spore-formation—leads us directly to a form of propagation which is the most difficult of all to explain, namely, sexual propagation.

Sexual or amphigonic propagation (Amphigonia) is the usual method of propagation among all higher animals and plants. It is evident that it has only developed, at a very late period of the earth's history, from non-sexual propagation, and apparently in the first instance from the method of propagation by germ-cells. In the earliest periods of the organic history of the earth, all organisms propagated themselves in a non-sexual manner, as numerous lower organisms still do, especially all those which are at the lowest stage of organization, and which, strictly speaking, can be considered neither as animals nor as plants, and which therefore, as primary creatures, or *Protista*, are best *excluded* from both the animal and vegetable kingdoms. And yet in the case of many of the Protista, increase by self-division, or the formation of spores, takes place only when it has been preceded by the commingling of two individual cells. This conjugation or copulation is the beginning of sexual propagation, and is at present, as a rule, the only means of the increase of individuals among the higher animals and plants.

In all the chief forms of non-sexual propagation mentioned above—in fission, in the formation of buds, germ-buds, and germ-cells—the separated cell or group of cells was able by itself to develop into a new individual, but in the case of sexual propagation the cell must first be fructified by another generative substance. Two different cells, the male seed-cell (sperma) and the female egg-cell, must commingle; and out of this newly produced cell (the stork-cell, Cytula)