

1.BIOLOGY

How from an almost homogeneous mass of dividing cells in the primal stages of development emerges the vast and sometimes spectacular array of patterns and structures observed in different forms of life. Two approaches to the problem, on the one end the theory about preformation and on the other systems of self-organization. The first assumes that any form is pre-formed and static. Therefore any new form is always a result of a combination of the already existing forms. Taking a different approach, self –organization implies a de novo pattern formation that is dynamic and gets developed over time. Morphogenesis in the self-organization model depends on the interaction between the initial cells or units. Preformation is a top-to-bottom idea, while self-organization is a bottom-up system.