

Kuliah 2

Complications caused by the surface area/volume ratio (Haldane, 1932)

1. body size and water loss (Remmert, 1981)
2. body size and heat loss (Heinrich, 1981; Henwood, 1975)
 - A. physiological adjustments (Storey and Storey, 1988)
 - i). freezing tolerance
 - ii). cryoprotectants and supercooling (Lee and Baust, 1982; Bale, 1987)

B. behavioral adjustments—dragonflies as a paradigm

i). endogenous heat production (May, 1979; Heinrich and Casey, 1976)

ii). shuttle movements (May, 1977)

iii). body orientation/posturing (Tracy et al., 1979)

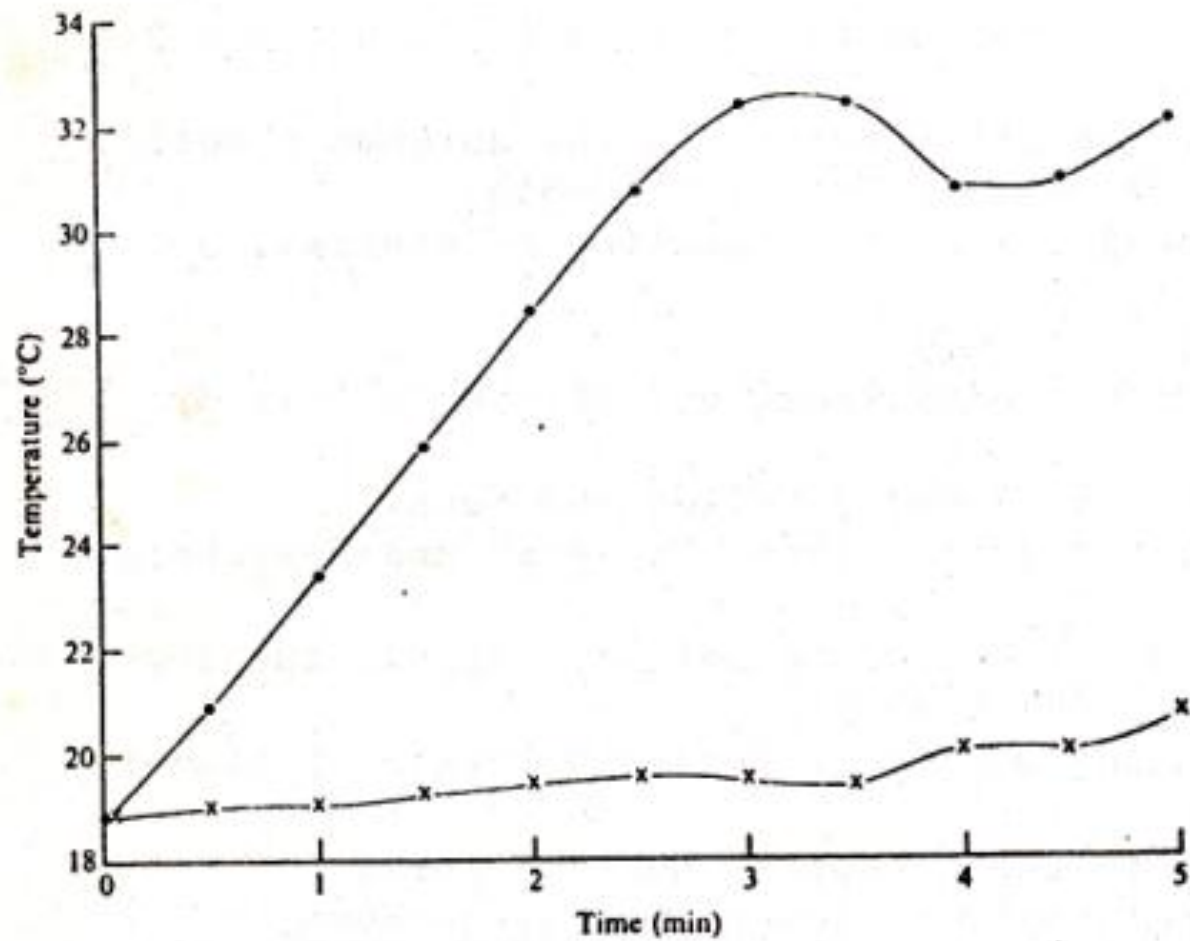
iv). Morphology (O'Farrell, 1963; Sternburg, 1987)

3. body size and surface phenomena (Gould, 1974)

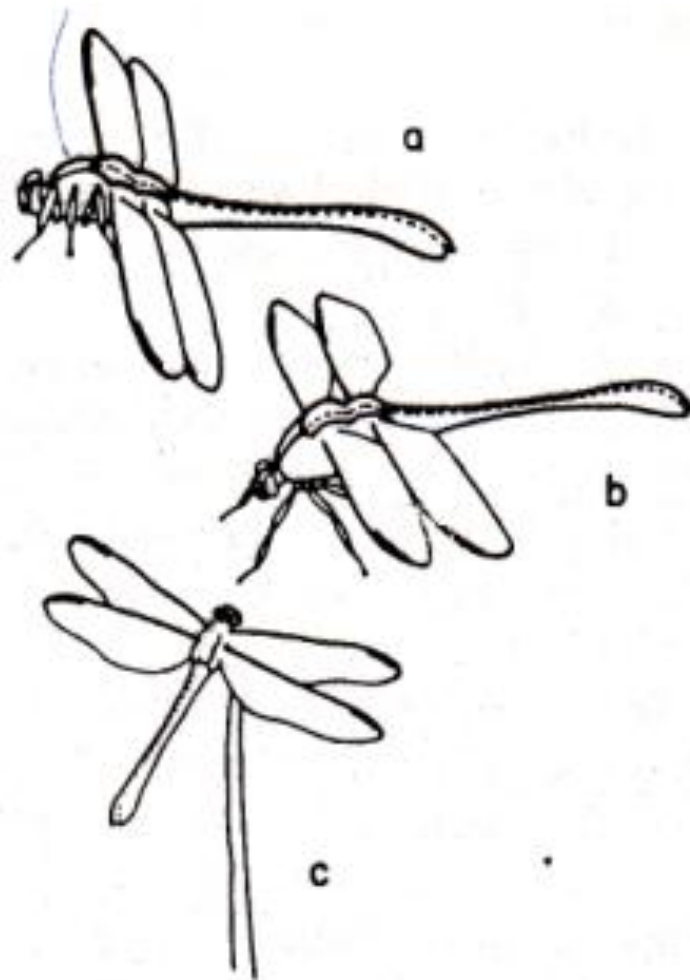
i). gravity

ii). kinetic energy

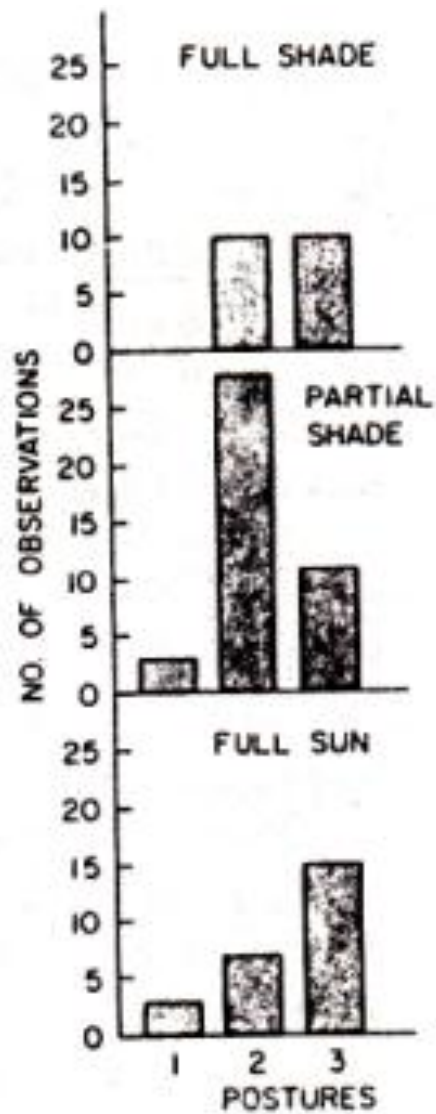
iii). surface tension and adhesion



Heinrich & Casey, 1978



Tracy et al., 1979



Tracy et al.,
1979