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Topic: Telome Concept

Telome Concept:

The ultimate branch of a dichotomy of stem axis, irrespective of sterile and fertile, is called telome.

'Telome theory' was initially proposed by Zimmermann (1930, 38). According to this theory, all the vascular plants have evolved from a very primitive and simple sporophytes like *Rhynia* having both the simple and dichotomously branched green stem axis bearing both the **sterile** and **fertile telomes**.

The telomes meet each other at the point of forking. The stem below forking is called mesome. The sterile or vegetative telome is called **phylloid**, while that terminated in a sporangium is called the **fertile telome**.

During the course of evolution, there is a change from dichotomous to sympodial branches owing to fusion of 2- more telomes termed **syntelomes** or **telome frusses**. The fertile syntelomes are called **sporangial trusses** and the sterile ones being **phylloid trusses**. Both the types of syntelomes also occur together to constitute **mixed syntelomes** or **mixed telome trusses**.

According to telome concept the ancient land plants evolved into higher vascular cryptogams along three independent lines (like **Lycopsid**, **Sphenopsid** and **Pteropsid**) of evolution. During this process, certain progressive

differentiation in the sporophytes might have occurred. These are (1) **Plantation**, (2) **Overtopping**, (3) **Syngensis**, (4) **Reduction** and (5) **Recurvation** meant for organogenesis occurring in varying degree in different taxonomic groups.

Starting from equal dichotomy, **Plantation** leads to a system of dichotomies in one plane. **Overtopping** is the result of unequal dichotomies producing the axis with lateral (monopodial) branches. **Syngensis** is the result from the coalescence of apical meristem. When they fuse to form a marginal meristem i.e., foliar syngensis, a lamina with veins will develop. **Reduction** is the retrogressive evolution leading simple microphyll of the Lycopsidea. Recurving causes the sporangiophore to become reflexed and the sporangium inverted including anatropous ovule.
