

HOMOLOGY: A KEY TO MORPHOGENESIS

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The paper will show that in many areas of nature, homologous patterns are formed from various substrata, organic or inorganic. This point to common principles of structuration in operation, to elementary rules of growth characterized by the phenomena of branching, gnomonic development, allometry, and spirality. In particular, the study of comparative morphology in its largest acception reveals homology of structure with phyllotactic patterns, which can through light in their origins. Given that this homology is found in areas where there are no genes, the origins of phyllotaxis must be sought beyond the botanical substratum. Genes only appear to bring tremendous speed in the formation of the patterns, thus their overwhelming presence in phyllotaxis, the study of the patterns made by similar parts in plants (e.g. organs, leaves, florets, scales).