SIZE: PLANT CELL AND ITS PARTS

PART 1:

USE THE SCALE THAT ACCOMPANIES THE MICROGRAPH TO DETERMINE THE SIZE OF THE FOLLOWING:

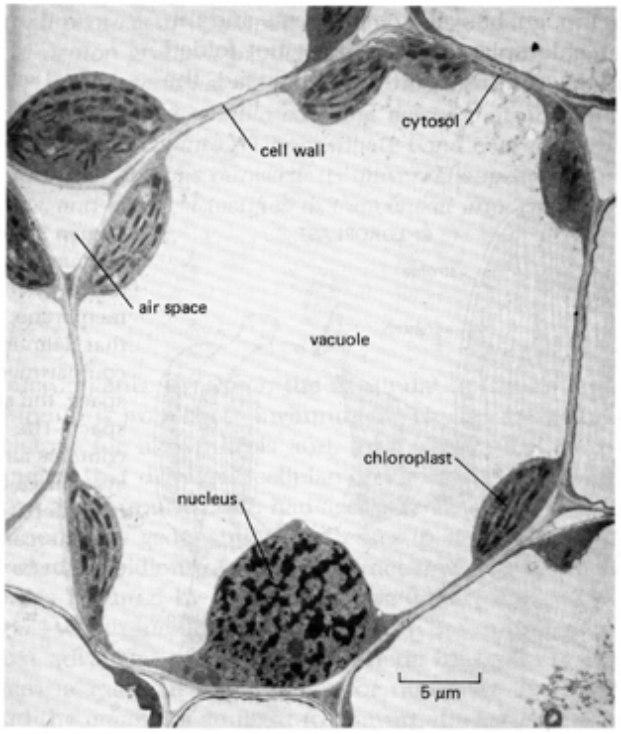

Figure 9–40 An electron micrograph of a wheat leaf cell. Note the ring of cytoplasm-containing chloroplasts that surrounds a large vacuole. (Courtesy of Kitty Plaskitt.)

A. THE LENGTH OF THE PLANT CELL

B. THE WIDTH OF THE PLANT CELL

C. THE DIAMETER OF THE NUCLEUS

D. THE DIAMETER OF A CHLOROPLAST

E. THE WIDTH OF THE CELL WALL

PART2:

USE THE SCALES THAT ACCOMPANY THE FOLLOWING MICROGRAPHS TO DETERMINE THE SIZES OF THE FOLLOWING:

for A and B use the following:

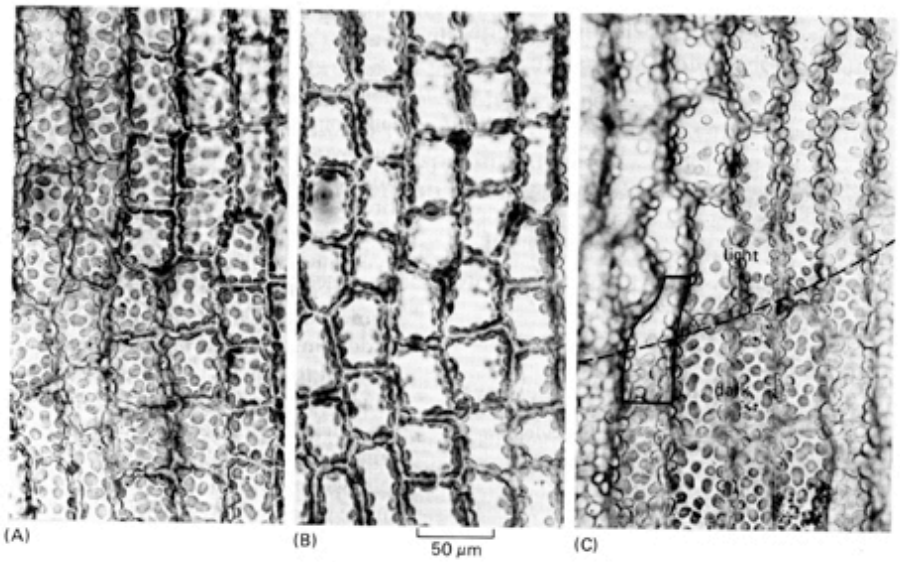

Figure 19–48 Light micrographs of leaf cells from a moss, showing how the chloroplasts move in response to light. The direction of illumination is perpendicular to the plane of the micrograph. (A) In low light, the disclike chloroplasts orient to maximize light absorption. (B) When the same area is examined after 30 minutes of bright illumination, the chloroplasts appear to have migrated, so that they are now lined up against the cell walls parallel to the incident light. (C) At the edge of the beam of light (*dotted line*), it can be seen that some chloroplasts show different orientations within a single cell (*outlined*), suggesting that the response in (B) is at the level of the individual chloroplast and not of the whole cell. (Courtesy of B. Gunning.)

A. THE LENGTH OF A PLANT CELL

B. THE WIDTH OF A PLANT CELL

for C use the following

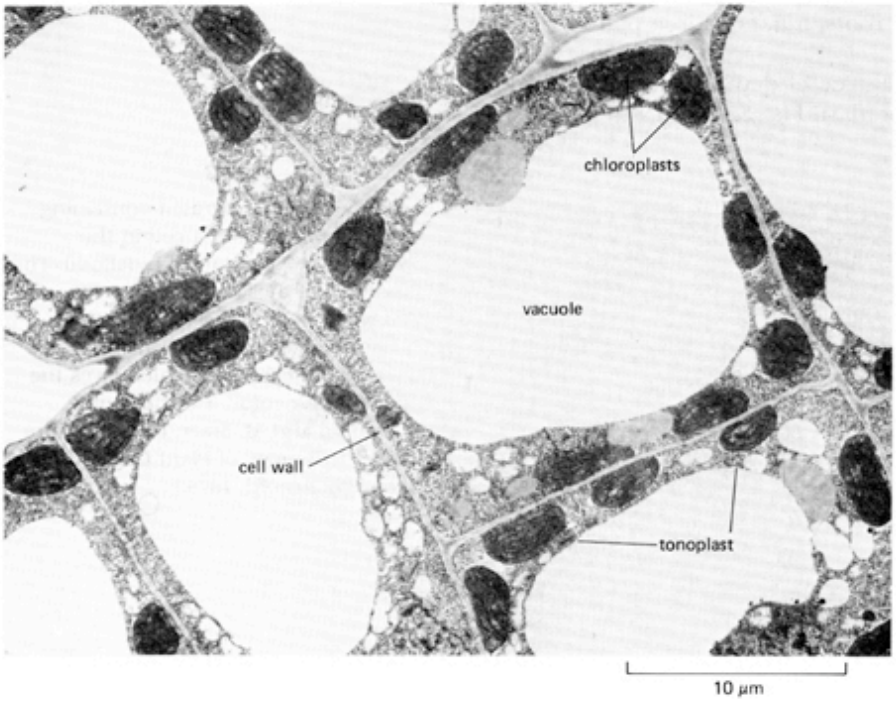

Figure 19–32 Electron micrograph of cells in a young tobacco leaf. The cytoplasm in these highly vacuolated cells is confined to a thin layer, containing numerous chloroplasts, pressed against the cell wall. (Courtesy of J. Burgess.)

C. THE DIAMETER OF THE NUCLEUS

for D use the following

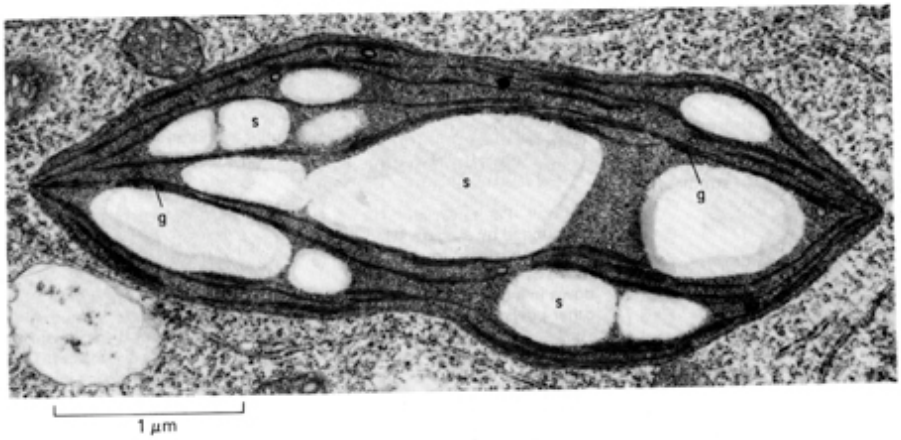

Figure 1–19 Electron micrograph of a chloroplast in a moss cell showing its extensive system of internal membranes. The flattened sacs of membrane contain chlorophyll and are arranged in stacks, or *grana* (g). This chloroplast also contains large accumulations of starch (s). (Courtesy of J. Burgess.)

D. THE DIAMETER OF THE CHLOROPLAST

for E use the following

Figure 19–2 Electron micrograph showing the primary cell wall separating two cells in the root tip of a cress plant. (From B. Gunning and M. Steer, Ultrastructure and the Biology of Plant Cells. London: Arnold, 1975.)

E. THE WIDTH OF THE CELL WALL

ANALYSIS:

IN PARAGRAPH FORM, EXPLAIN WHY YOUR SIZES IN THE SECOND PART DO NOT MATCH THE SIZES IN PART 1.

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