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THE AMERICAN GEOPHYSICAL UNION

By Dr. J. A. FLEMING

THE American Geophysical Union has to do with those theoretical or applied sciences relating to the earth, its configuration, its structure and the natural forces in operation upon or within it. Since inception in 1919, the Union has gradually developed so that now, with 1,900 members, it is perhaps the principal organization in the United States of America, acting as a clearing house for new thoughts and ideas relating to geophysics.

Sponsored by the National Academy of Sciences through the National Research Council, the executive committee of the union is the committee on geophysics of the council and is the American committee of the International Union of Geodesy and Geophysics. The functions of the union are "to promote the study of problems concerned with the figure and physics of the earth, to initiate and coordinate researches which depend upon international and national cooperation, and to provide for their scientific discussion and publication."

The wide-spread special interests of the eight sections of the union are expressed in the papers presented at the annual meetings, in the regional meetings (often held in cooperation with other scientific organizations) and in the annual "Transactions." Symposia on timely subjects are annual features of the general assemblies.

The fields of the sections of the union are briefly as follows:

(a) *Geodesy:* This section is devoted to large-scale surveying on the earth's surface, dealing particularly with triangulation, leveling and gravimetric surveys. Its objectives are principally determining the shape and size of the earth and adequate mapping of the earth's surface. Borderline subjects are earth-tides and variations of latitude.

ranged in color from maize yellow to apricot yellow. Color reactions showed greatest contrast when materials were collected in the fall and early spring and tested immediately. They were not distinctive when tests were made during the active growing season. Sections from peach trees affected with other virus diseases, namely the Golden net and the "X" disease, showed no differential coloring.

Further studies are in progress to determine the effectiveness of the reaction in the detection of the disease in seedling rootstocks onto which other peach varieties are commonly budded.

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A METHOD FOR NARCOTIZING HOLOTHURIANS

AT the Marine Biological Laboratory, Woods Hole, various methods have been tried for narcotizing *Thyone briareus*. These sea cucumbers are widely used in invertebrate zoology courses throughout the country, either as live material when available along the Atlantic coast or as preserved specimens further inland. It is highly desirable to find a method of expanding these animals without the waste of a high percentage of the specimens in the treatment.

The Supply Department at Woods Hole has, for many years, obtained expanded specimens of holothurians by treating them in the field. The undisturbed animal with extended tentacles is quickly grasped back of the tentacles before it has time to retract. The oral end is then immediately dipped into a solution of nitric acid and paralyzed. The specimen is then placed directly into a formalin solution. This method is cumbersome and requires much time, especially since *Thyone* is not nearly as common as it once was in the area. It is not at all practical to use this method on the sea cucumbers brought into the laboratory, since only a small per cent. of the animals will normally extend the tentacles in the aquarium.

Dr. T. H. Bissonnette, Trinity College, advised me that a saturated solution of chloretone in sea water had been used during the past few summers in preparing *Thyone* for class use. Fifteen cc of the solution were injected into the coelom of each animal. He also stated that the method was unsatisfactory; many of the specimens did not relax.

During the summer of 1942 while instructing in the invertebrate course at Woods Hole I tried several methods of anesthetizing *Thyone* without success. Several attempts were made, using the saturated chloretone solution for injection and immersion. The animals remained turgid several hours after this treatment. A saturated solution of magnesium sulphate was tried since I had earlier achieved some success in narcotizing the California sea cucumber, *Stichopus*, with this chemical. *Thyone* did not relax when submerged in the solution nor when injected with it.

Ledingham and Wells[1] have successfully narcotized marine annelids with magnesium chloride solution. They used 80 grams of crystalline magnesium chloride dissolved in 1,000 cc of tap water, and immersed the annelids in the solution for a period of 1 to 4 hours for relaxation. I tried the same solution on *Thyone*. The animals remained turgid after being immersed for 12 hours.

The same solution was used as an injection into the coelomic cavity and was successful in 100 per cent. of the trials. Each specimen was injected with approximately 15 cc of the solution and then submerged in a vessel containing the same solution. A relatively fine hypodermic needle should be used since a part of the intestine often escapes through a hole in the body wall made with a coarse needle. The injected animal becomes very turgid for about 15 minutes and then gradually relaxes. After one hour some of the specimens will extend the tentacles without manipulation. In the others the tentacles may be worked out easily by suspending the animal from the aboral end and applying pressure to the bulb of fluid thus formed. Over 100 *Thyone* were relaxed in this manner. About half of them were animals which were regenerating after having evicerated about a month previous to the date of relaxation.

Three of the narcotized sea cucumbers were placed in running sea water and had regained their turgidity after about 48 hours. Time was not available for a longer observation.

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[1] Isabel C. Ledingham and G. P. Wells, *Nature*, 150: 121, 1942.

BOOKS RECEIVED

BRUNAUER, STEPHEN. *The Adsorption of Gases and Vapors.* Volume I, *Physical Adsorption.* Illustrated. Pp. vii + 511. Princeton University Press. $7.50.

KRAINES, S. H. and E. S. THETFORD. *Managing Your Mind.* Pp. viii + 374. Macmillan. $2.75.

MACDOUGALL, FRANK H. *Physical Chemistry.* Illustrated. Pp. ix + 722. Macmillan. $4.25.

MORGAN, FRANK M. *College Algebra.* Illustrated. Pp. vi + 369. American Book Company. $2.00.

PAPANICOLAOU, GEORGE N. and HERBERT E. TRAUT. *Diagnosis of Uterine Cancer by the Vaginal Smear.* Illustrated. Pp. x + 46. Commonwealth Fund. $5.00.

SHIPLEY, JOSEPH T. *Dictionary of World Literature.* Pp. xv + 633. The Philosophical Library. $7.50.

SMITH, L. RAYMOND. *Elementary Applied Electricity.* Illustrated. Pp. xiii + 311. McGraw-Hill Book Company. $2.00.

WOLFF, WERNER. *The Expression of Personality.* Illustrated. Pp. xiv + 334. Harper and Brothers.