

by self-division. This process differs from the previously described self-division of the Moneron only in the fact that at the commencement the firmer cell-kernel (nucleus) falls into two halves, by a pinching-in at its middle. The two young kernels separate from each other and act now as two distinct centres of attraction upon the surrounding softer albuminous matter, that is, the cell-substance (protoplasma). By this process finally the latter also divides into two halves, and there now exist two new cells, which are like the mother cell. If the cell was surrounded by a membrane, this either does not divide at all, as in the case of egg-cleavage (Fig. 3, 4), or it passively follows the active pinching-in of the protoplasm; or, lastly, every new cell exudes a new membrane for itself.

The non-independent cells which remain united in communities or states, and thus constitute the body of higher organisms, are propagated in the same manner as are independent single-celled organisms, for example, *Amœba* (Fig. 2). Just as in that case, the cell with which most animals and plants commence their individual existence, namely, the egg, multiplies itself by simple division. When an animal, for instance, a mammal (Figs. 3, 4), develops out

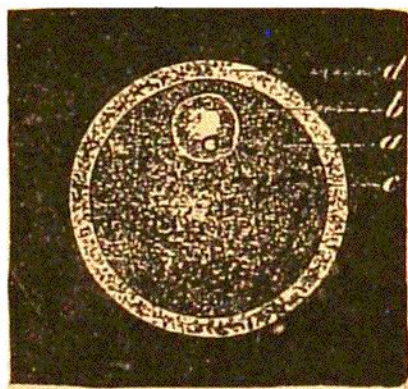


FIG. 3.—Egg of a mammal (a simple cell).
a. The small kernel speck or nucleolus (the so-called germ-spot of the egg). *b.* Kernel or nucleus (the so-called germ-bladder of the egg). *c.* Cell-substance or protoplasm (the so-called yolk of the egg). *d.* Cell-capsule or membrane (membrane of the yolk) of the egg; called in mammals, on account of its transparency, *Membrana pellucida*.

of an egg, this process of development always begins by the simple egg-cell (Fig. 3) forming an accumulation of cells