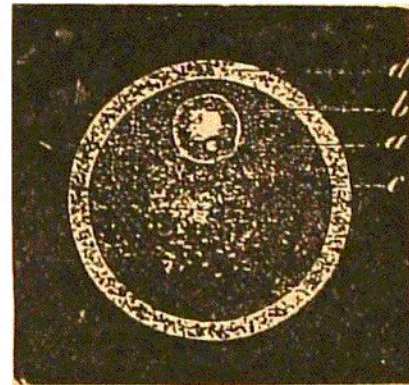


of carbon, of which the egg essentially consists. These minute individual differences of all eggs, and particularly the molecular structure of the kernel, depend probably upon indirect or potential adaptation (and especially upon the law of individual adaptation); they are, indeed, not directly perceptible to the exceedingly imperfect senses of man, but are cognizable through well-founded indirect inferences, as the primary causes of the difference of all individuals.

The human egg is, like that of all other mammals, a small globular bladder, which contains all the constituent parts of a simple organic cell (Fig. 5). The most essential

FIG. 5.—The human egg a hundred times enlarged. *a.* The kernel-speck, or nucleolus (the so-called germinal spot of the egg). *b.* Kernel, or nucleus (the so-called germinal vesicle of the egg). *c.* Cell-substance, or protoplasm (so-called yolk of the egg). *d.* Cell-membrane (the yolk-membrane of the egg; in mammals, on account of its transparency, called zona pellucida). The eggs of other mammals are of the same form.



parts of it are the mucous *cell-substance*, or the protoplasm (*c*), which in an egg is called the “yolk,” and the *cell-kernel*, or nucleus (*b*), surrounded by it, which is here called by the special name of the “germinal vesicle.” The latter is a delicate, clear, glassy globule of albumen, of about 1-600th part of an inch in diameter, and surrounds a still smaller, sharply marked, rounded granule (*a*), the *kernel-speck*, or the nucleolus of the cell (in the egg it is called the “germinal spot”). The outside of the globular egg-cell of a mammal is surrounded by a thick pellucid membrane, the *cell-membrane* or yolk-membrane, which here bears the special name of zona pellucida (*d*). The eggs of many lower animals (for example, of many Medusæ) differ from this in