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PLATE I. DEVELOPMENT OF THE FROG. Copied by permission of Messrs. Ginn & Company, Boston. from their General Zoology."

## NATURE STUDY OF ANIMALS.

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In this picture on the development of the for feeding, and the use of the tail in swimming frog, figures 1, 2, and 3, represent frog's eggs soon follow, - see figure 5. The primary gills or spawn in different stages of development. are replaced by secondary gills, which soon Their relative size and general structure are become covered with a fold of skin leaving well illustrated, but these points are best seen only a small hole, usually in the left side, for in the eggs themselves, and if possible should the exhalant current of water. This is the be so studied — belated eggs are sometimes form of the tad-pole in summer, - see figure 6. found in cool ponds as late as June. The changes outlined take place in a few weeks Note the dark central part surrounded by the

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ical at the beginning, but gradually elongates into an early tadpole-form, as it approaches the hatching period. It is the essential part of the egg, and is to the frog's egg what the yolk is to the hen's egg, With what is the outer part or covering comparable?

This covering, now thick and gelatinous, was at first, when the eggs were deposited in the water, a very thin coat. It absorbed water, began to swell, and reached its greatest expansion at the end of three hours. Besides holding the eggs together in a mass, and affording protection from injury by contact with surrounding objects, and from animals, it is said to perform valuable work in the process of incubation, of capturing and storing heat.

Place the bulb of a thermometer in a mass of eggs, and compare their temperature with that of the surrounding water. Which is the warmer, and why? Note how the gardener captures and holds the heat of the sun for his plants in hot beds, and hot-houses. The egg does the same work by means of its gelatinous coat, combined with the power of the dark central mass to store heat.

Correlate this work with lessons on heat and color. Compare the use of white, and black clothing in hot countries. Which color predominates, and why?

Before the eggs hatch, the little larvae are quite distinct within the gelatinous covering, (see figure 3), and they finally hatch, in from seven to ten days, according to temperature, into forms pictured in figure 4. These young are at first blind, and without gills, or a true mouth. They fasten themselves to weeds and other objects in the water by means of a crescentshaped adhesive apparatus at the anterior end, and the body is more or less covered with cilia, which are used for locomotion.

Eyes, external (primary) gills, and a mouth

and can readily be observed by keeping the transparent gelatinous covering. This is sphereggs in a glass fruit-jar in the school, the only