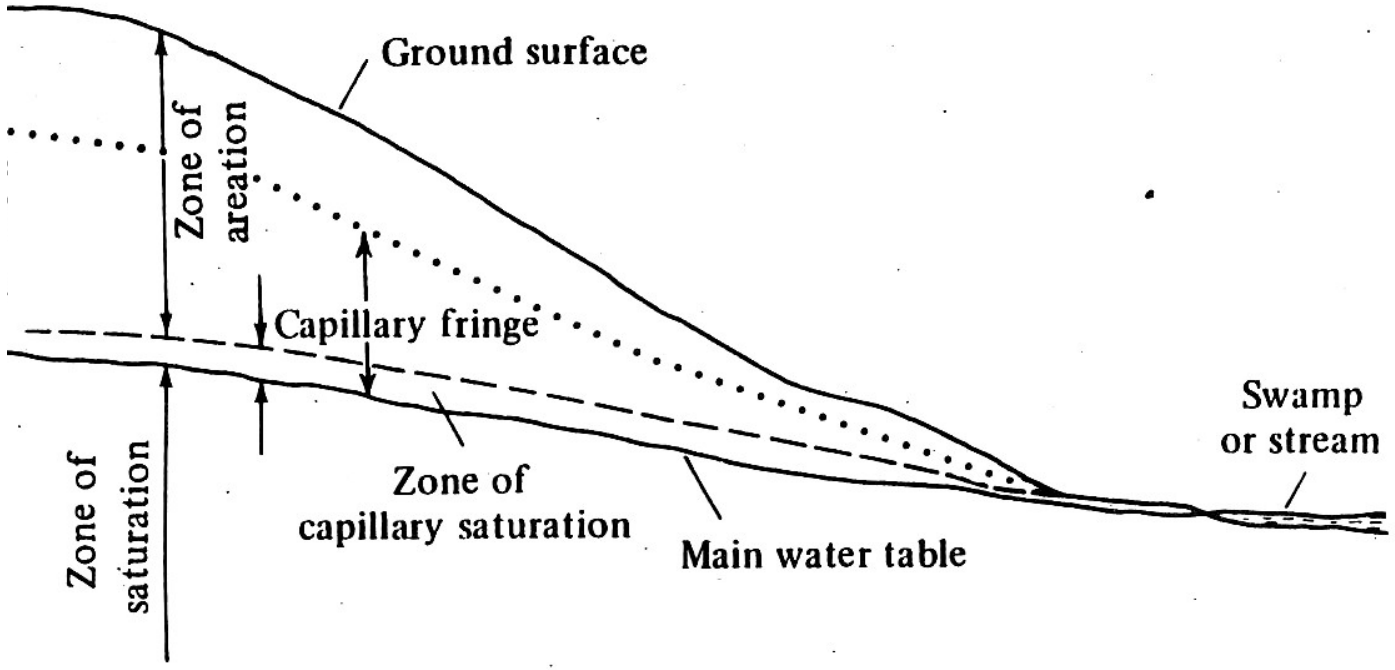
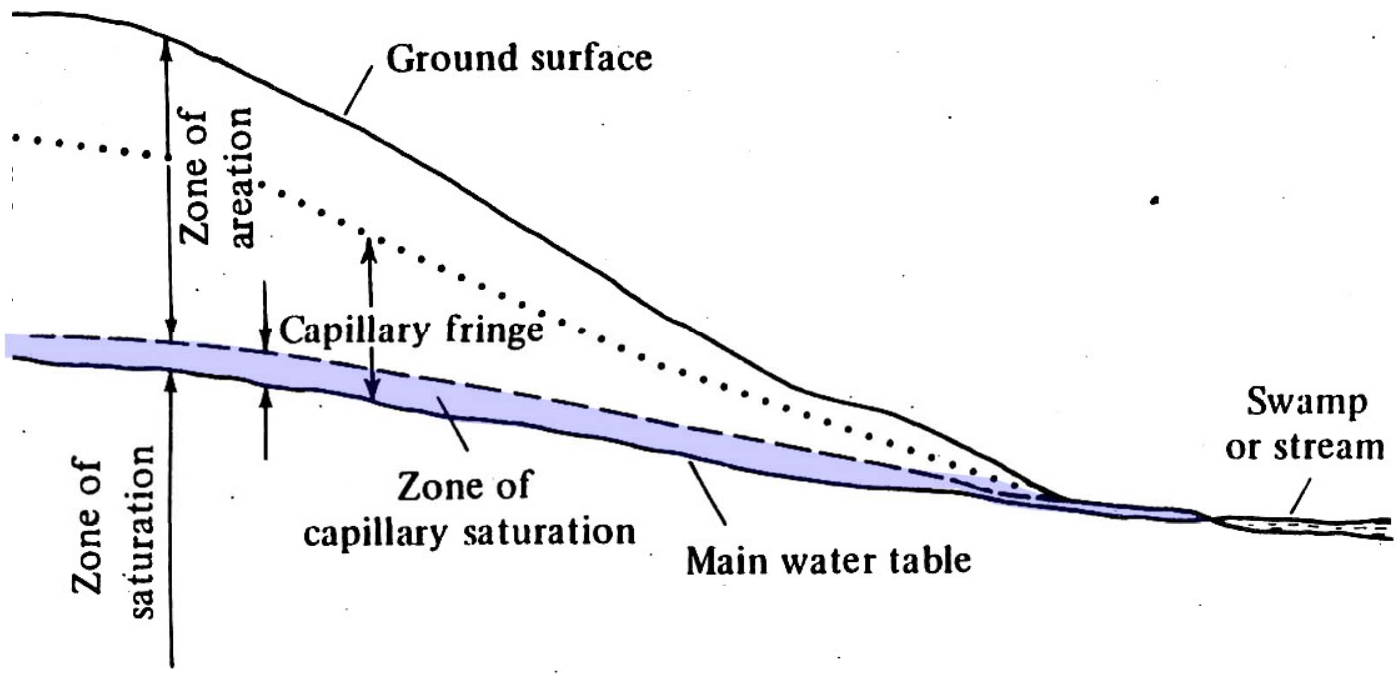
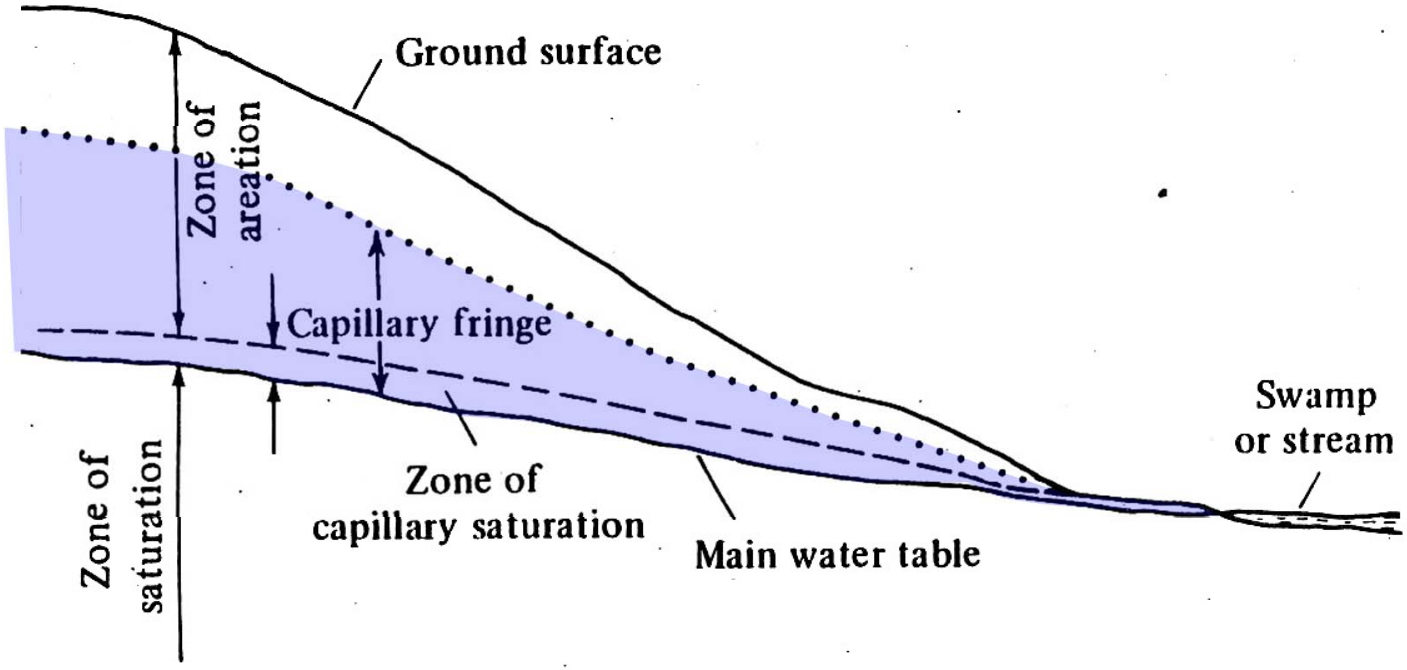
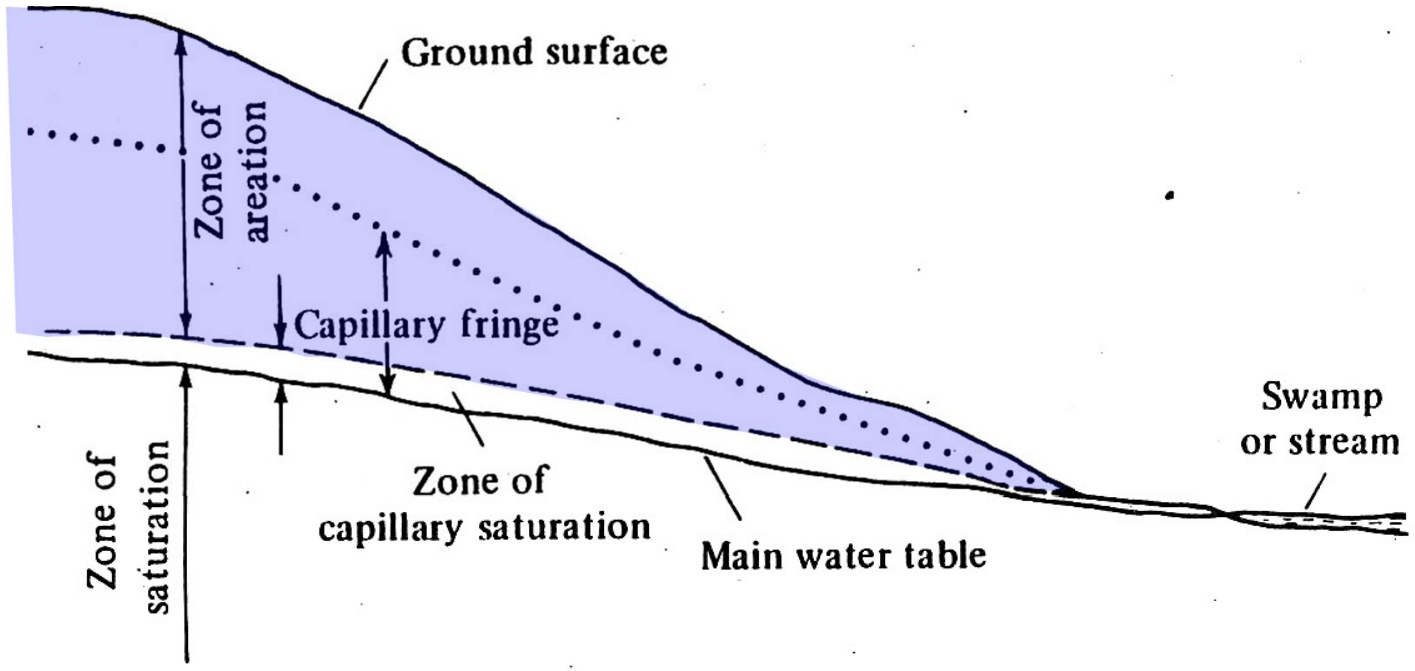
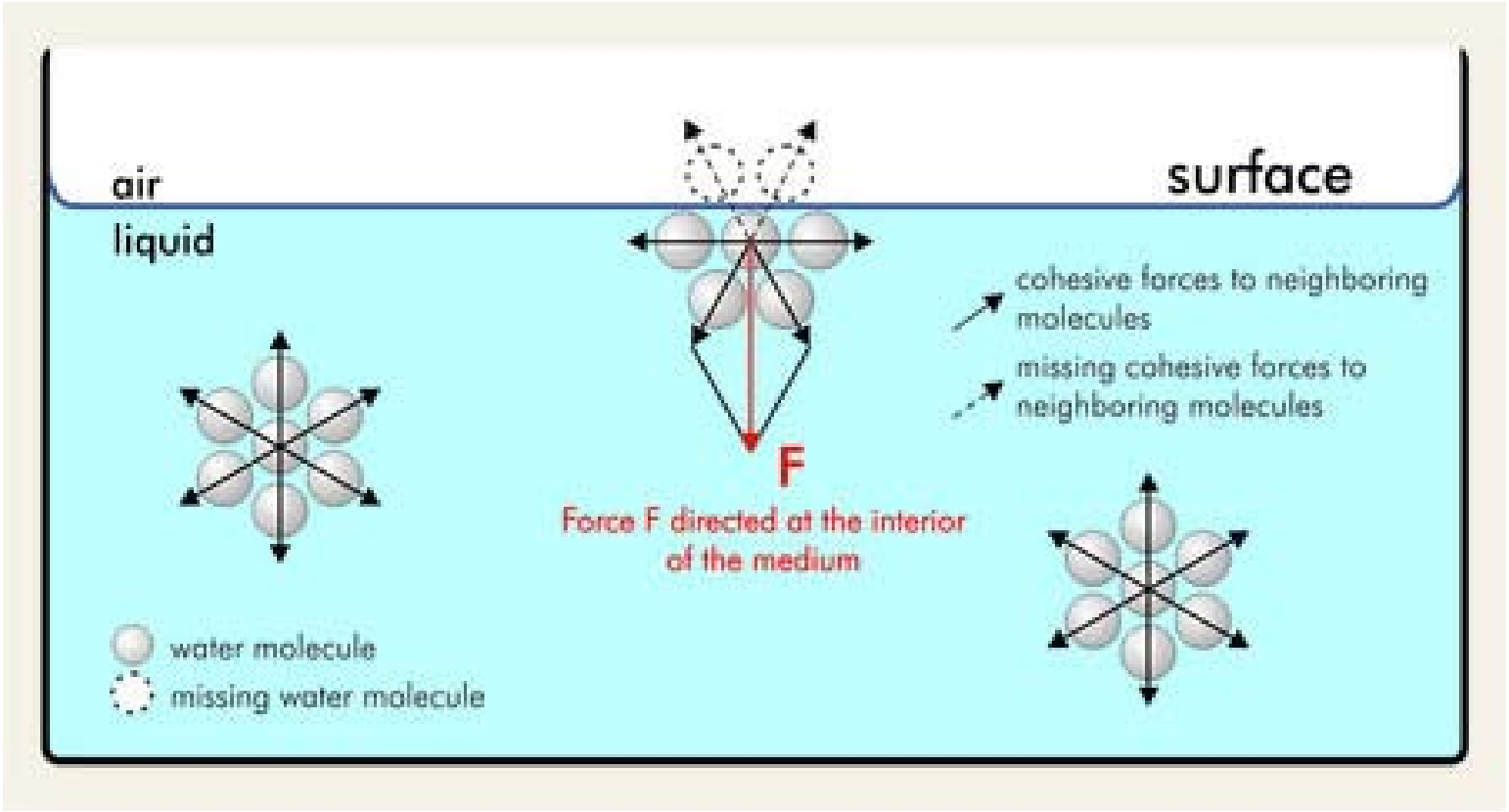
Capillarity


Ground surface
Zone of areation
Capillary fringe
Zone of saturation
Zone of capillary saturation
Main water table
Swamp or stream


Ground surface
Zone of areation
Capillary fringe
Zone of saturation
Zone of capillary saturation
Main water table
Swamp or stream


Ground surface
Zone of areation
Capillary fringe
Zone of saturation
Zone of capillary saturation
Main water table
Swamp or stream


Ground surface
Zone of areation
Capillary fringe
Swamp or stream
Zone of saturation
Zone of capillary saturation
Main water table



http://www.sita-process.com/information-service/process-parameter-surface-tension/overview/

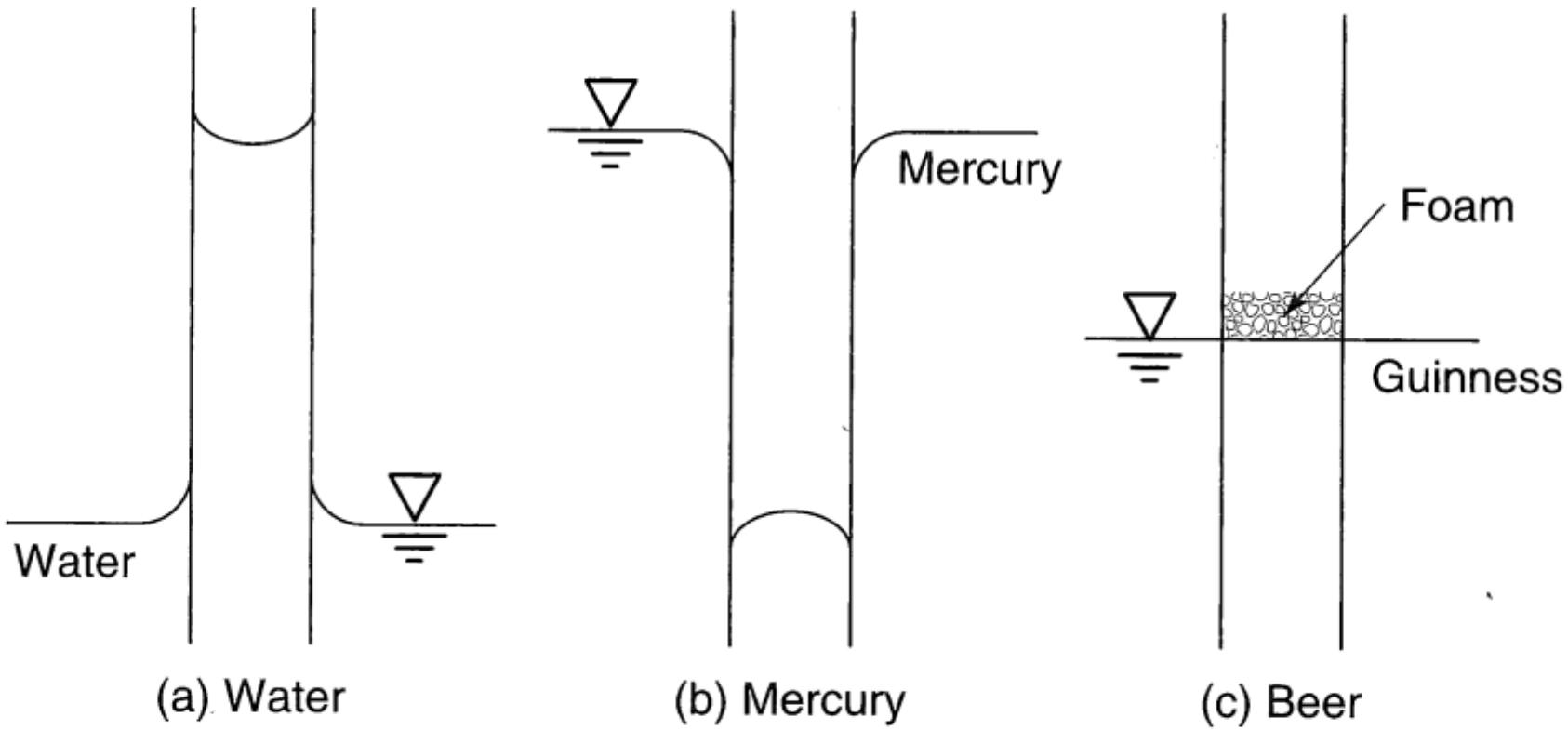


FIGURE 6.1 Menisci in glass tubes in (a) water, (b) mercury, and (c) beer.

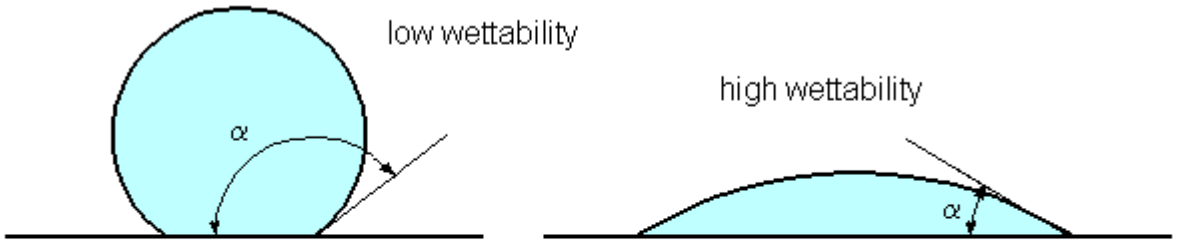


Figure 10 - The contact angle of a liquid with a solid is used as wettability index. For $\alpha < 90°$ the liquid wet the wall (eg: water on glass), for $\alpha > 90°$ the liquid does not wet the wall (eg: mercury on glass). If $\alpha = 0°$ the liquid perfectly wet the wall.

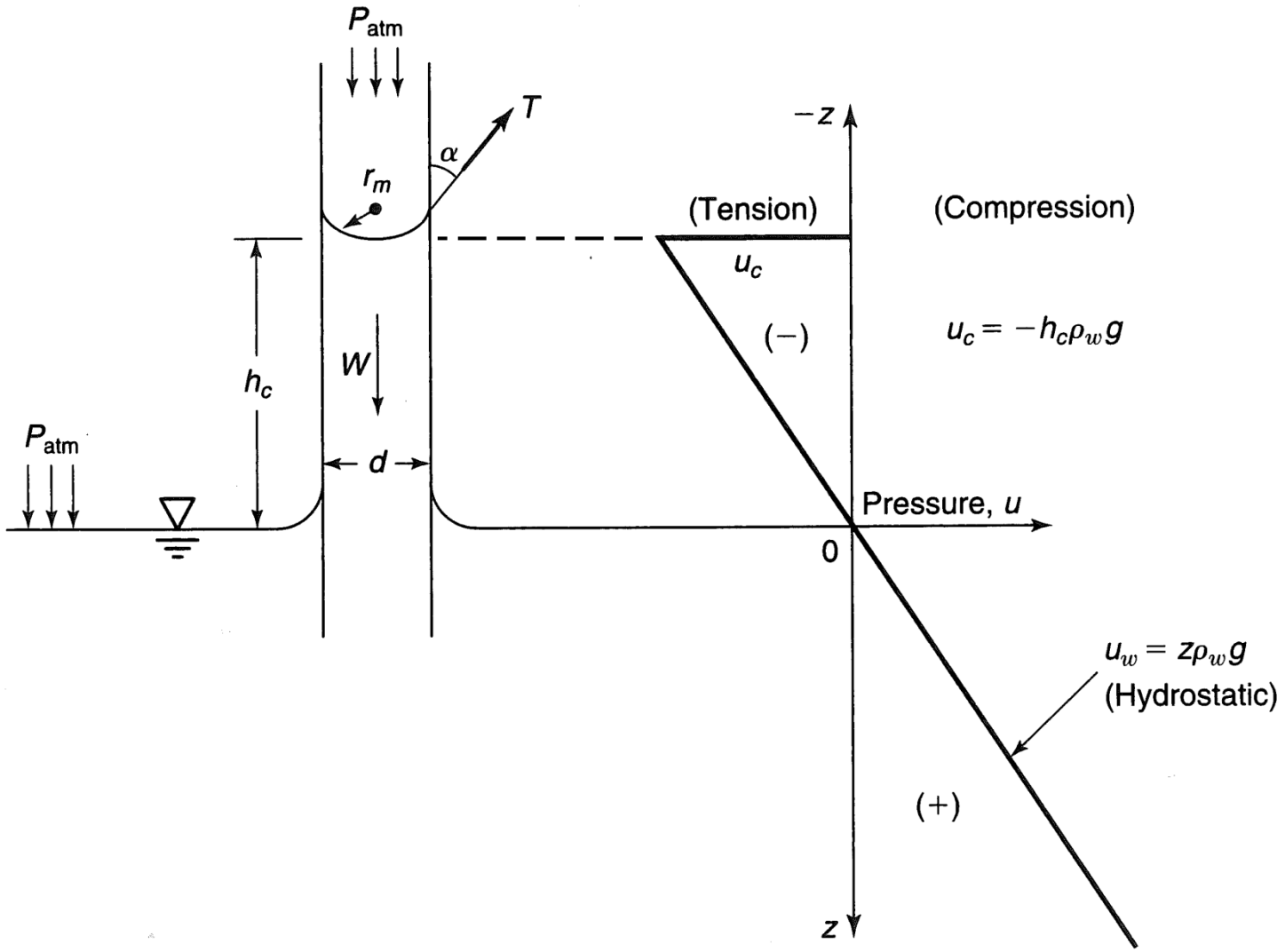


FIGURE 6.2 Meniscus geometry of capillary rise of water in a glass tube.

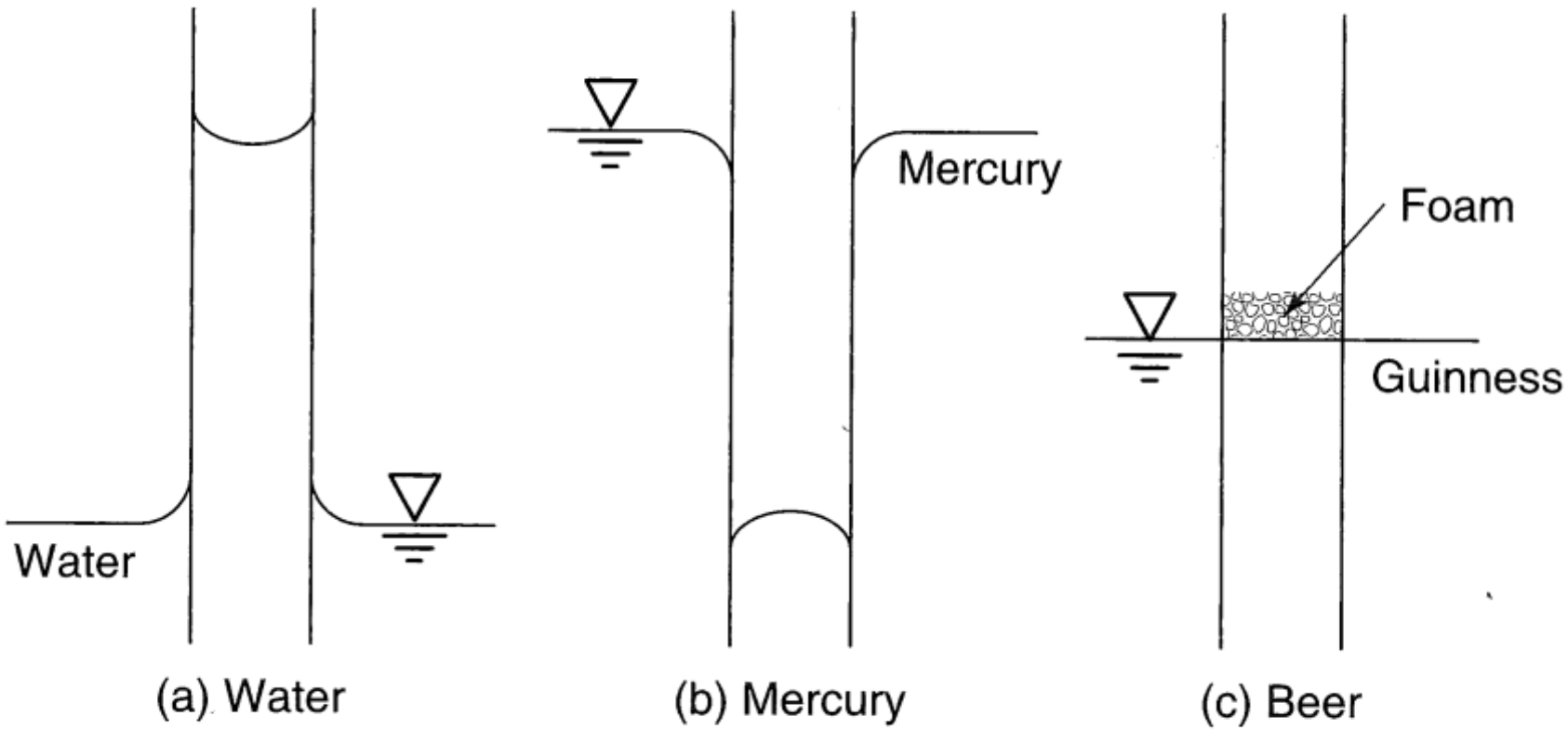


FIGURE 6.1 Menisci in glass tubes in (a) water, (b) mercury, and (c) beer.

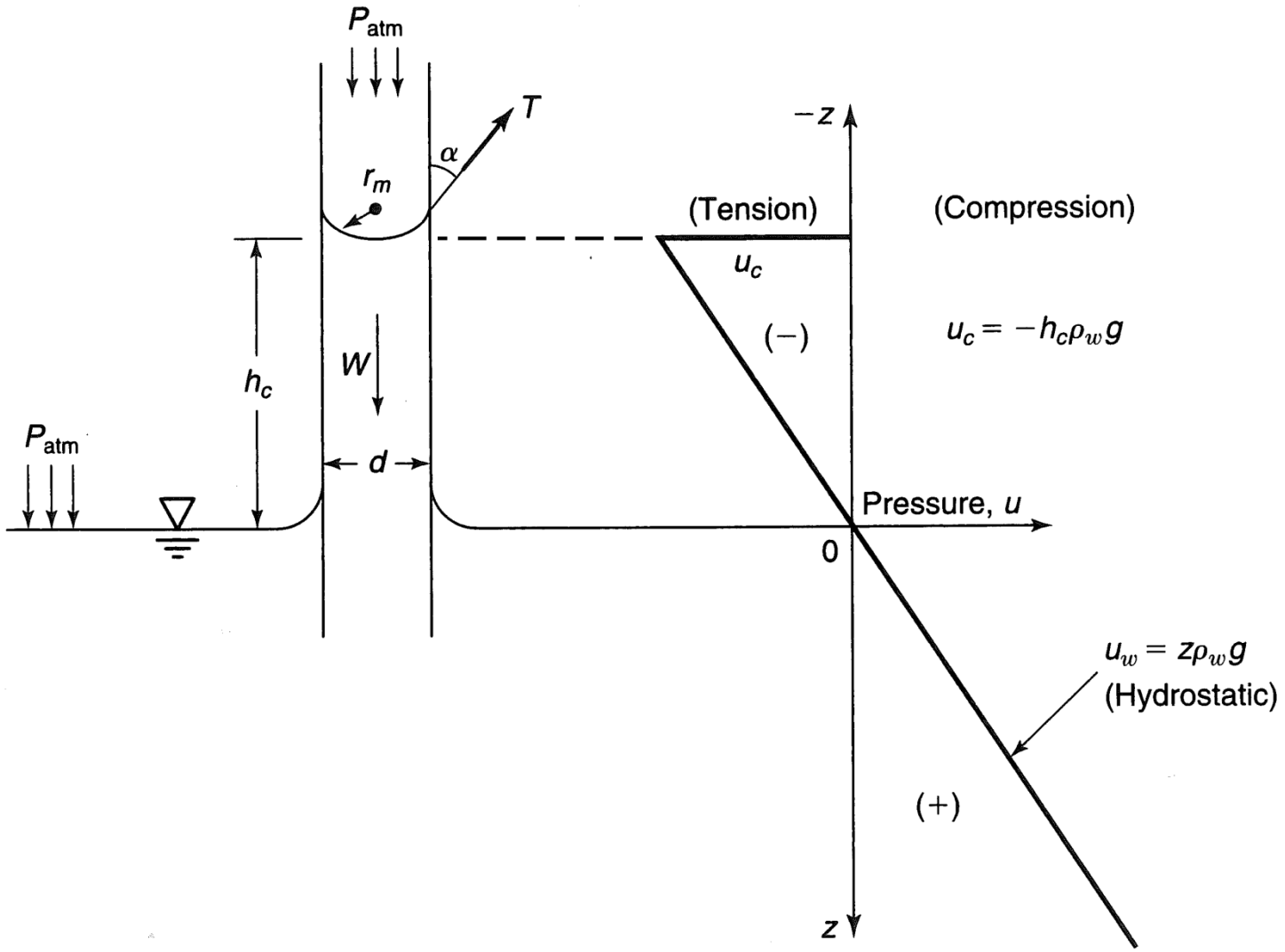
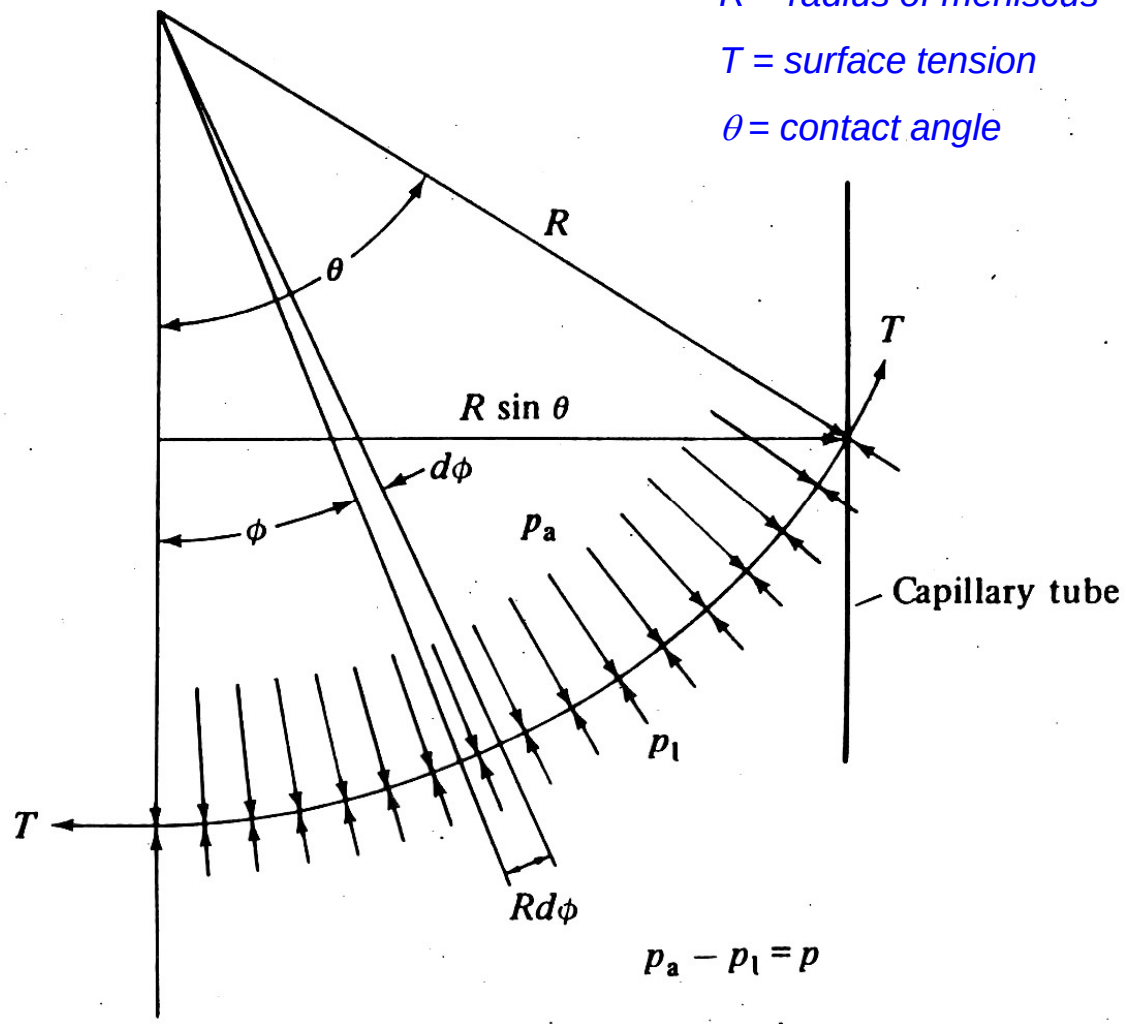


FIGURE 6.2 Meniscus geometry of capillary rise of water in a glass tube.

R = radius of meniscus

T = surface tension

θ = contact angle



$$p_a - p_l = p$$

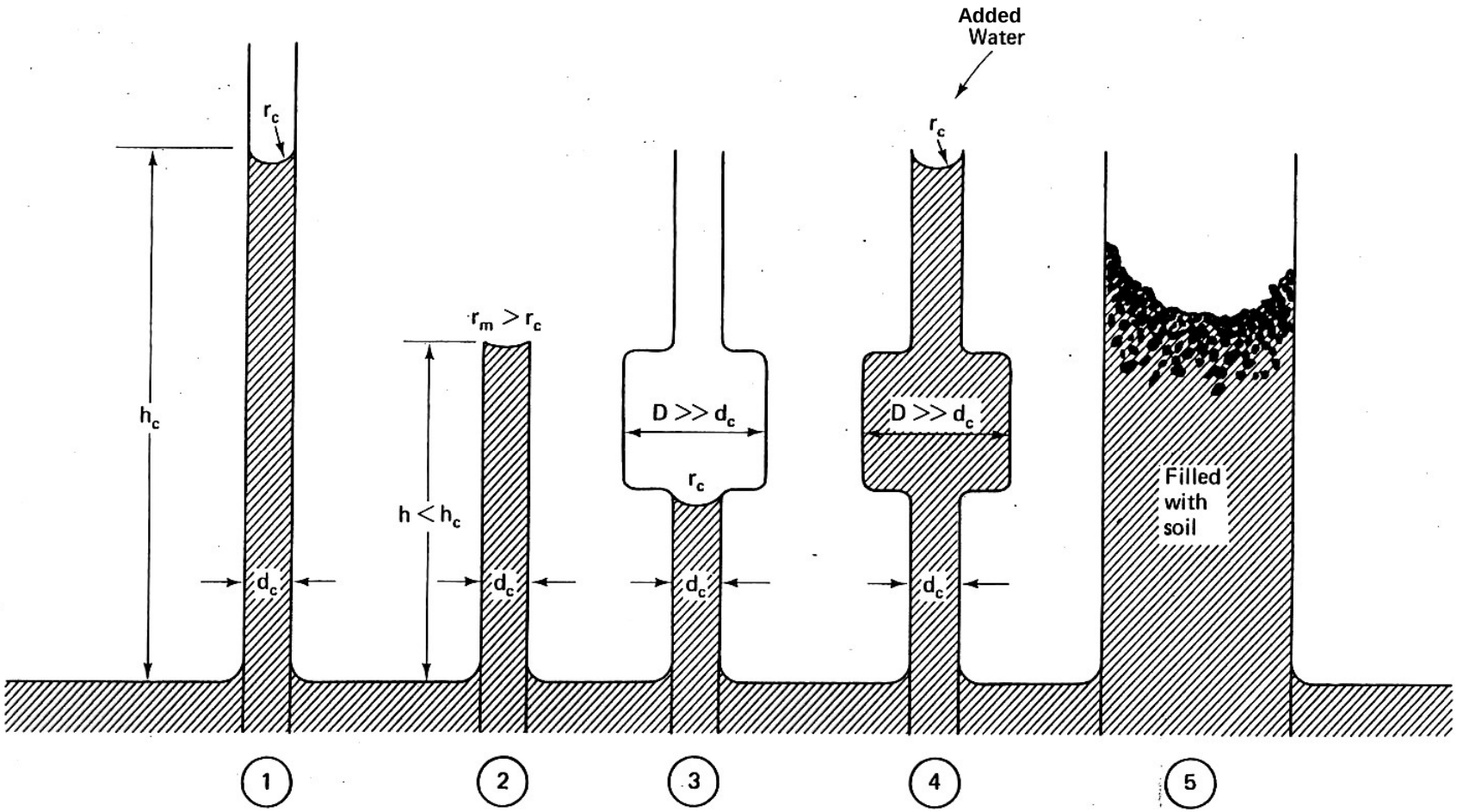


Fig. 6.4 Capillary rise in tubes of different shapes (after Taylor, 1948).

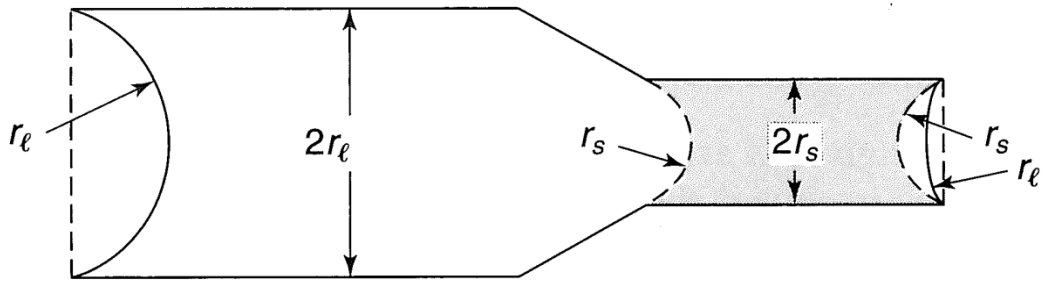


FIGURE 6.6 Capillarity in a tube of unequal radii (after A. Casagrande).

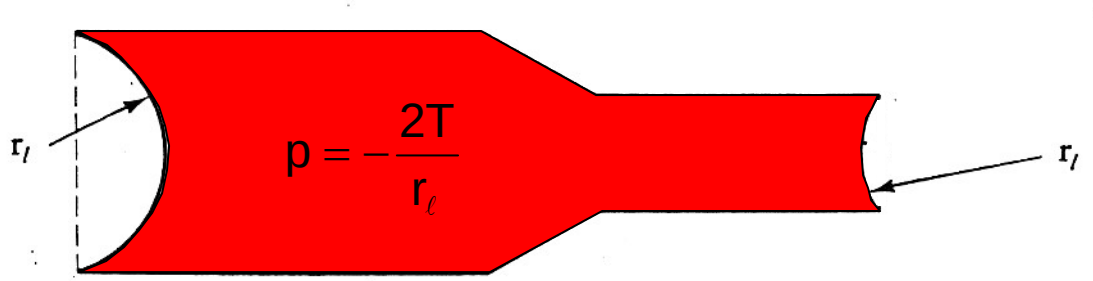


Fig. 6.9 Capillarity in a tube of unequal radii (after A. Casagrande).

(Holtz & Kovacs, *An Introduction to Geotechnical Engineering*, 1981)

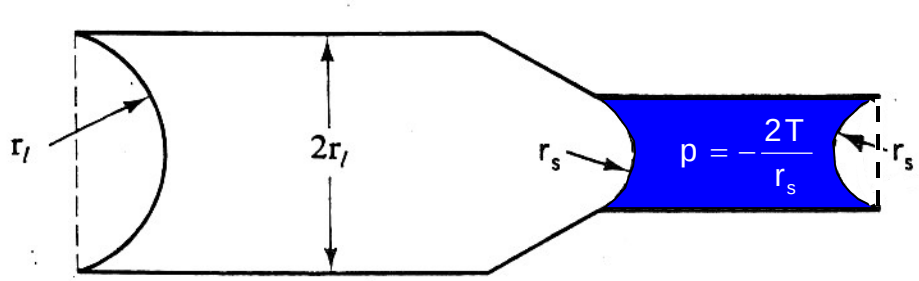


Fig. 6.9 Capillarity in a tube of unequal radii (after A. Casagrande).

(Holtz & Kovacs, *An Introduction to Geotechnical Engineering*, 1981)

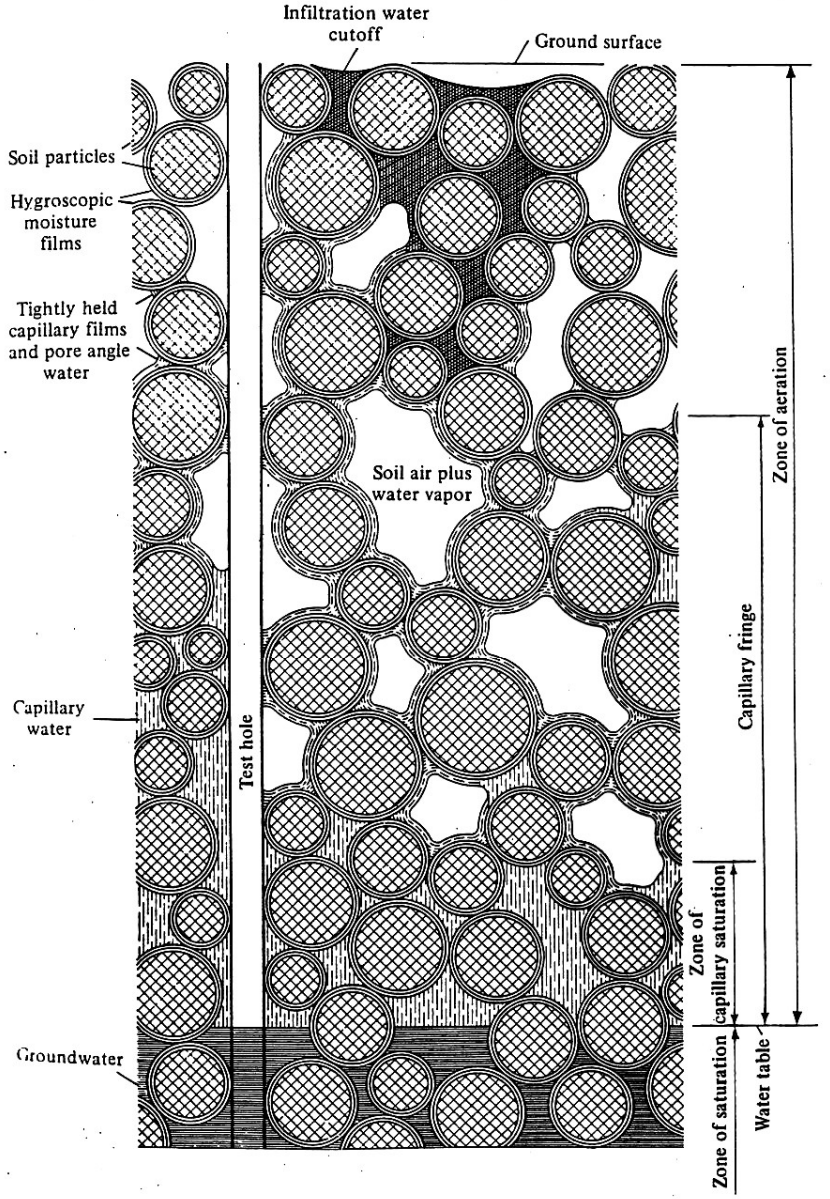


Figure 9.2 Conventional illustration of soil-water distribution (adapted from Zunker). Note that soil above the groundwater table may be saturated due to capillary action.

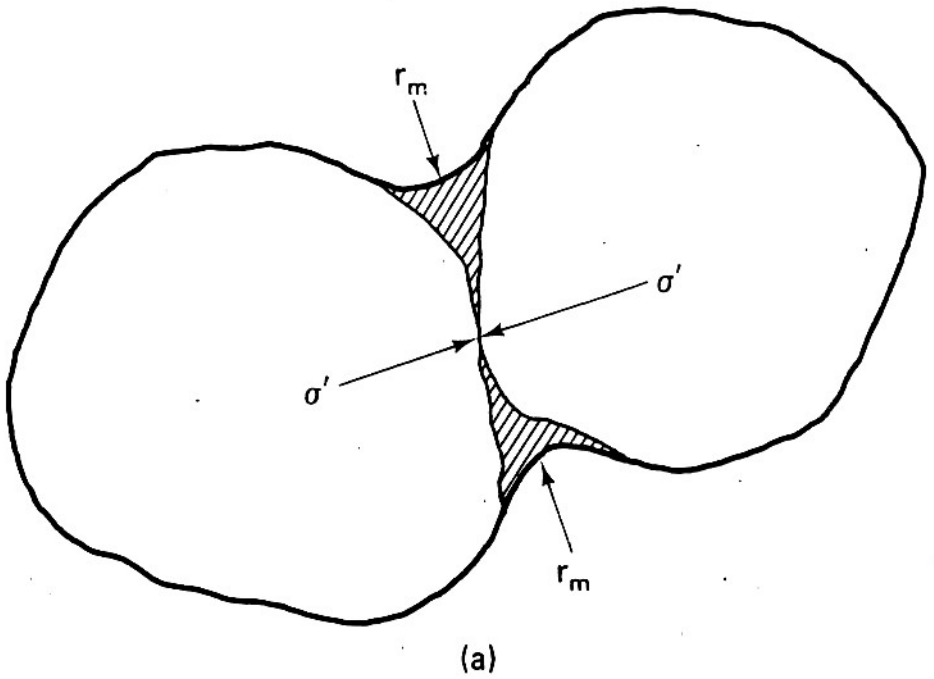
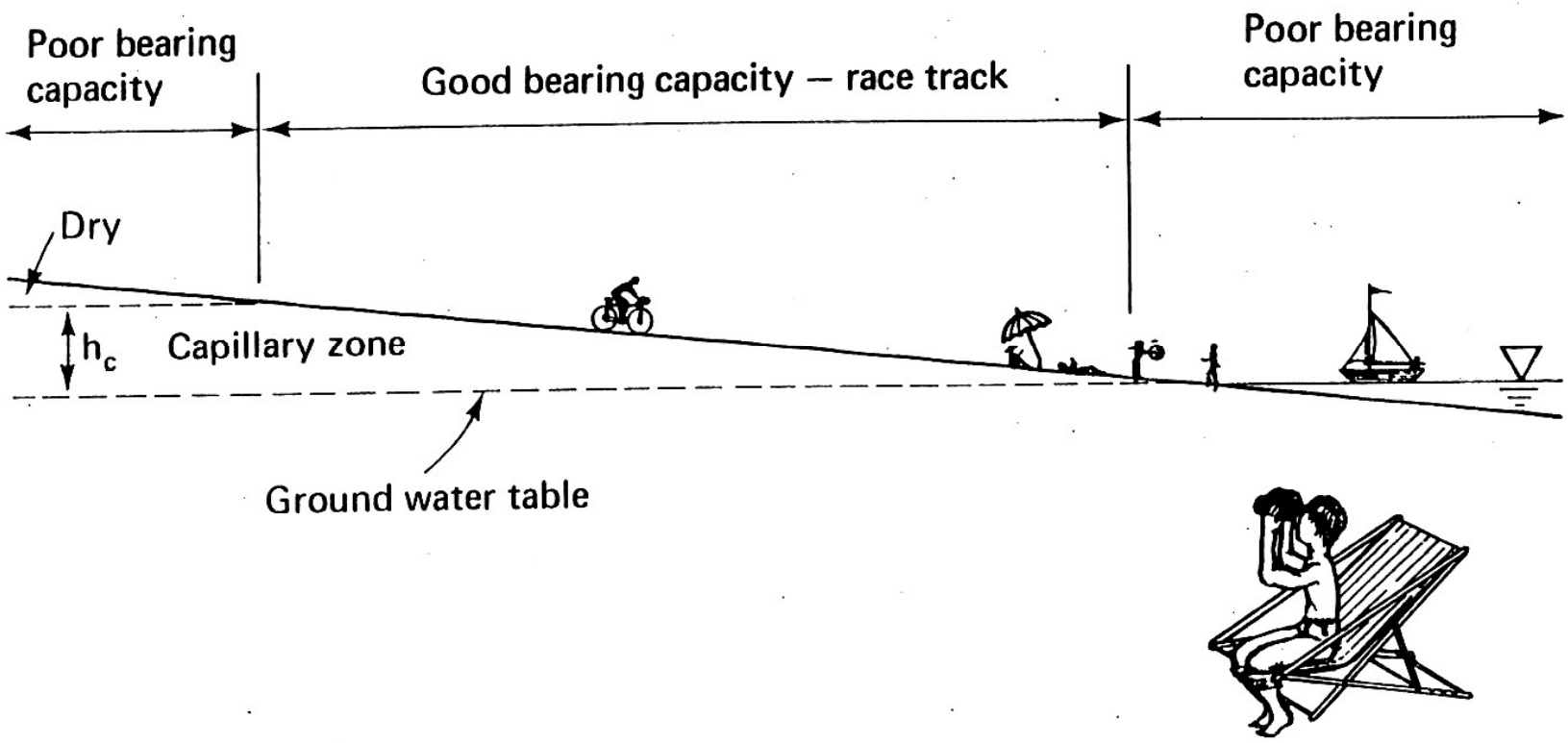
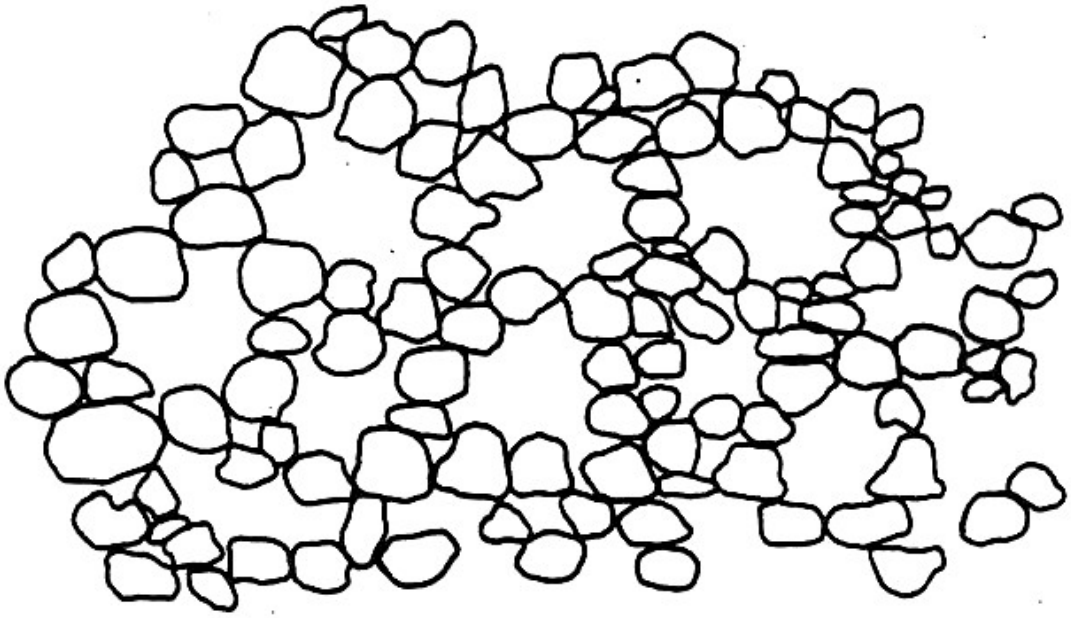


Fig. 6.5 (a) Two soil grains held together by a capillary film.

(Holtz & Kovacs, *An Introduction to Geotechnical Engineering*, 1981)



(Holtz & Kovacs, *An Introduction to Geotechnical Engineering*, 1981)



(Holtz & Kovacs, *An Introduction to Geotechnical Engineering*, 1981)

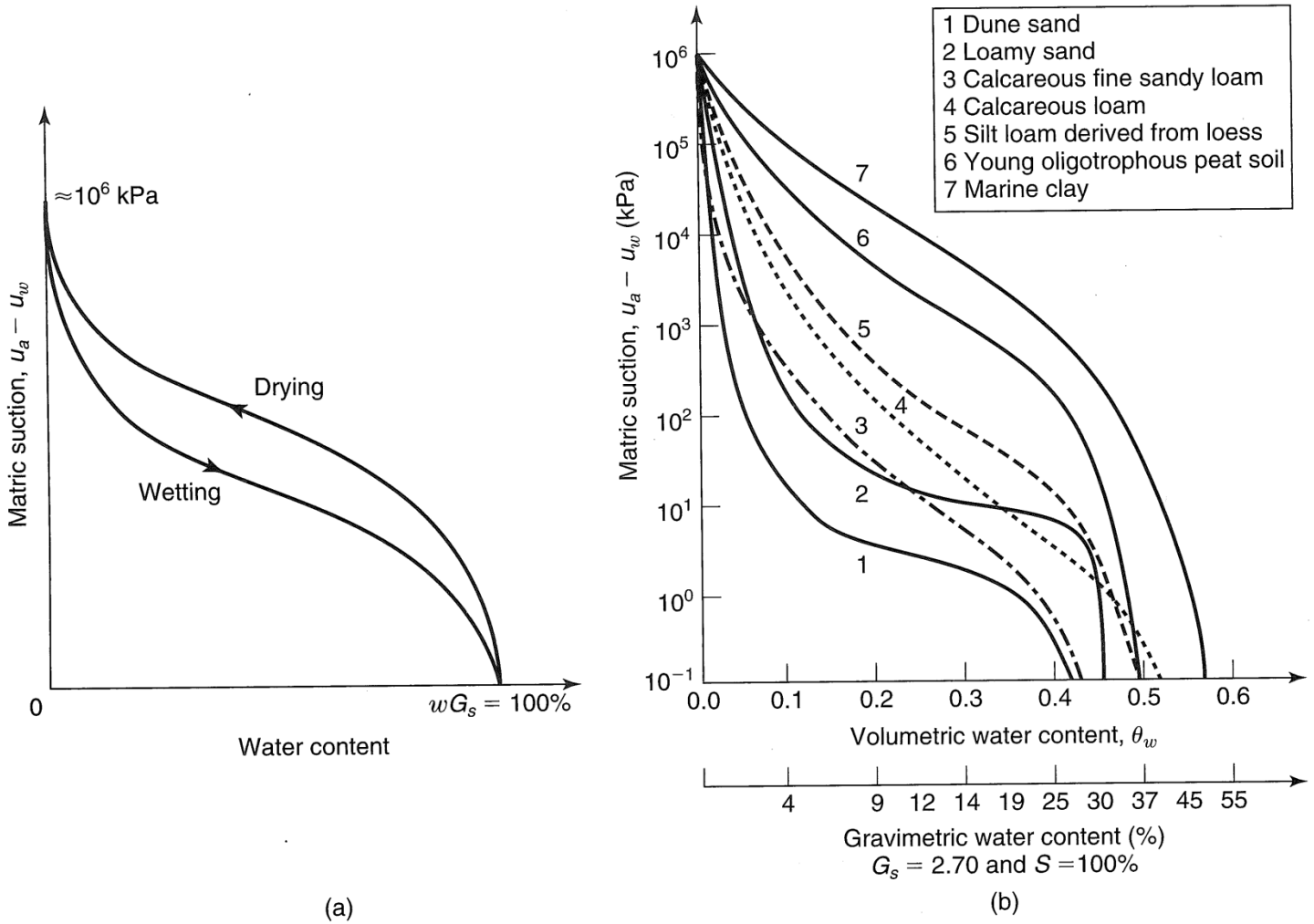


FIGURE 6.8 Soil-water characteristic curve—matric suction versus water content: (a) schematic for a plastic clay showing hysteresis due to wetting and drying (after Blight, 1980); (b) curves for different soils (after Koorevaar et al., 1983, as cited by Mitchell and Soga, 2005).