Henry Darcy (1803-1858)

Daniel Bernoulli (1700-1782)

Importance of groundwater

- effluent seepage

- agriculture (crops)

- drinking water

- industry

- biodiversity

Groundwater needs to be protected from pollution and over-exploitation.

Images: Wikipedia & https://www.skybrary.aero/articles/bernoullis-principle

By law of nature, water flows from a higher to a lower
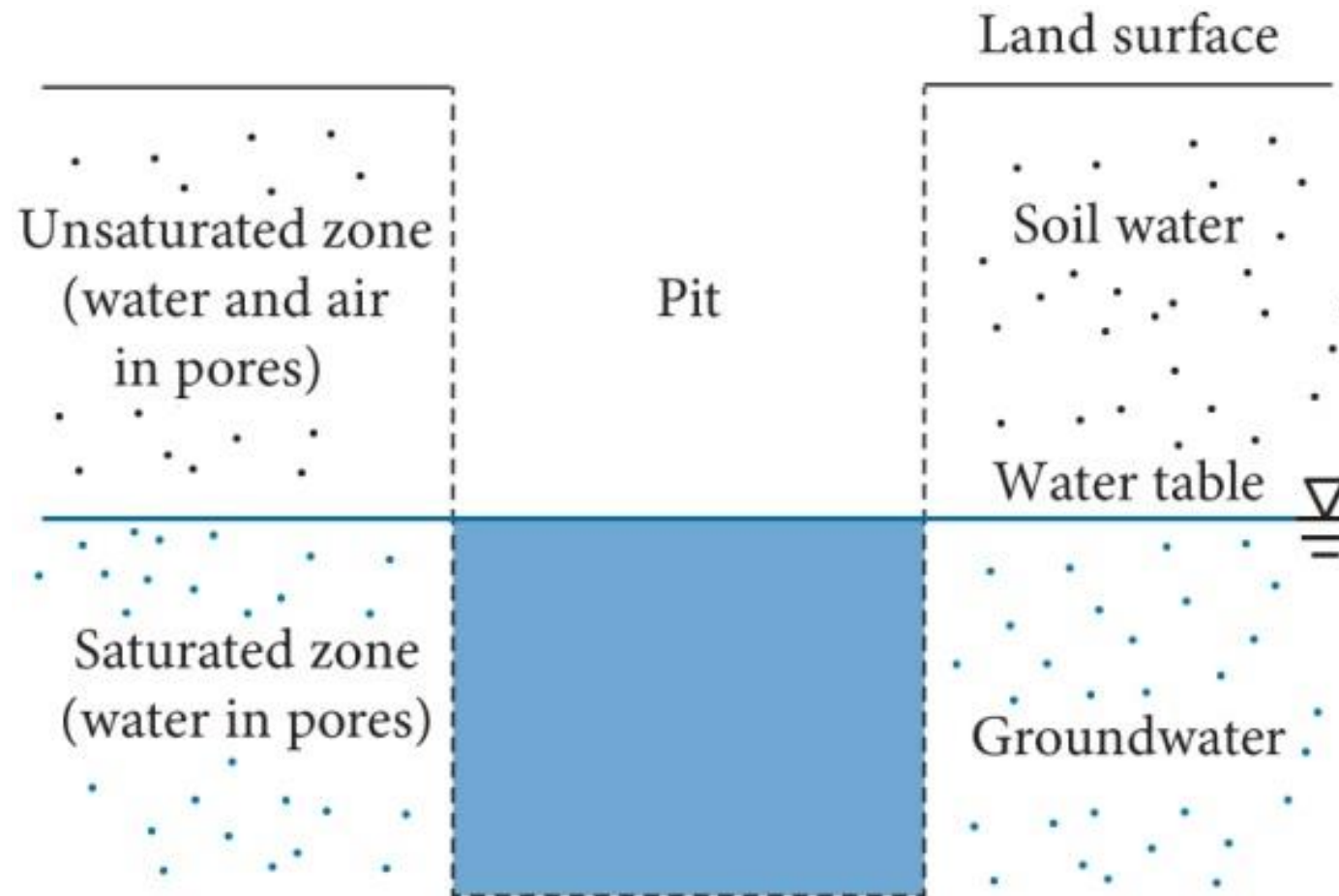
A. elevation

B. energy

C. pressure

D. All of the above options are true

Water table

Model between two glass plates

^

75 cm high

⇒ 80 m

By law of nature, water flows from a higher to a lower ENERGY!   (answer B)
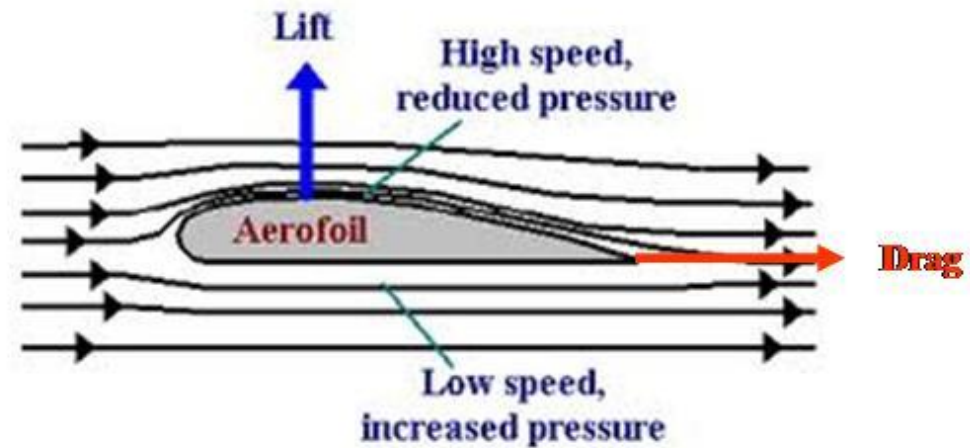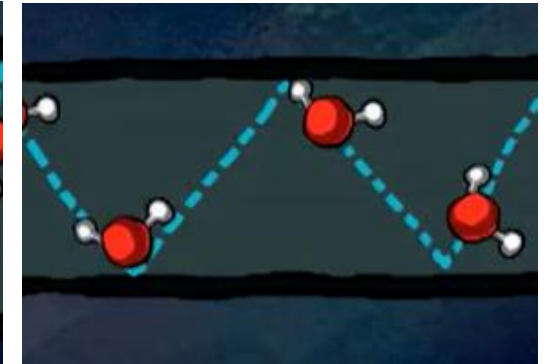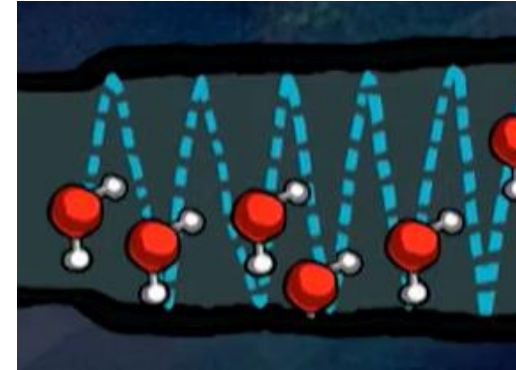
v

<   1.5 m wide ⇒ 13 km   >

Daniel Bernoulli (1700-1782)

DANIEL BERNOVLLIVS

Source: Wikipedia

https://www.skybrary.aero/articles/bernoullis-principle
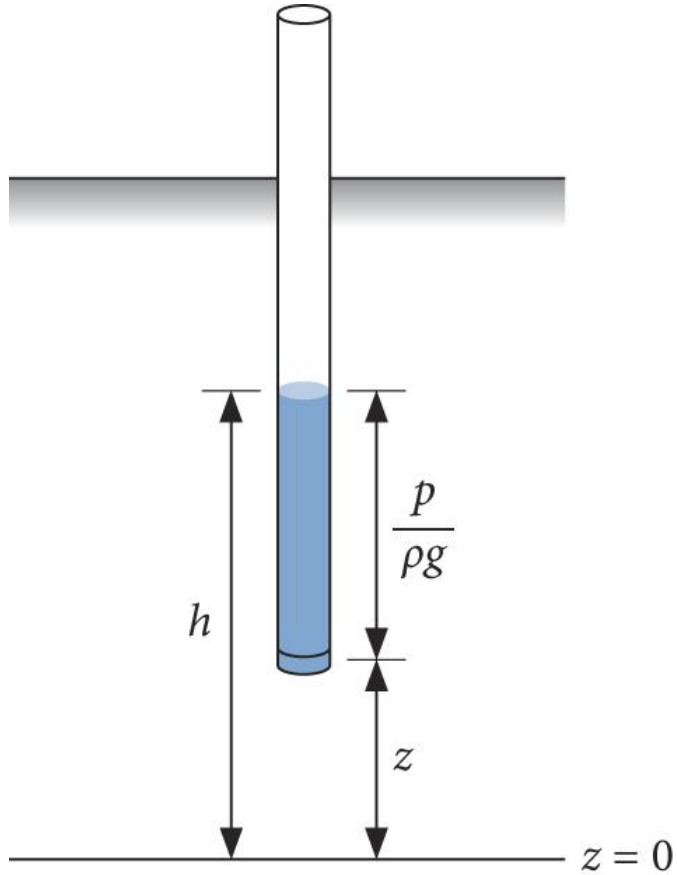
Source: Wikipedia

$$\tfrac{1}{2}mv^2 + mgz + pV = \text{constant}$$

$$mgz + pV = \text{constant}$$

$$\rho g z + p = \text{constant}$$

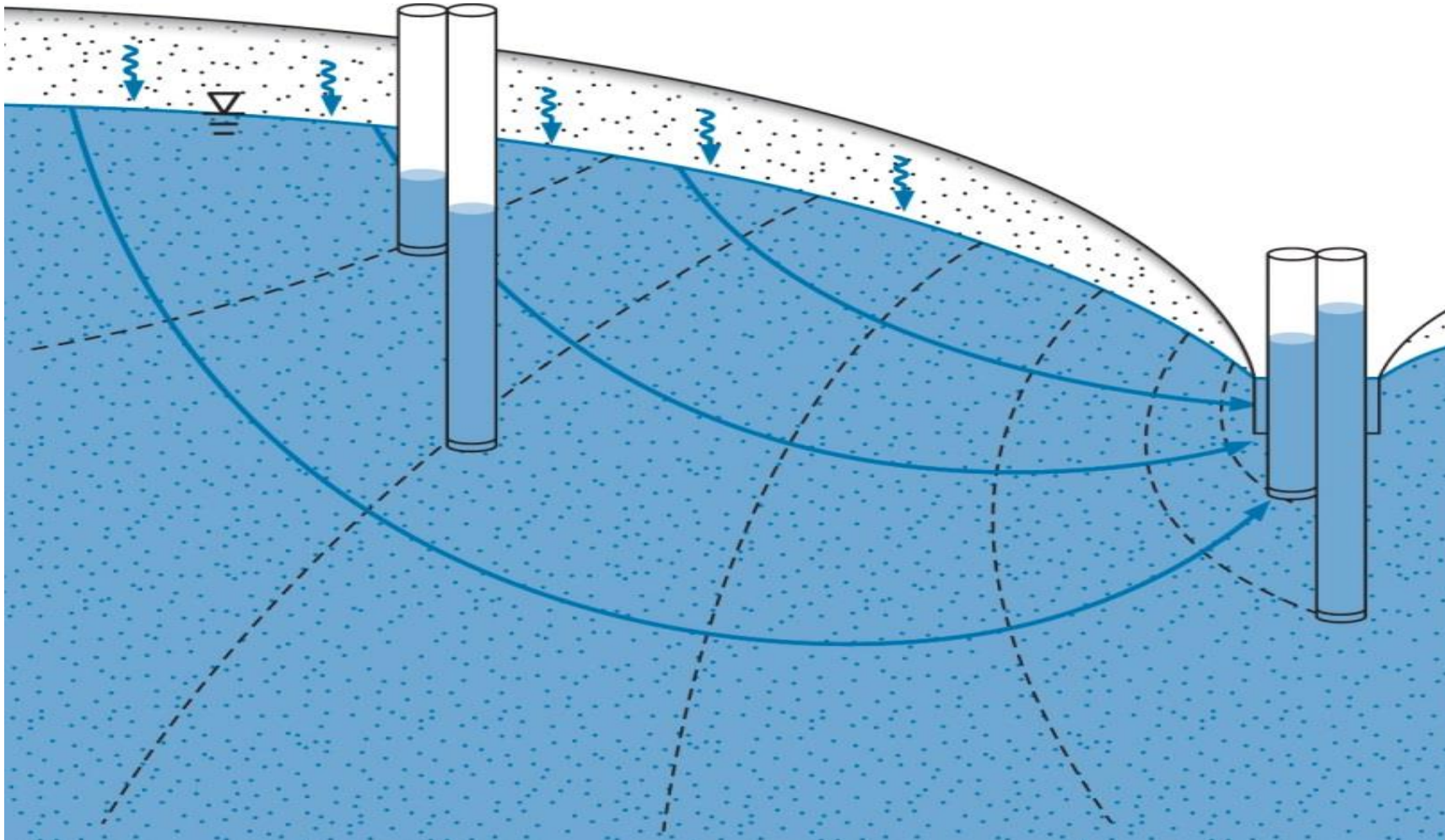$$z + \frac{p}{\rho g} = \text{constant}$$

piezometer

$$h = z + \frac{p}{\rho g}$$

h = hydraulic head (m)

z = elevation head (m)

$\dfrac{p}{\rho g}$ = pressure head (m)

Groundwater flow is in the direction of the lower hydraulic head!