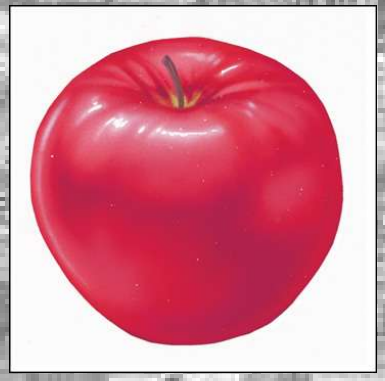

NEW BOSTON, OR

The Setting

- Portland, Oregon
  - Relatively clean environment
  - Liberal population
  - Temperate climate
  - Secluded

The Disaster…

- Synergistic cocktail of POPs
- Decreased life expectancy (~30 yr) due to diseases resulting from build-up of chemical pollution



The Plan: Hey, let's do this…

- A respected voice in the community suggests the idea of self-sufficiency
- Along with a group of followers, they decide to construct a series of domes to create a safe living environment
- Propose to improve conditions outside of the dome via bioremediation

The Leader

- Active participant in civic life e.g.
  - City Council
  - Environmental activist
  - Local charity organizer
- Relatively old for existing society (43)
- Widower with teenage-adult child, well-known and respected in own right

Energy

- Sources
  - Wind turbines outside of domes
  - Photovoltaics/solar
- Used for remediation processes
- Not used in transportation, little personal consumption

Climate

- Domes act as greenhouses
- Semi-tropical
  - Rain (humidity from plants results in periodic rainfall)

Dome Placement

- Parks/open spaces
  - Use for food, oxygen
- Near water source
  - Remediation of polluted water
- High population density
  - Housing
- Industrial infrastructure
  - Provide technological facilities for remediation

Dome Structure

- Materials
  - Alumina
  - Transparent silicon ceramics
- Sources of Materials
  - Car windshields
  - Soda cans
- Structure
  - Steel from car bodies

Sample Food Chain

Grains (wheat and hops)

Processed Grain (flour)

Straw

Beer

Bread

Wicker

Sheep

Compost

Some meat

Milk

Wool

Brewer sludge

Mushrooms

Manure

Worms

Chickens

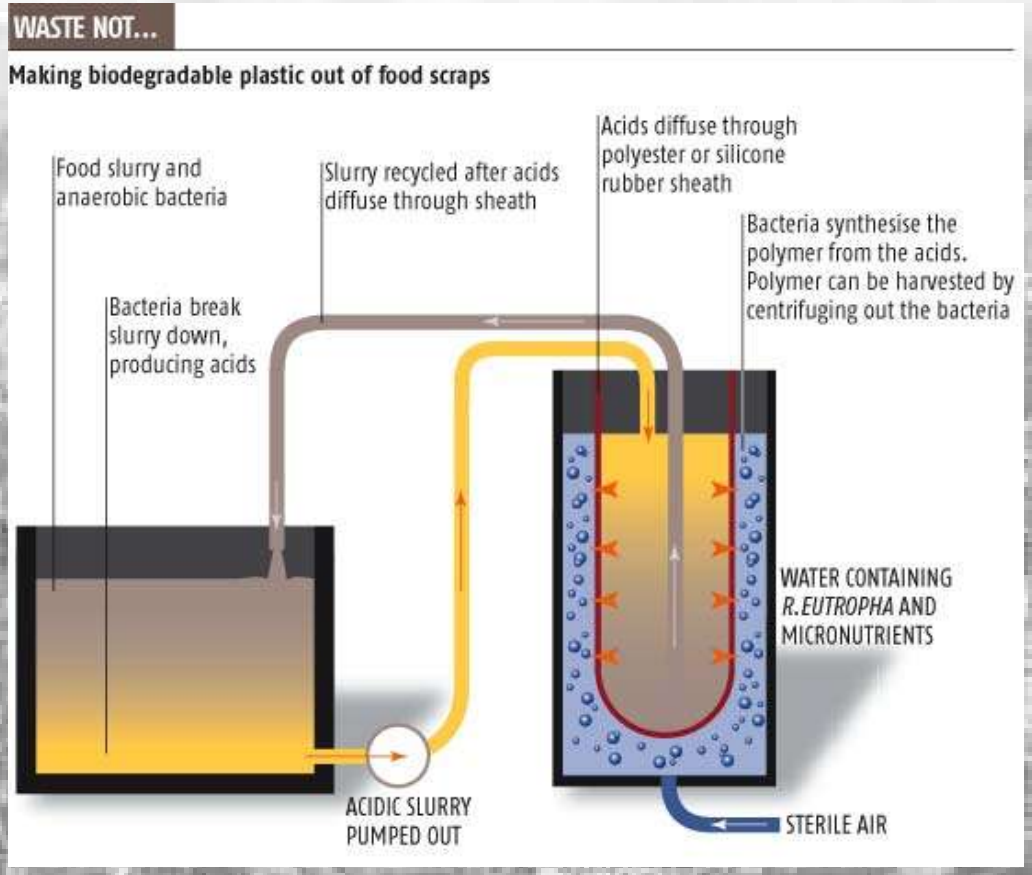
Manure

Dinner Table

Food Scraps

Plastics

Plastics



- Use of bacteria to make biodegradable plastics

Remediation

- Bioremediation
  - Use existing microbes to digest contaminants
    - Microbes produces enzymes that break down hydrocarbons
  - Phytoremediation
    - Use of plants for contaminant removal
- Ozone and UV radiation
  - Degrade POPs

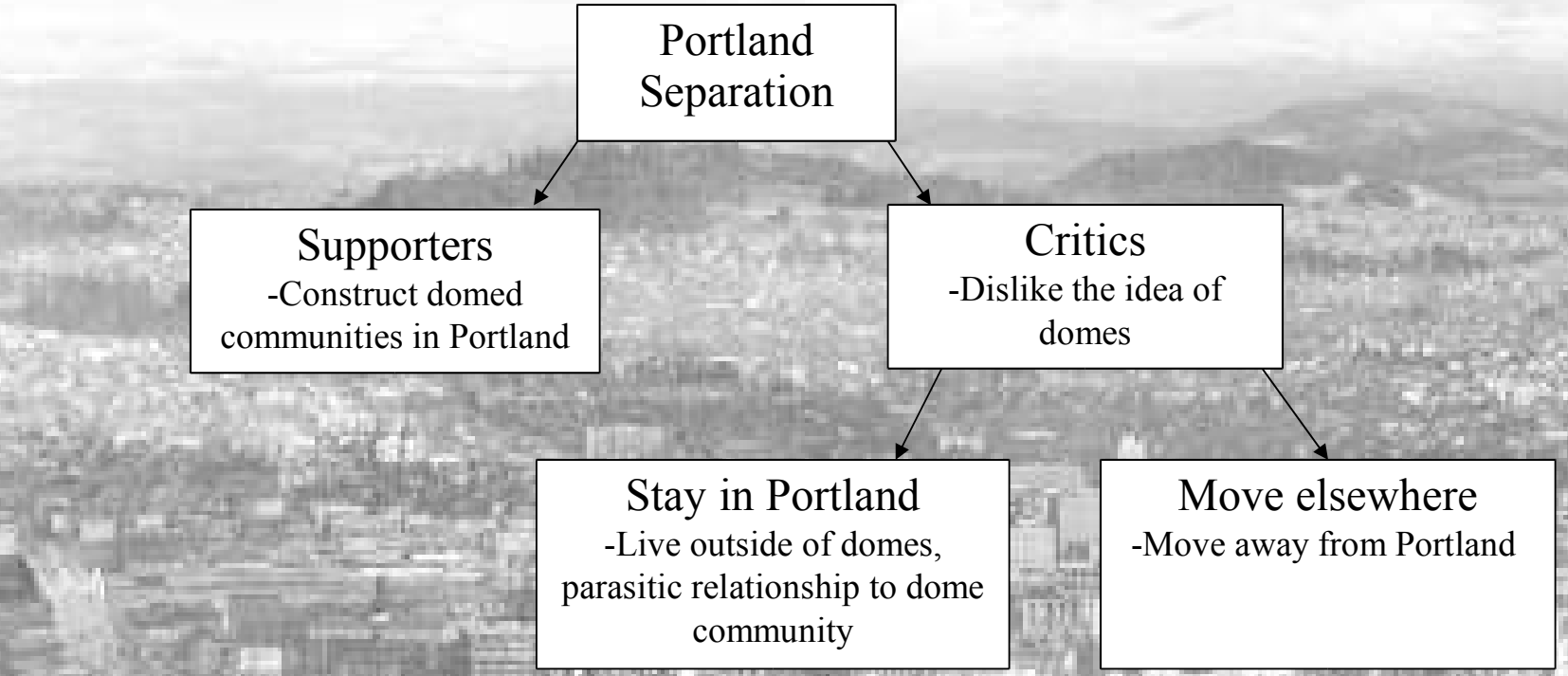
Remediation

- Soil
  - Phytodegradation-breakdown of contaminants taken up by plants through metabolic processes within the plant
    - DDT and other chlorine and phosphorous pesticides, phenols, and nitrates
  - Phytostabilization-immobilize contaminants in soil and water by accumulation and absorption
    - Heavy metals, radionuclides

Remediation

- Water
  - Rhizofiltration-absorption of contaminants into roots when contaminants in solution surrounding root zone
    - Hydrophobic organic chemicals
  - Rhizodegradation-break down of contaminants by microbial activity, aided by the production of sugars and acids in plant roots
    - Polyaromatic and petroleum hydrocarbons, PCB and other organic compounds

The People


Portland Separation
Supporters
-Construct domed communities in Portland
Critics
-Dislike the idea of domes
Stay in Portland
-Live outside of domes, parasitic relationship to dome community
Move elsewhere
-Move away from Portland

Social Structure

- Commune
- Each dome has own purpose
- Self-segregation by occupation
  - i.e. worm farmers joke about mushroom farmers
- Incentive to work
  - Shared value system, morals to fix the world