Explain this equation:

Thus the net rate of CO_2 assimilation is

$$A = V_c - 0.5\,V_o - R_d \quad (1)$$

where V_c is the rate of carboxylation, and V_o the rate of oxygenation. The symbol R_d represents CO_2 evolution from mitochondria in the light, other than that associated with the PCO cycle.

Can you explain the following sentence? What process does represent?

For each carboxylation, ϕ oxygenations occur.

What is meant by 'RUBISCO limited' or 'RUBP limited' photosynthesis?

What is meant by electron transport (J) limited photosynthesis?

How does the following equation (from Carl's lecture) summarize the Farquhar model (and its extensions)?

$$A = \min\left\{w_c, w_j, w_p\right\}(1 - \Gamma^* / C) - Rd$$

Why did Farquhar et al measure photosynthesis under different Oxygen concentrations?

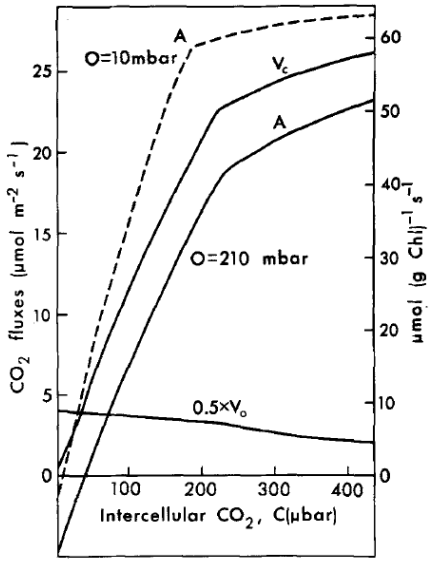

Fig. 7. CO_2 fluxes versus intercellular $p(CO_2)$, C(µbar). The solid lines at 25C and 1000 µmol photons m^{-2} s^{-1} represent the situation in ambient (210 mbar) $p(O_2)$, with V_c, A and $0.5 \cdot V_o$ denoting the rates of carboxylation, the net rate of assimilation of CO_2 and the rate of release of photorespired CO_2. The dashed line represents the rate of CO_2 assimilation in 10 mbar $p(O_2)$

What is the significance of this statement from Farquhar et al 1980?

The ratio of the solubilities of O_2 and CO_2 increase with temperature and Ku and Edwards (1977) have suggested that photorespiration increases more rapidly with temperature than does carboxylation for this reason.

How does Long 1991 expand these ideas?