

History of Photosynthesis

Chapter #17



Jan van Helmont (1600s)



- Grew small willow tree in pot for 5 years
- Added only water
- Tree gained 75 kg.
- NO real change in weight of soil! (.5 kg)
- Concluded that plant gained mass from the water (only thing added)

Where was the Additional Mass Coming From?



Where was the Additional Mass Coming From?

- Water added
- Minerals present in soil
- Carbon dioxide in the air

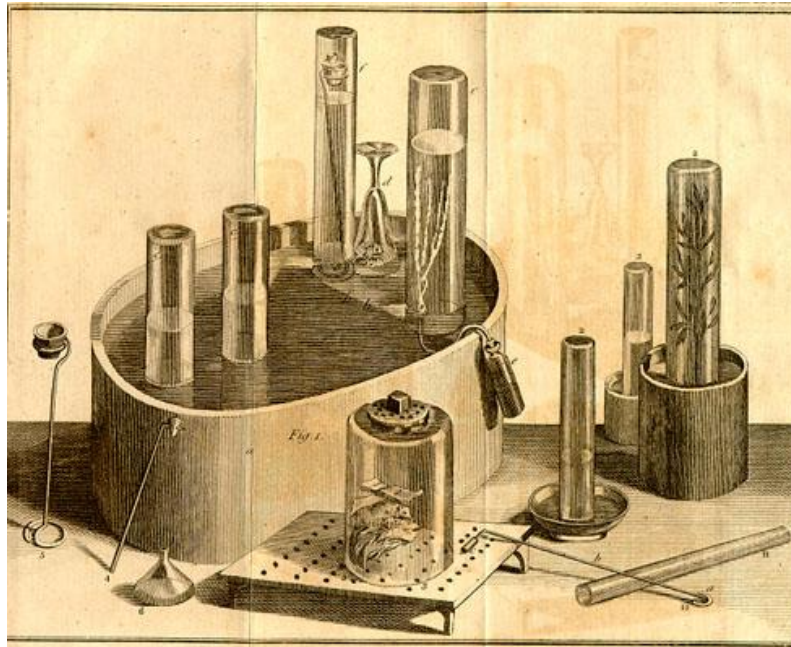


Joseph Priestley (1770s)

- What happens if a plant is placed in “damaged” air created by a burning candle?

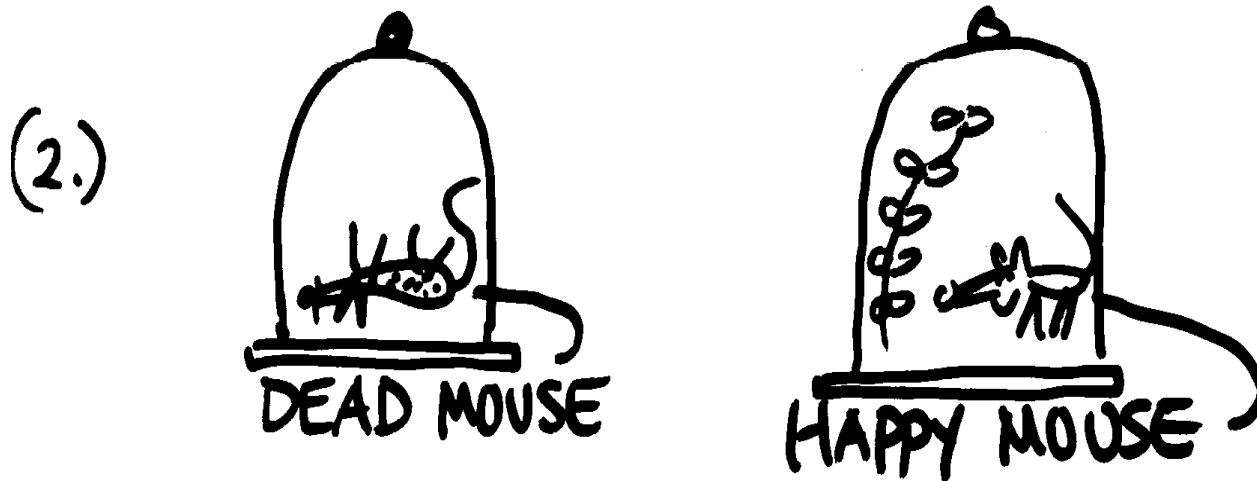
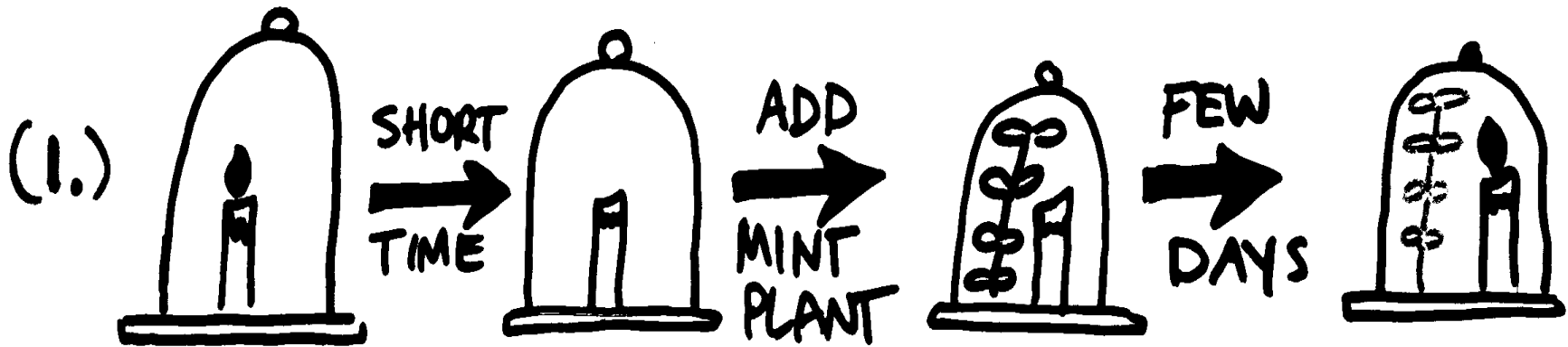


Damaged Air Experiment



- Animals CANNOT live in air that an object can no longer burn in
- Plants grow WELL in damaged air
- Plants can restore ability of the damaged air
- WHY is this true?

Damaged Air Experiment



Antoine Lavoisier

- Oxygen is removed from air when something is burning
- Animals need oxygen
- Plants give off oxygen



Jan Ingenhousz



- Plants give off oxygen to air **ONLY** in sunlight

Jan Ingenhousz

"I observed that plants not only have the faculty to correct bad air in six to ten days, by growing in it...but that they perform this important office in a complete manner in a few hours; that this wonderful operation is by no means owing to the vegetation of the plant, but to the influence of light of the sun upon the plant".

Jean Senebier

- Plants take in carbon dioxide during growth in sunlight

