersion in water and cracked ice or simply in cracked ice. After ten to fifteen minutes in the cooling mixture the animals are fully stupefied and, if they are laid out on cracked ice, they may be subjected to an extended and uninterrupted operation. Recovery is quick and satisfactory at the ordinary temperature of the laboratory, and the animals so treated may be almost at once tested in a particular way without waiting for the gradual disappearance from their systems of an anesthetizing drug. This method has been applied with success in the Harvard Laboratories to salt-water and fresh-water fishes, to amphibians and to reptiles. Wiesner (1935) appears to have been the first to use it. Both he and Pfeiffer have applied it to new-born rats. Whether it will have any operative significance for adult, warm-blooded vertebrates remains to be seen. Press reports of a kind of cold hibernation induced in human beings by a slight lowering of their bodily temperatures is suggestive of such a step.

G. H. PARKER

HARVARD UNIVERSITY

SCIENTIFIC BOOKS

RECENT BOTANICAL BOOKS

The Stapelieae. By ALAIN WHITE and BOYD L. SLOANE. 3 vols. xvi + 1186 + 23 + 23 pp. 1,233 + figs. + xxxix plates + 2 maps. 2nd edition. Pasadena: Abbey San Encino Press. 1937. $12.50.

SINCE the Stapelias are found only in the eastern