Physiological Botany

SPRING TERM

1886

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Cypripedium, Plate I.

Plant from greenhouse. Examination of upper epidermis (Fig II). The cells are from four to seven sided and usually uniform in length and width on well defined tissue. The cells are square, nearly no chlorophyll but mostly transverse. Upper walls thicker than lower. Small bosses on cells (nuclei) crystals in some places. Some of the cells are broken and some seem to overlap. Cells covered by holes, etc. of lower epidermis. Lower cell from 4 to 7 sided, much more regular like those of upper surface. Much smaller than those of upper epidermis (see Fig I). Soma closely packed, walls from 4 to 6 cells, occur without much order. Look like egg white cells. Can be seen closely banded in central place. In longitudinal section, cells from vacuole, bundles extending lengthwise looking like chicken wire pipe. Glassy looking fibrous strands of lower side. Fig 2 shows stony.

Elder Pith

Cross section, cells oval, differentiated, definite order of arrangement. Cells of different size. Walls on broken more or less. Walls difficult. In color, some walls spotted, broken. Circular cells spherical. Spinesed by holes. Also thin, grown in color. Holds one or Aboriginal
White Ash.

Plate 17 shows cross section of branch piece of white ash, showing difference in wood cells and also difference in duct or vessel growth of spring and fall. Plate 10 shows side view of same except showing the most compact form of cells. Plate 7 shows cross section of tough white ash showing least compact form of cells, while Plate 6 shows most compact form of the same.

Pumpkin vine.

Ex shows small hair on side.  Here horn from one to 3 cells 1 in these cells or protoplasm with occasional vacuole.  Three forms of layer.  RM 2 = protoplasm many chloroplasts.

Alpoenogen.

Ex shows a few outset cells filled with protoplasm and others with chlorophyll.  Cala jelly.

Ex of slime cellular space.

Peristomum.  Thick matted cells.

Selaginella.  Chlorophyll granules.
Ex of Oat Kelly. Cells long, cylindrical & having
mark down middle, pointed.
Ex of Pine, radial section shows sapidity in
growth. Tangential section shows long cells but
method of growth
Cross section shows medullary
rings & wood cells. Large cells in ring
of year & small cells in fall.

Lolium perenne, hair pulled out
looks like fur under microscope
Sometimes 100 in number.
Radial vertical section of syngonium vine
cut through lengthwise shows vascular bundle
shows yellow cells or longitudinal section
of our cells - cells containing
many fibers.

Ex of Begonia (slimy)
Fibro vascular bundle, three
corresponding intercellular spaces showing
boxes of cell nuclei
Ex of Wayland Dyer
showing stratification and canals
PLATE

FIG. 1.

FIG. 2.

FIG. 3.

FIG. 4.

FIG. 5.
Ex of Conifer showing thin strings made up with cells of all sizes filled with various stuff. Chi cell divide & change forming new cells & thus multiply.

Ex of Pollen of Azalia - four pollen grains united but exposed from inside cell.

Opening on side.

Pollen of Alchitron - single pollen grain spheroid round with chilex inside filled with fertilizing powder. Which escapes by means of lid which breaks off.

Ex of Agapanthus another pollen grain an irregular in shape; cucumber shaped; some have teardrops form drying edges smooth. 1 some of the grains have nestling in them.

Ex of Syngyza showing spiral arrangement of chlorophyll. Non-end cells. Ex of tip of corn root showing small hair cells very small at point. The top of root grows.
Ex of Fuscia pollen shows mother cell and four pollen grains inside.

Ex of Dunea - animal life constantly changing in form, multiply by division and take food by surrounding it, move when the temperature is more.