equally distributed to the later cells. In a less degree, the same thing occurs in the pollen cells of such plants as the geranium. No fusion of the chromosomes is necessitated in the slip; hence, they continue to lie side by side and divide in the ordinary way, and the new plant is practically a continuation of the old one.

Relative Variability of Pectens from the East and West Coasts of the United States: C. B. DAVENPORT.

Pecten irradians from Tampa, Florida, and *Pecten ventricosus* from San Diego, California, are closely related species, as the parallelism in color and markings indicates. They are a pair of species that, taken by themselves, favor the view of a recent connection of the Gulf of Mexico and the Pacific Ocean. In respect to the symmetry of the valve and in respect to the globosity (height divided by length), the San Diego form is much the more variable, as measurements and calculations of the index of variability of ten hundred shells prove. This greater variability of the Pacific form is a fact in agreement with what Eigenmann has found for fishes. It is correlated with the greater physiographic changes in recent times in the character of the shore line of southern California as contrasted with Florida.

An Experimental Study of the Development of the Lateral Line in the Frog Embryo: R. G. HARRISON.

The Ovary and the Reproductive Period: F. H. HERRICK.

Whenever it is impossible or impracticable to determine the reproductive periods of an animal by watching its behavior, the structure of the ovary will usually furnish the clue. This is true of the Crustacea, and probably of all other animals.

My present object is not only to illustrate this fact, but also to settle definitely the spawning habits of the American lobster, concerning which doubt and disagreement still abound. To put the specific question briefly: How often does an adult female lobster lay her eggs? The answer is, every two years, as a rule. This same conclusion was reached six years ago, chiefly from a study of the comparative anatomy of the ovary of animals captured at different seasons, and while confident of its general accuracy at that time, it is now possible to supplement it with observations upon the living animals themselves.

In a single generation of ovarian eggs three stages may be conveniently chosen for special study: (1) The initial stage, when the ova of the preceding generation are laid; (2) the intermediate stage, when those eggs are hatched; and (3) the final stage, when the ovarian eggs have reached their full size and are ready to be expelled from the body. The average size attained by the ova at these successive periods can be determined with sufficient accuracy. The time interval between stages 1 and 2 is known to be approximately one year. The ratio of growth between stages 1 and 2 is approximately equal to the ratio of the volume of the laid egg and that of ova in the second stage, from which it follows that the time interval between stages 2 and 3 is also one year. Further anatomical facts and experiments with living animals also confirm this conclusion.

The adult spawning lobster therefore does not lay her eggs each year, as some have maintained, but every other year, although this normal biennial period is likely to be shortened or lengthened in individual cases. The evidence on which these conclusions rest is ample, and will be given in detail at a later time.

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Secretary.

[*To be continued.*]