



Some Historical Analogies in Space Commercialization

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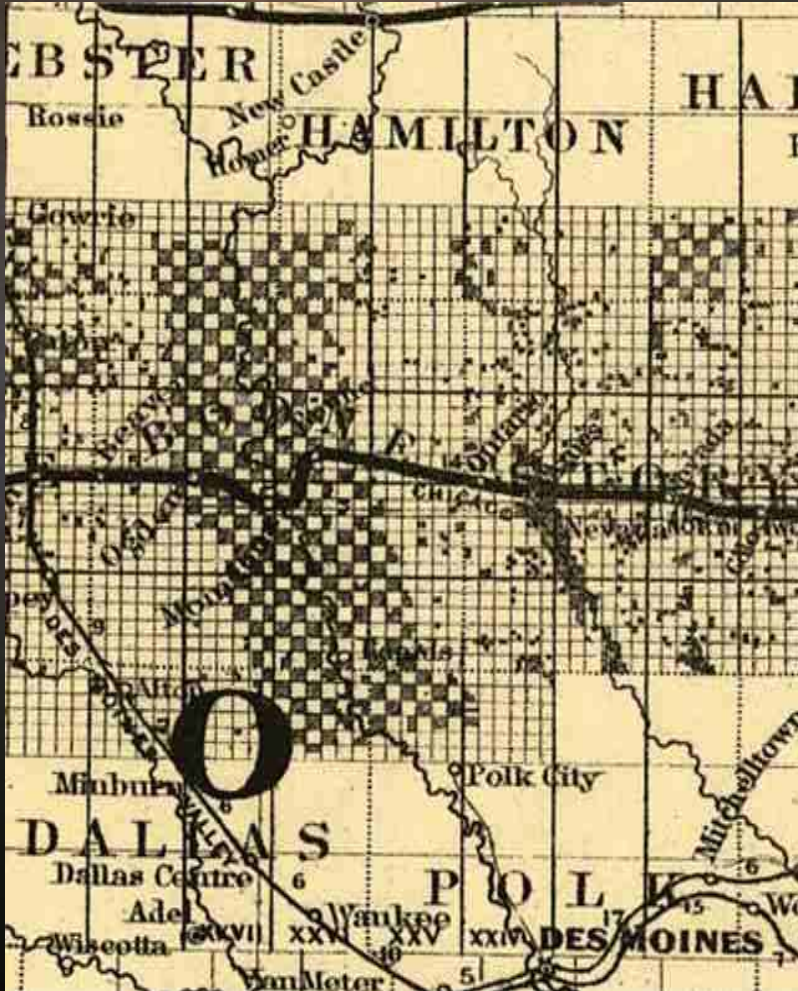
Lunar Transportation Corridor

Analogy #1: Transcontinental Railroad



Congress decided that private entrepreneurs and not federal agencies should build the transcontinental line. Lawmakers resolved to “do enough, and only enough, to induce capitalists to build the Pacific railway.”

Public-Private Partnership



- Pacific Railroad Act of 1862
- Granted 20 sections of land for every mile of completed railway
- Railroads used value of land as collateral for private loans
- Government provided bonds; loans to railroad firms
- Loans repaid largely by transportation revenues and land sales/many never repaid
- Government received non-monetary benefits

Is a Public/Private Lunar Transportation Corridor Possible?

- **Relevance of Analogy:**

- Private financing supplemented with government loans
- Property and patent rights granted to participating firms
- Guaranteed revenues with government contracts and allowance of special transportation fees

- **Challenges to Approach:**

- Lunar land grants problematic at present but alternatives might include right to use land and extract minerals on Moon
- Value of future patents may not be sufficient to spur large investments today



Lunar Tourism

Analogy #2: The National Park Experience



U.S. Congress created the National Park Service in 1916 to conserve natural and historical resources “by such means as will leave them unimpaired.”

Park managers, recognizing the need for public support to encourage future preservation, allowed private entrepreneurs to commercialize the parks in such a manner as to encourage public visitation.

Park rangers could have decided to preserve the national parks as wilderness areas, but to build public support arranged for development as tourist sites



Glacier Hotel, built by the Great Northern Railroad

- Officials encouraged railroad companies and other concessionaires to build hotels and related facilities at the national parks
- Concessionaires paid fees which the National Park Service used to build roads and trails
- Americans rode and drove to the national parks, vastly expanding tourism and creating a family vacation tradition

Is There a Similar Path for Lunar Tourism?

- Government awards lease contracts for habitation/support services
- Outposts privately owned; baseline development/operational costs funded by government lease
- Companies may add tourism capacity for marginal cost
- Firms do commercial deals with their own suppliers, creating a private-sector space ecology
- Efficiencies of private-sector management may cut NASA cost
- Government also benefits as tourism brings economies of scale



U.S. has Long History of Public/Private Partnerships

- Many were spontaneous, non-linear, evolutionary
- Possible only because of unique conditions stimulating them
- Often represents process, rather than product
- Comes in many forms and varieties
- Often Innovative, but fails as well as succeeds
- Will this approach resume in space?
 - LEO operations
 - Lunar transportation corridor
 - Space infrastructure/industry
 - Lunar mining and tourism



English/American vs. Space Settlement



Christopher Columbus
1492



Yuri Gagarin
1961

Lost Colony
of Roanoke
1585 (+93)



Apollo 11
1969 (+8)



Jamestown, 1st Permanent
English Settlement
1607 (+115)



1st Mars Colony
2076 (+115)

U.S. Independence
1776 (+284)



1st Off-World Republic
2245 (+284)

