

THE RIDDLE OF THE UNIVERSE

both the (immaterial) souls of the parents; the maternal contribution passes in the ovum, the paternal in the spermatozoa; when these two germinal cells coalesce, the two psychic fragments that accompany them also combine to form a new (immaterial) soul.

Although the poetic fancies we have mentioned as to the origin of the individual human soul are still widely accepted, their purely mythological character is now firmly established. The deeply interesting and remarkable research which has been made in the course of the last twenty-five years into the more minute processes of the impregnation and germination of the ovum has made it clear that these mysterious phenomena belong entirely to the province of cellular physiology (cf. p. 48). Both the female element, the ovum, and the male fertilizing body, the sperma or spermatozoa, are *simple cells*. These living cells possess a certain sum of physiological properties to which we give the title of the "cell-soul," just as we do in the permanently unicellular protist (see p. 48). Both germinal cells have the faculty of movement and sensation. The young ovum, or egg-cell, moves after the manner of an amœba; the minute spermatozoa, of which there are millions in every drop of the seminal fluid, are ciliated cells, and swim about as freely in the sperm, by means of their lashes or *cilia*, as the ordinary ciliated infusoria (the flagellata).

When the two cells meet as a result of copulation, or when they are brought into contact through artificial fertilization (in the fishes, for instance), they attract each other and become firmly attached. The main cause of this cellular attraction is a chemical sensitive action of the protoplasm, allied to smell or taste, which we call "erotic chemiotropism"; it may also