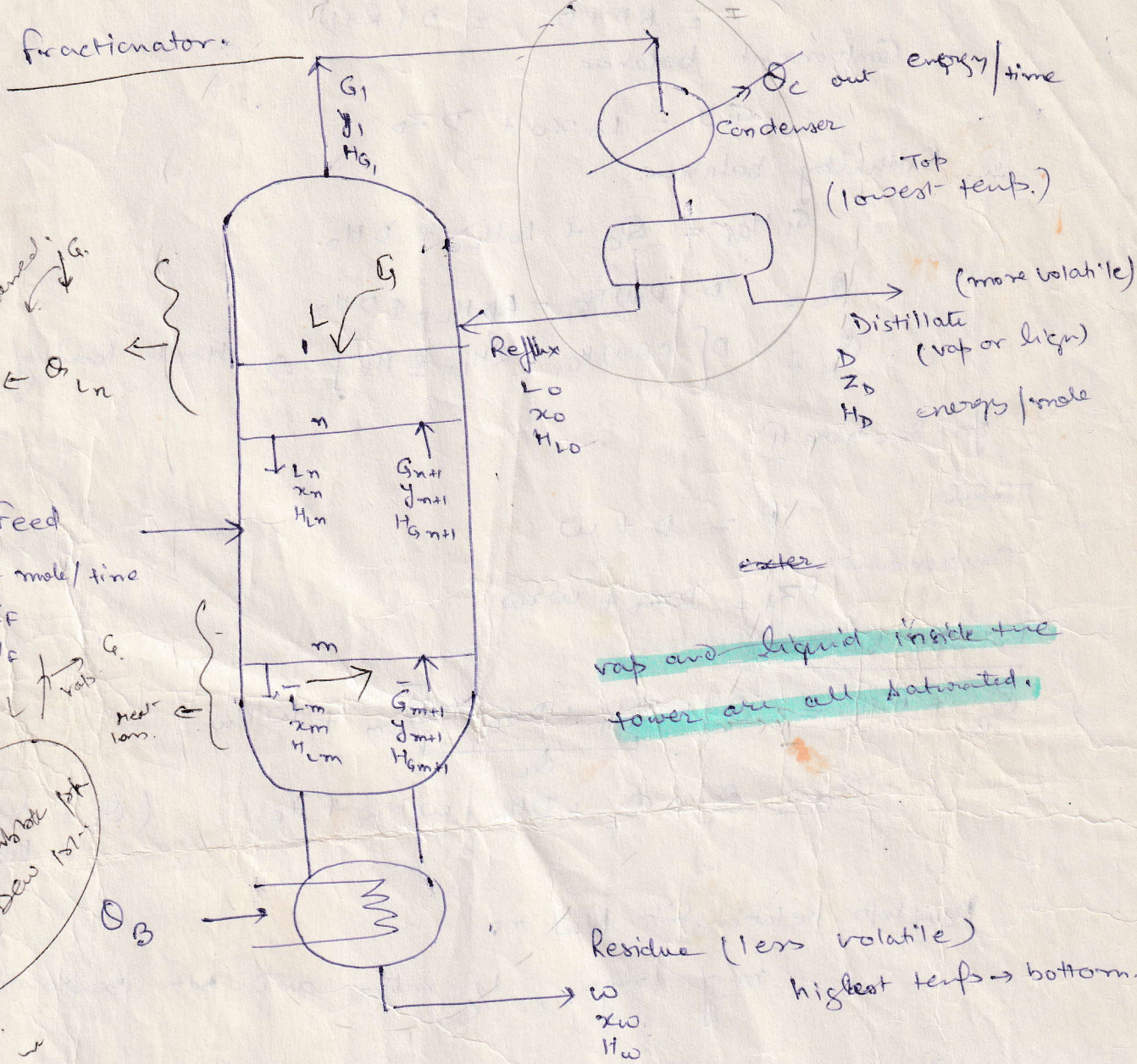


Continuous Rectification - Binary sys. \Rightarrow multi stage counter current distillation operation.
or fractionation.



Section above the feed \Rightarrow absorption, enriching or rectifying
washing of gas is done by condensed vaps issuing from the top

Section below the feed \Rightarrow stripping or exhausting
inside tower vap. and liq. are always at their bubble pt.
and dew pt.

external Reflux ratio. (commonly used)

$$R = L_0 / D$$

Internal R.R. = L/G

L/F is also used for certain Reflux correlations

for section I

Total material balance

$$G_1 = L_0 + D \\ = RD + D = D(R+1)$$

Component balance

$$G_1 y_1 = L_0 x_0 + D z_1$$

Enthalpy balance

$$G_1 H_{G1} = Q_c + L_0 H_{L0} + D H_D$$

$$Q_c = D(R+1)H_{G1} - RD H_{L0} - D H_D$$

$$Q_c = D \left[(R+1)H_{G1} - R H_{L0} - H_D \right] \Rightarrow \text{Heat load of Condenser}$$

for section II

Total

$$F = D + W$$

Component

$$F z_1 = D z_D + W x_W$$

Enthalpy balance

$$Q_B + F H_F = Q_c + \underbrace{Q_{Ln} + D H_D + Q_{Lm}}_{Q_L} + W H_W$$

$$Q_B = Q_c + Q_L + D H_D + W H_W - F H_F$$

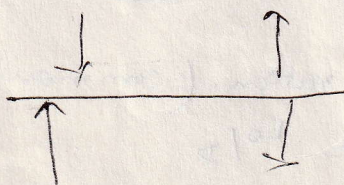
(Q_L = sum of all heat losses)

Develops Relationship b/w no.

no. of trays, L/G ratios and ppt composition.

- Ponchon and Savarit Method \Rightarrow Can handle all the situation but required detailed Enthalpy data
- McCabe Thiele \Rightarrow Required only conc. eqn.

first discuss



μ