GEODESY: *Chairman,* Henry G. Avers; *vice-chairman,* Donald C. Barton (C. H. Swick's term as secretary expires in 1934).

SEISMOLOGY: *Chairman,* Frank Wenner; *vice-chairman,* F. W. Lee (H. E. McComb's term as secretary expires in 1933).

METEOROLOGY: *Chairman,* W. R. Gregg; *vice-chairman,* C. F. Brooks; *secretary,* O. H. Gish.

TERRESTRIAL MAGNETISM AND ELECTRICITY: *Chairman,* J. A. Fleming; *vice-chairman,* Seth B. Nicholson; *secretary,* E. O. Hulburt.

OCEANOGRAPHY: *Chairman,* H. B. Bigelow; *vice-chairman,* H. A. Marmer; *secretary,* C. O. Iselin.

VOLCANOLOGY: *Chairman,* N. L. Bowen; *vice-chairman,* E. S. Larsen; *secretary,* R. E. Gibson.

HYDROLOGY: In this section O. E. Meinzer, R. E. Horton and H. N. Eaton continue as chairman, vice-chairman and secretary, respectively, their terms all expiring in 1933.

The scientific session following the business matters was devoted to a symposium on the application of geophysics to ocean basins and margins, and included the following papers:

(a) Introduction, by Richard M. Field.

(b) "Problems of Island Arcs and Ocean Deeps," by Walter H. Bucher.

(c) "The Structure of the Bartlett Trough," by Stephen Taber.

(d) "Seismic Zones as Related to Relief of Ocean Bottom," by N. H. Heck.

(e) "Interpretation of Gravity Anomalies and Sounding Profiles Obtained in the West Indies by the International Expedition to the West Indies in 1932," by Harry Hammond Hess.

(f) "Sounding the Depths of the Ocean for Mapping the Conformation and Topography of the Bottom," by G. W. Littlehales.

(g) "The Applications of Seismic Methods to Submarine Geology," by E. DeGolyer.

(h) "Torsion-balance Surveys in Southwest Louisiana and Southeast Texas," by D. C. Barton.

(i) "Experiences of a Seismologist with 'Seismic Methods,'" by A. L. Day.

The reading of the papers was followed by an illuminating discussion with constructive comments, emphasizing particularly the close relationships holding between geological and geophysical investigations.

The communications from members of the national committees of our neighbors in Canada and Mexico showed continued active international cooperation between those countries and the United States, and reported on the progress of governmental activities and on results of geophysical researches stimulated by the national committees.

The success attending the meetings in 1932 was the result largely of the careful and thoughtful development of the program and arrangements made by the committee on meetings of the union, consisting of Messrs. Frank Wenner (*chairman*), R. M. Field, R. E. Gibson, H. A. Marmer and F. W. Sohon, S.J. The union is particularly indebted to Professor R. M. Field, who suggested and arranged for the speakers in the symposium on the application of geophysics to ocean basins and margins. The large attendance and constructive discussions during the general assembly of the union and the meetings of its sections afforded material evidence of the rapidly expanding interest in geophysics in America.

The complete *Transactions* of the thirteenth annual meeting of the union, involving 85 papers in addition to progress reports submitted by various organizations interested in geophysical work and including the annual reports of eight permanent committees of the Section of Hydrology, were assembled, edited and published by the general secretary of the union as a special publication of the National Research Council. This volume of 401 pages came from the press in the first week of July, thus only a little more than two months after the meeting. Over fourteen hundred copies of the volume were distributed in the United States and abroad by the middle of July. This prompt publication and distribution was made possible by planographing the manuscripts and illustrations.

JNO. A. FLEMING,
General Secretary

SCIENTIFIC APPARATUS AND LABORATORY METHODS

THE USE OF "NEMBUTAL" AS AN ANESTHETIC FOR MICE

SODIUM Ethyl (1 Methyl Butyl) Barbiturate, trade name "Nembutal," is being used quite extensively as an anesthetic in veterinary practice. We have recently tried it on mice, and found it to be quite satisfactory. It is easily administered by injecting into the peritoneal cavity with a fine hypodermic syringe.

It has decided advantages over ether or other gaseous anesthetics. Our experience shows that doses sufficient to anesthetize for a period of up to one hour are perfectly safe. In fact, single doses, large enough to anesthetize for three to four hours, seldom result in death. Repeated doses may be safely administered, prolonging the hypnotic effect over a period of six or eight hours, with entirely satisfactory results.

Similar doses may produce a considerable difference in the time of hypnosis even in the same mouse at different times, depending probably on the condition

of the mouse, amount of food in the digestive system, etc. These conditions seemed to have more effect on the time than the size or weight of the animal. Mice weighing between 15 to 20 grams seemed to react about the same; above 20 grams, a slightly larger dose is required; the sex of the mouse apparently makes no difference, males and females reacting similarly. So far, in our experience we have found no adverse after-effects from the use of this drug.

The concentration of the solution recommended by the manufacturers has been found, for practical purposes, to be a little too great. It is much easier to administer accurately a less concentrated solution; and this is quite an item when a very small excess of a highly concentrated solution will cause death. The most satisfactory solutions were found to be 1 grain Nembutal dissolved in 5 cc or 10 cc of water, and of these two, the writer prefers the latter as being a little more convenient for accuracy.

The peripheral nerves apparently react to Nembutal more slowly than the central nerves. This drug will, however, produce complete anesthesia in mice in from 3 to 15 minutes, depending on the amount given. The following table gives the dosage, average time to anesthetize and average recovery time, as experienced in this laboratory. The time limits given in the table represent conditions both when the administering of the drug was, and when it was not followed by an operation (such as vasectomy).

Nembutal	Weight	Anesthetized	Recovery	Lethal
1/16 gr.	15–20 gm.	2– 4 min.	None	15–15 min. 1 death in 67 min.
1/25 gr.	15–20 gm.	6– 8 min.	3½– 6 hrs.	
1/33 gr.	15–20 gm.	6–10 min.	50–80 min.	
1/40 gr.	15–20 gm.	6–10 min.	45–90 min.	
1/50 gr.	15–20 gm.	8–12 min.	40–70 min.	
1/66 gr.	15–20 gm.	8–15 min.	10–25 min.	
1/100 gr.	15–20 gm.	Partial		
1/100 gr.	Repeated	10–15 min.	50–120 min.	

Dosages of 1/20 gr. and over are generally lethal in mice weighing less than 20 grams; larger dosages than this result in death in a few minutes preceded by convulsions. For average purposes, the most satisfactory dosage is 1/50 grain dissolved in .2 cc of water and administered intraperitoneally. Since respiration is lowered by the administering of the drug, and at times it is quite slow, it might be necessary under cooler climatic conditions to take precautions to keep the mouse warm, especially after an operation; in our laboratories, however, we have not found this necessary.

There is considerable satisfaction in the use of Nembutal for anesthesia in mice: the results are prolonged, there is no need of watching the anesthetic, there are no after-effects, and death seldom results where normal dosages are administered. We have not recorded a single death in hundreds of cases where the dosage did not exceed 1/50 grain.

WM. H. GATES
LOUISIANA STATE UNIVERSITY

AN EFFICIENT MEDIUM FOR REARING HOUSEFLIES THROUGHOUT THE YEAR

THE rearing of houseflies (*Musca domestica* L.) throughout the year for use in various lines of research has developed largely in the last decade. Bacteriological, biological and more especially insecticidal studies have made the need urgently felt for the rearing of houseflies, even during the winter months. Glaser[1, 2] (in 1923 and 1924) reported on his trials for rearing flies throughout the year. He was able to breed flies from the middle of April to the middle of December, but it was not found possible to rear them on his culture medium (fresh horse manure) during the remainder of the year. Further studies (1927)[3] showed that the addition of small amounts of a bakery yeast suspension made possible the rearing of flies throughout the year. Fresh horse manure was found to be deficient in this respect during the winter months of the year. Grady (1928)[4] developed the technique of rearing large numbers of flies for daily insecticidal tests, and by the use of Glaser's method he was able to rear flies continuously throughout the year. Hockenyos (1931)[5] found that by the addition of hog manure to horse manure (1 part of the former to 3 or 4 parts of the latter) with yeast as a supplemental food, he could produce a more satisfactory medium for breeding houseflies than with horse manure alone. More nutriment per unit for the larvae was apparently provided by this mixture.

The use of horse manure, or mixtures of it with hog manure, as a rearing medium has several distinct disadvantages. For one, it is not always available to most laboratories. Then, too, it is rather disagreeable to handle. Most important, however, is the fact that frequently a species of red mite, parasitic on the housefly, is brought in on horse manure. This mite attacks the adult housefly on the underside of the thorax and abdomen between the segments, and also between the coxae of the legs, as well as at the place of attachment of the wings. Five to 40 or more mites are sometimes found on one housefly, and of course the presence of these mites precludes the use of such

[1] *Jour. Exp. Zool.*, 38, 383–412, 1923.
[2] *Jour. Econ. Ent.*, 17, 486–96, 1924.
[3] *Jour. Econ. Ent.*, 20, 432–33, 1927.
[4] *Jour. Econ. Ent.*, 21, 598–604, 1928.
[5] *Jour. Econ. Ent.*, 24, 717–725, 1931.