Archimedes' principle

CE319F (Fall 2003)
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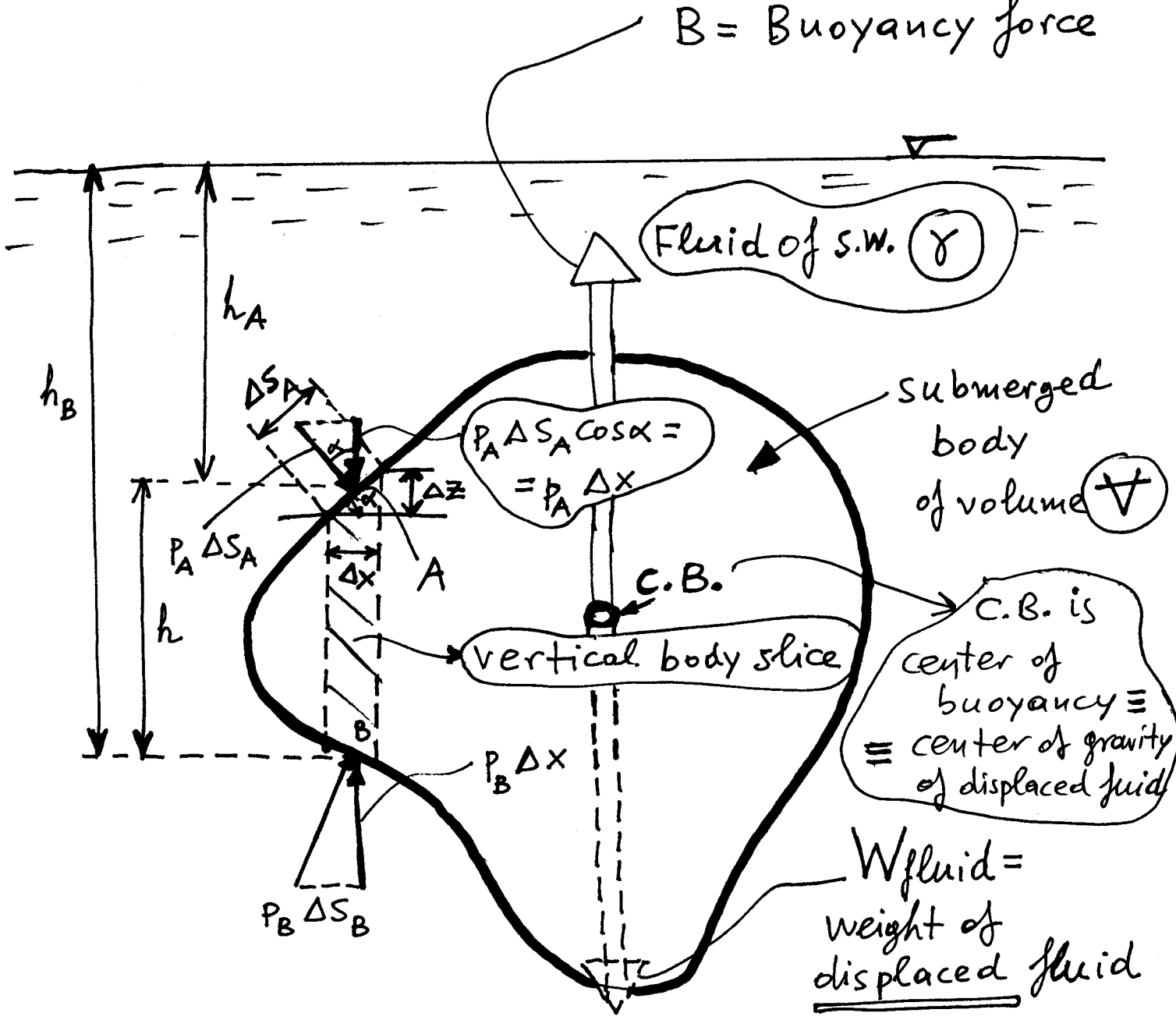

- Horizontal force: should be equal to zero.
  Why?
- Vertical force: Consider vertical slice above.
  At the boundaries of slice in contact with fluid we have $P_B \Delta x - P_A \Delta x = (P_B - P_A)\Delta x = \gamma h \Delta x =$ $\gamma \times$ (volume of slice) (pointing up). Integrate to get total vertical force $= \gamma \forall \Rightarrow$ $\boxed{B = \gamma \cdot \forall} = \boxed{W_{fluid}}$