spines vary considerably in number on individual specimens, but the *average* number on specimens from salt water from different localities is quite constant, being about thirteen. When this shrimp is found in *brackish water*, however, the averages from different localities vary considerably, and *are always less* than the salt water average. In water which was nearly fresh, we have found the average to be as low as 9.61. Moreover, the decrease in the average seems to be in proportion to the decrease in density. This seems to show that such a character as rostral spinosity may be so correlated with the economy of the animal, that such a factor as salinity may determine it. The experiment of putting the animals from salt water directly into fresh water failed to show that those whose average number of spines was the least, had the greatest resistance capacity. Hence it is suspected that the direct action of environment, and not natural selection, is the method by which the evolution to the brackish-water form is accomplished. This question can be settled only by *rearing* the salt-water form in fresh or brackish water. The decrease in spinosity of the brackish-water form makes it seem probable that our fresh water species, *P. exilipes*, has been derived from *P. vulgaris*. The two species are very similar and, at least in respect to rostral-spinosity, intergrade perfectly; for the averages in *exilipes* are found to vary from 8.53 to 10.11, while *P. vulgaris*, as shown above, may have as low an average as 9.61. Experimentation may also throw light on the question as to whether *P. exilipes* has arisen as a variety in one place, and later spread, or has originated in different places under a common factor of environment—lessened density. In one case where the two forms were found inhabiting the same river (The St. Johns, Fla.), they were separated by a distance of only thirty miles, at most.

Variations and regeneration and Synapta Inhaereus.

The characters of this holothurian as described in systematic works, were subjected to quantitative analysis. The standard deviation, mean, mode and coefficient of variability were determined for 850 variates of the anchor and anchor-plates, 13 variations from the typical anchor and 20 variations from the typical anchor-plate were described. The typical anchor prevailed in 96.6% of the variates and the plate in 61.5%.

The specimens examined from Beaufort and Naples showed only one type, that of the described anchor and three types of plate with an adherence of $95\frac{3}{4}\%$ to the typical form. The specimens from southern waters are therefore least variable while the striking divergence is shown in the northern collections from Long Island, and Woods Holl with 18 types of plates, with 8 types of anchors showing spurs of various kinds, there is shown a tendency toward a place-mode at Lloyds Harbor, Long Island.

In one specimen from Centre Island, Cold Spring Harbor, Long Island, 61 3-7% of the variates belong to another than the type-pattern. Similar variations in the number of tentacles with their relation to the normal symmetry were noted. The mode of distribution of digits is three on the dorsal and ventral sides, respectively.

Nine out of 17 experiments on regeneration of the body and tentacles were successful.

The effect of strychnine on the unfertilized eggs of the sea-urchin: T. H. Morgan.

When the unfertilized eggs of *Arbacia* are placed in sea water containing strychnine they will begin to segment in the course of three or four hours. Strychnine, either as an alkoid or as a sulphate, produces the same effect; the solubility of the latter being nearly a hundred times greater than