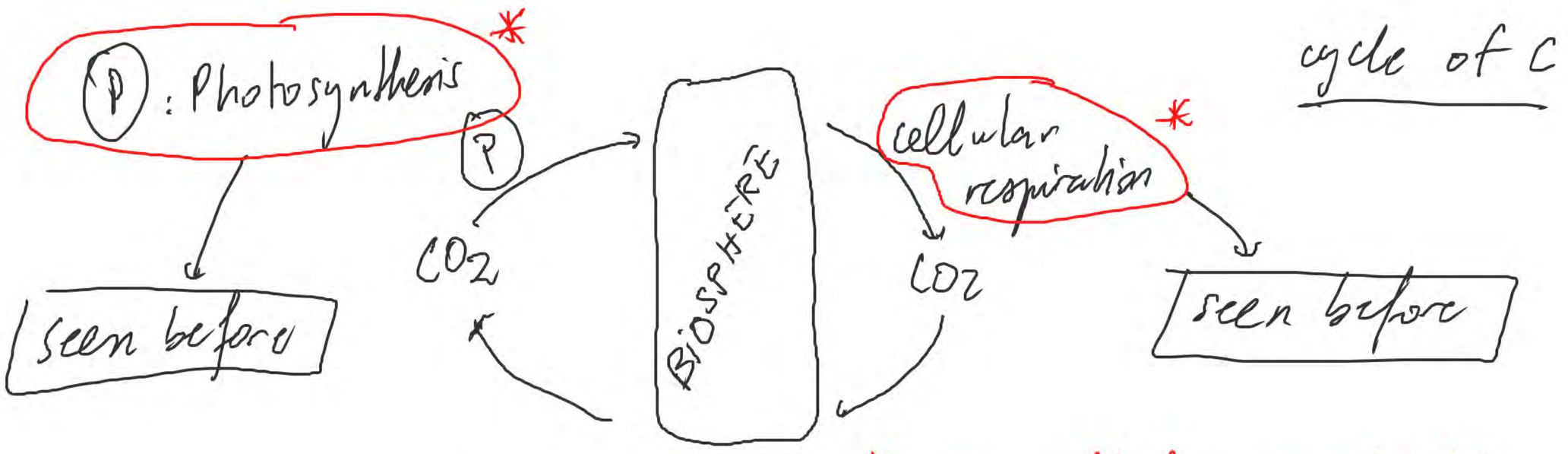


* see previous chapters (photosynthesis ; cellular respiration).

Nitrogen cycle : N_2 ~ 80% of the atmosphere.

Assimilation : It's the process of one organism to take on (incorporate) inside cells an specific element.

Nitrogen-fixing bacteria or Nitrogen-fixing soil bact : bacteria fixe N (≠ forms) and garantee a min level of N in that soil.

N_2 in atmosphere

surface

soil

Animal

ASSIMILATION

Decomposers (fungi, bacteria...)

Nitrogen-fixing bacteria

Nitrogen-fixing soil bacteria

NH_3 (-III)

Amonia

H^+

NH_4^+ (-IV)

Amonium

"Nitrification"

Nitrifying bacteria

(substrat NH_4^+)

NO_2^- (+III)

Nitrifying bacteria

substrat NO_2^-

NO_3^- (+V)

$-6 + N = -1$

$N = +V$

$-4 + N = -1$

$N = +III$

NH_4^+, NO_3^- } asimilation

-I, -II, -III ... oxydation number (degree of oxydation)

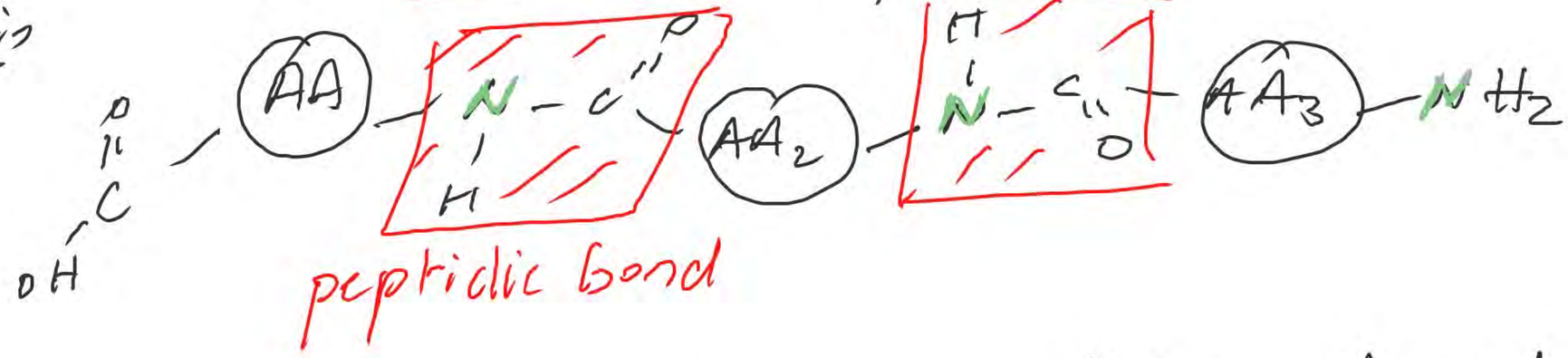
NITROGEN:

① Photosynthesis* : chlorophyll (N) molecule

② Nucleic acid* : DNA, RNA contain N

③ Proteins : they contain of N

EX: proteins



④ Main gas in atmosphere N_2 : Matrix of exchange

$P_{N_2} = 0.8$ atm (80% of all) → $P_{O_2} \cong 0.2$ atm

⑤ N can be fixed → converted into more usable forms

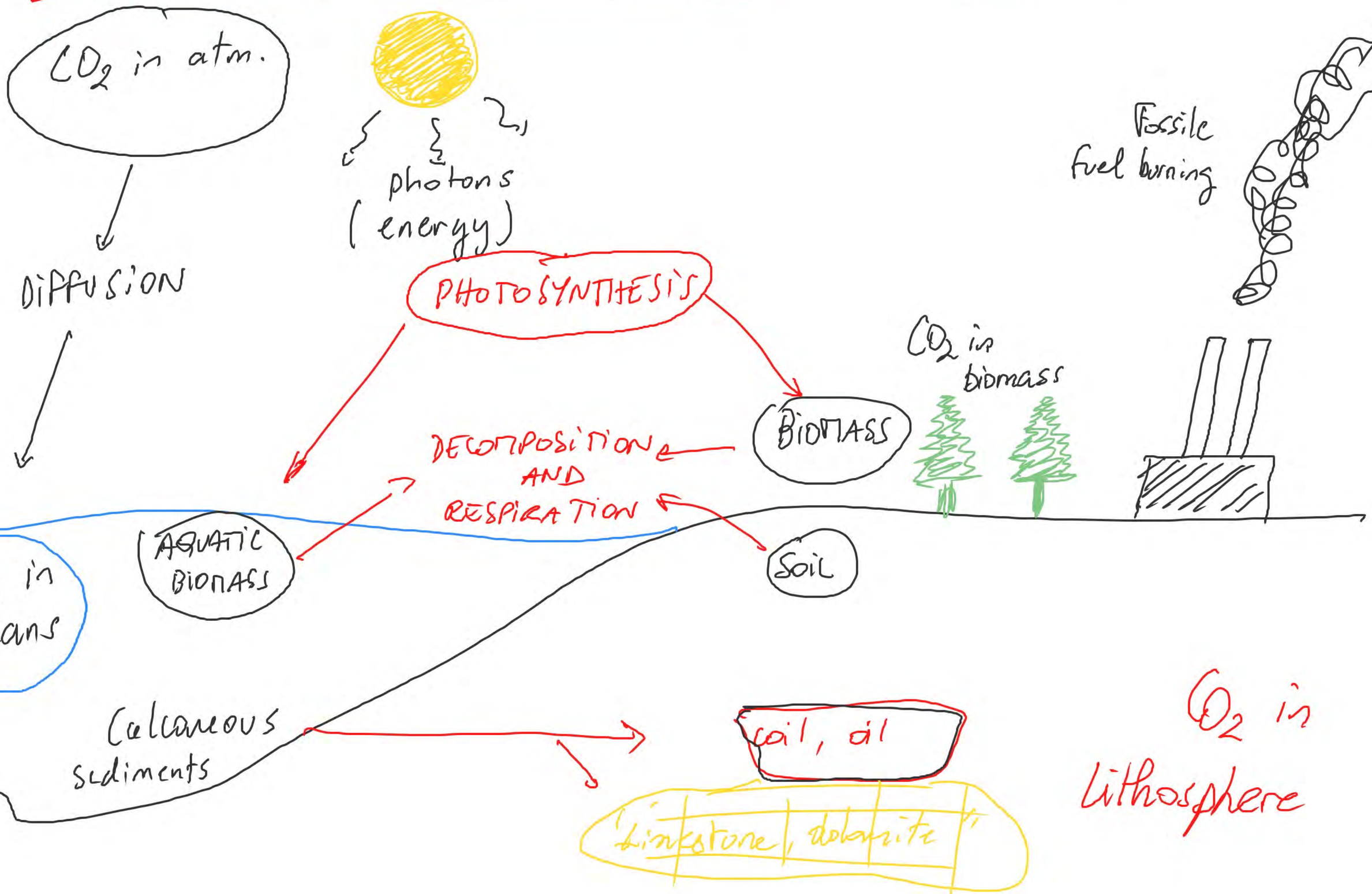
(easily (polar, charged ...))

→ N ≠ degree of oxydation

($-\overline{III} \rightarrow +\overline{III} \rightarrow +\overline{V} \rightarrow 0$)

OXYGEN CYCLE (PHOTOSYNTHESIS)

Ex: CO_2, O_2 ...



SOURCES OF OXYGEN:

- Photosynthesis and cellular respiration.
- Photo dissassociation of H_2O vapor.
- Biosphere: CO_2 and O_2 circulate freely.
- Sediments: $[CaCO_3]$: CO_2 combines with Ca
- Nitrogens containing oxygen forms: NO_3^-, NO_2^- ...
- O_2 combines with iron compounds to ferric oxides.
- O_2 (high altitude atms) is induced to O_3 (ozone)