Demise Of The Seaplane

- Elimination By 1950s
- Improvements To Runways
- Downtown Airports
  - John F. Kennedy International
  - Logan Field
  - Logan International
  - Washington, Rail Yard
- Helicopter
- Mass Transportation
- Spruce Goose - 1947

Howard Hughes - Spruce Goose

- Idea From Henry J. Kaiser, Steel Magnate (1942)
- Contract For Three - $18 Million
- Intended For WW II - Prevent Submarine Attacks
- Put Wings On Liberty Ships - Troops, Supplies, Armament
- Eight P&W R-4360s (3000 hp Each)
- 1 minute, 70 feet High, Less Than 1 mile
- 320 foot Wingspan

Helicopter

- Ancient Chinese - “Flying Top”
- 14th Century - Illustrations Of Child’s Toy
  - Four Bladed Airscrew On Vertical Spindle
- Leonardo da Vinci
  - Two Counter Rotating Screws With Spring Bow
- George Cayley (1809)
  - Two Counter Rotating Screws With Spring Bow
- W.H. Phillips (1842)
  - English Engineer
  - Jets Of Steam From Rotor Tips
  - Chemical Reaction

Helicopter

- Enrico Forlanini (1877)
  - Italian Engineer
  - Conventional Reciprocating Steam Engine
  - 20 Second Flight
  - Toy
- Heinrich Focke (1936)
  - First Truly Successful Helicopter
  - Twin Rotor Design

Igor Sikorsky

- Early Experiments - Models
  - 10 hp Engine (1909)
  - 25 hp Engine (1910)
- VS-300 (1939)
  - Single Rotor
- XR-4 (1942)
  - Connecticut To Ohio
    - 760 miles
- HH-3 (1967)
  - New York To Paris
  - Aerial Refueling

Helicopter Designs