

Cell Wall :->

- * Robert Hooke (1665) - discovered it.
- * Animal cell lack it.
- * Formed by secretion of cytoplasm
- * Generally it has three part ->

(1) Middle layer ->

Lamellae

- * 1st Formed layer during cytokinesis
- * Acts as cementing layer b/w two cell
- * Made of Ca & Mg Pectate
 - ↳ Dissolved in Ripening fruit

(2) Primary layer -

low cellulose
high Hemicell + protein

- * Formed inner to the middle lamellae
- * Grow by Intussusception (Addition of material within existing wall)
- * Formed by cellulose microfibril embaded in matrix of $H_2O + Pectin + Hemicellulose + Glycoprotein$
 - ↳ Glucose + xylose
↳ Branched polysaccharide

* Some cells have only 1^o wall

e.g. - leaf / fruit / cortex / pith cell

* Fungal cell wall \rightarrow of chitin (Polymer of Acetylglucosamine)

* Bacterial cell wall \rightarrow of Peptidoglycan (of NAM + NAG)
L also called muropeptide/murein

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(3) Secondary wall - * Formed inner to the 1° wall

high cellulose

* 3-4 layered (S_1, S_2, S_3, \dots)

low Hemi + Protein.

* Formed in mature cell when growth is stopped e.g. - Tracheids, vessel elements, fibres.

* Grow by Accretion (deposition of material over existing str).

* Str is similar to 1° wall except -

compact arrangement of cellulose microfibrils with different orientation in diff layer

* 2° wall also contain -

(a) Lignin \rightarrow Provide strength

(b) Suberin (fatty) - Make impermeable

(c) Cutin - Reduces Transpiration

(d) Silica - + in Epidermis of Grasses

(4) Tertiary wall -

L Inner most layer of 2° wall containing xylans deposition.

e.g. - Tracheids / Tension wood of Gymnosperms.

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Cell wall contain two protein i.e. (1) Expansin — Loosen the cell wall
(2) Extensin — provide str. support
↳ check the ^{classmate} entry of pathogen

Pits →

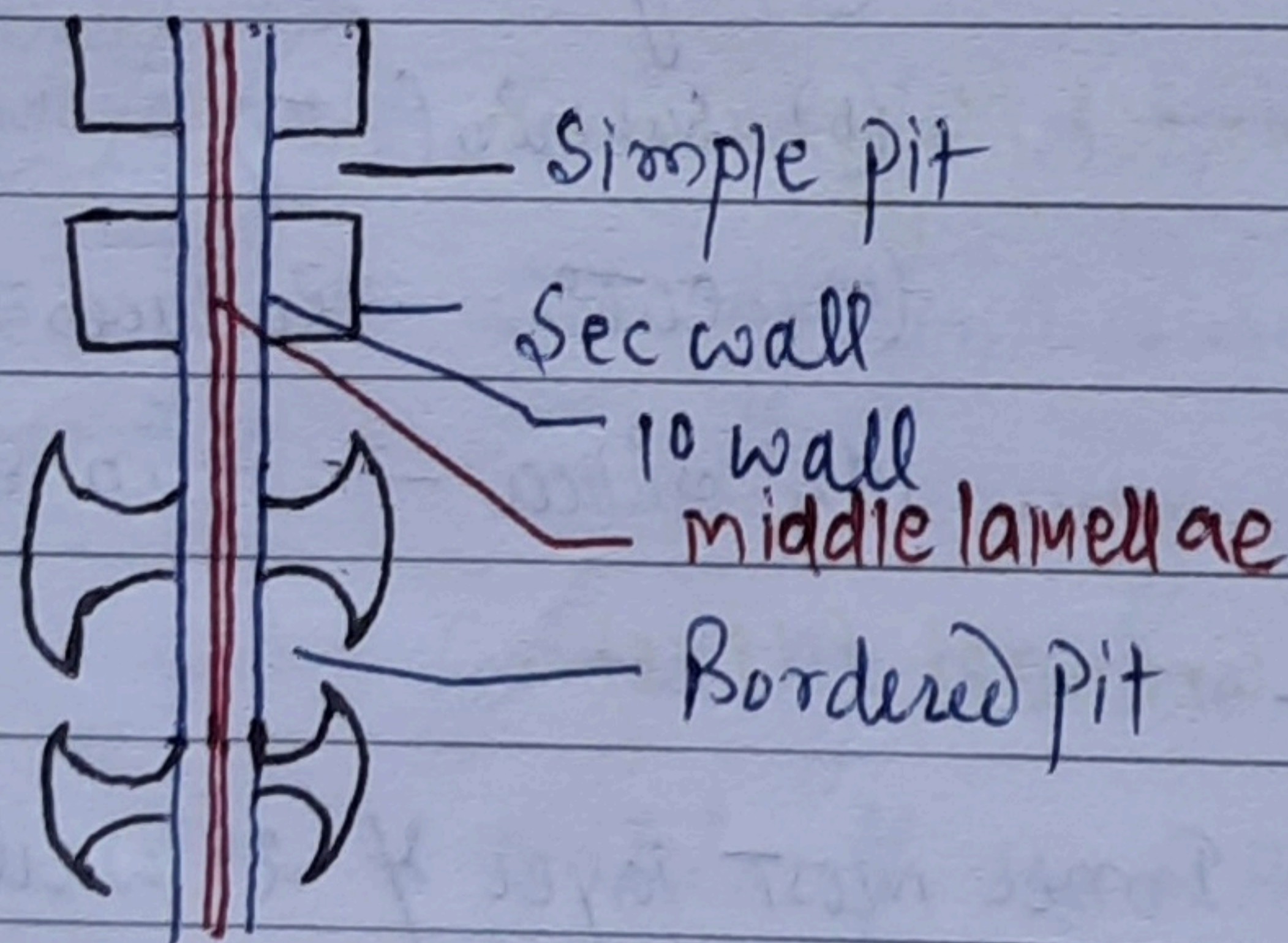
- * Unthickened area in sec wall of plant cell
- * Generally occurs in pair
- * A pit has a pit chamber & pit membrane
 - Permeable for substance
 - contain 1^o wall + middle lam

* Pits — Simple — uniform width of pit chamber

Bordered → Pit chamber overhanged by sec wall

ex - Tracheids of Gymno

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Plasmodesmata → * cytoplasmic strands present in pit that connect cytoplasm of 2-cells.

* E.R. extending through these pores are called Desmotubules.