Origin of free oxygen in Earth's atmosphere.

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Earth's biosphere doesn't produce free oxygen (O_2), but it absorbs O_2. Green plants use O_2 by respiration and they accordingly excrete CO_2 (about 1% of photosynthesis for wild plants and 20% for cultural plants). This CO_2 was settled in carbonate sediments during the Phanerozoic in the number of $280 \cdot 10^{18}$ kg or $2 \cdot 10^{11}$ kg in year. The O_2 consumption by respiration of wild plants exceeds in more than 5 times the mass of O_2 that was remained by accumulation of organic substance. Endogenic flow of CO_2 is equal about 10^8 kg in year. Excretion of CO_2 and consumption of O_2 have increased in about 100 times at the present time. Ocean regulates the P_{CO2} in atmosphere and surplus of CO_2 is settled as carbonate sediments. Half of atmosphere O_2 will burn out during 10000 years under modern conditions. Genesis of O_2 in Earth's atmosphere is proposed as a result of decomposition of water (reaction: $H_2O=0{,}5O_2+H_2$) under the influence of electric discharges (lightning's) during thunderstorms. Ionic and one-atomic high-temperature (20000-50000 K) gas plasma is in canal of lightning under strong press (few tens or few hundreds bars). This plasma after electric discharge explodes and duration of percussion wave phase is 10-20 microseconds. Speed of hardening of plasma is faster than speed of relaxation reaction: $2H+O=H_2O$. Productivity of thunderstorms compensates deficiency in O_2 of wild biosphere since the Ripheus, but it might not be enough for compensation of O_2 consumption by world economy. Activity of thunderstorms and typhoons in urbanite especially humid tropic areas possibly is connected with deficiency of O_2 in Earth's atmosphere.