

in the aspect of the yolk, at the period of initiative cell genesis, is the hyalinescence of the coarser granules,¹ and a rounding of their contours (Pl. 8, fig. 20a). At this time the egg is about one sixteenth of an inch in its mean diameter. (Pl. 8, fig. 20.) The recurrence of a superabundance of albumen is here presented, although in a manner already familiar, namely, in the drop-like form, yet with an essentially different anticipation. The function initiated at this period would lead us to suspect, nay, almost to demand, that something more than an adventitious globular concentration of amorphous substance must be silently working before us. And so easily is this suspicion put at rest, in a positive manner, that we very soon forget that there was once a moment of hesitation respecting the nature of this development. It has already been stated, that there is a difference in the progressive development of the smaller ovarian eggs and those which afterwards appear in separate sets, corresponding to the number of eggs which different species of Turtles annually lay. The eggs which we are now considering belong to the earliest set of somewhat larger eggs, which appear in definite numbers, and may be distinguished from the innumerable mass of smaller eggs scattered through the whole ovary.² I have further observed, that the youngest *Chrysemys picta* found in copulation had no larger eggs than these. It is, therefore, plausible to suppose that the changes which now follow, in the development of the yolk, are the natural consequence of a first connection of the sexes, which is repeated twice annually, for four successive years, before the eggs are laid; as will be shown more fully in another section.

But, let us return to the eggs in which the formation of the yolk cells is just beginning. The instant that water is allowed to act upon a portion of the yolk,

by the following names: *ectoblast* is applied to the outer envelope; *mesoblast* to the so-called nucleus; *entoblast* to the so-called nucleolus; and, when this contains a still smaller body, this is called *entosthoblast*. In the nomenclature of the egg, similar objections may be raised against the use of *germinal* or *germinative vesicle* and *dot*, as neither of these parts has the slightest reference to the formation of the germ. We shall therefore designate them, henceforth, as some embryologists do, by the names of the *Purkinjean* and *Wagnerian vesicles*. Applying our nomenclature to a comparison of the egg with the cell, the *yolk membrane* is to be considered as an *ectoblast*, the *Purkinjean vesicle* as a *mesoblast*, the *Wagnerian vesicle* as an *entoblast*, and the *Valentinian vesicle* as an *entosthoblast*.

¹ By the "hyalinescence of the coarser granules," it is not meant that already existing angular, coarse, dark granules become hyaline, but that they disappear now, as they have again and again been changed before, and clearer and round bodies take their place; the action of some novel influence, probably the fecundation, inducing the genesis of new forms.

² Comp. p. 460. The eggs of intermediate sizes represented on Pl. 9 were observed out of the breeding season. After eggs like that of fig. 10 have been laid, those of the second set (fig. 8) soon grow to the size of fig. 9; those of fig. 5 and 6 to that of fig. 7; those of fig. 1, 2, 3 to that of fig. 4; and a new set, like the eggs of Pl. 8, fig. 20 and 21, start in advance of the smallest ovarian eggs, which cannot yet be distinguished in sets.