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.

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