be no lack of correspondence in their teachings. This truth is now receiving a signal confirmation by the discovery of fossil plants in marine shell-bearing deposits, especially in the Lower Cretaceous of Portugal, of Texas, and of California. Neither is the 'botanical time piece' either too slow or too fast, and the organic pendulum has always swung in perfect unison on both sides of the Atlantic. LESTER F. WARD.

WASHINGTON, D. C.

THE AMERICAN MORPHOLOGICAL SOCIETY.*

The Rôle of Water in Growth. C. B. DAVENPORT.

In developing tadpoles of various amphibia the amount of water contained was determined at short intervals between the time of hatching and midsummer. These determinations showed that during the first week or two of development the amount of dry substance in the embryo remains nearly absolutely the same as it is in the just-hatched larva, where it constitutes little less than half of the whole weight. During this period the immense increment in weight which accompanies the outlining of the form of the larva and its organs is due almost solely to imbibed water. It is the specific imbibition of water then which determines the direction of differential growth in the developing tadpole. As in plants this 'grand period of growth' is followed by one of histological differentiation, during which the absolute (and relative) quantity of dry substance increases rapidly.

The Structure and Function of the Midgut in Terrestrial Isopods. J. P. MCMURRICH.

The general result of the study of the Isopod midgut may be summed up as follows:

1. The so-called 'midgut' of the terrestrial Isopods is of ectodermal origin and is in reality a portion of the proctodæum.

2. It is lined by an impervious layer of chitin.

3. The cells which compose it possess no definite boundaries and form an epithelial syncytium.

4. The fibrils which traverse the cells from the basement membrane to the layer of chibin are, throughout the greater part of their extent, of the same material as the basement membrane, their central ends, however, being apparently chitinous. They are not protoplasmic, as Ide has maintained.

5. The nuclei frequently show great irregularities of form; these irregularities are sometimes due to injury, but in other cases appear to be normal and to indicate a power of amœboid movement.

6. The conjugation of the nuclei, described by Ryder and Pennington, does not occur.

7. Fragmentation of the nuclei occurs as a degenerative change, but amitosis for growth or regeneration, if occuring at all, is infrequent.

8. The increase in size of the 'midgut' appears to be due not to an increase of the *number*, but to an increase of the *size*, of the cells present at the close of embryonic life.

9. Feeding experiments indicate that the midgut does not possess an absorptive function; it merely serves for the passage of undigested material to the exterior.

A paper giving in detail the evidence on which these conclusions are based is in the hands of the editor of *The Journal of Morphology*.

The Result of the Suspension of Natural Selection as Illustrated by the Introduced English Sparrow. H. C. BUMPUS.

Over 1,700 eggs were critically examined, and 'curves of frequency' were drawn to illustrate the differences between the European and American specimens. It was found that the American eggs presented a much greater amplitude of variation than the European, that they were smaller and that they were of a strikingly different shape.

* Concluded from page 392.