

withstanding their name, are born from eggs, as well as birds, fishes, and reptiles.<sup>6</sup> This principle also excludes that supposed production of organized beings without parents (of worms in corrupted matter, for instance,) which was formerly called *spontaneous generation*; and the best physiologists of modern times agree in denying the reality of such a mode of generation.<sup>7</sup>

*Sect. 2.—The Examination of the Process of Reproduction in Vegetables.*

THE extension of the analogies of animal generation to the vegetable world was far from obvious. This extension was however made;—with reference to the embryo plant, principally by the microscopic observers, Nehemiah Grew, Marcello Malpighi, and Antony Leeuwenhoek;—with respect to the existence of the sexes, by Linnæus and his predecessors.

The microscopic labors of Grew and Malpighi were patronized by the Royal Society of London in its earliest youth. Grew's book, *The Anatomy of Plants*, was ordered to be printed in 1670. It contains plates representing extremely well the process of germination in various seeds, and the author's observations exhibit a very clear conception of the relation and analogies of different portions of the seed. On the day on which the copy of this work was laid before the Society, a communication from Malpighi of Bologna, *Anatomes Plantarum Idea*, stated his researches, and promised figures which should illustrate them. Both authors afterwards went on with a long train of valuable observations, which they published at various times, and which contain much that has since become a permanent portion of the science.

Both Grew and Malpighi were, as we have remarked, led to apply to vegetable generation many terms which imply an analogy with the generation of animals. Thus, Grew terms the innermost coat of the seed, the *secundine*; speaks of the *navel-fibres*, &c. Many more such terms have been added by other writers. And, as has been observed by a modern physiologist,<sup>8</sup> the resemblance is striking. Both in the vegetable seed and in the fertilized animal egg, we have an *embryo*, *chalazæ*, a *placenta*, an *umbilical cord*, a *cicatricula*, an *amnios*, *membranes*, *nourishing vessels*. The *cotyledons* of the seed are the equivalent of the *vitellus* of birds, or of the *umbilical vesicle* of sucking-beasts:

<sup>6</sup> Bourdon, p. 221.

<sup>7</sup> *Ib.* p. 49.

<sup>8</sup> *Ib.* p. 384.