

To the Moon and Back: The Apollo Program

HONR 269i

Lecture 1: Apollo in 60 Minutes

The View From Moscow

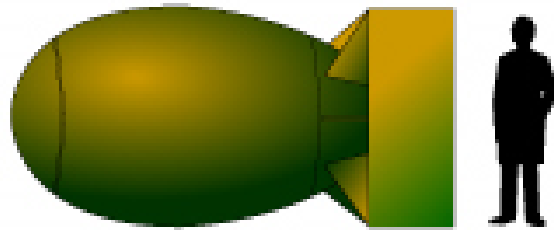


The “Cold War”



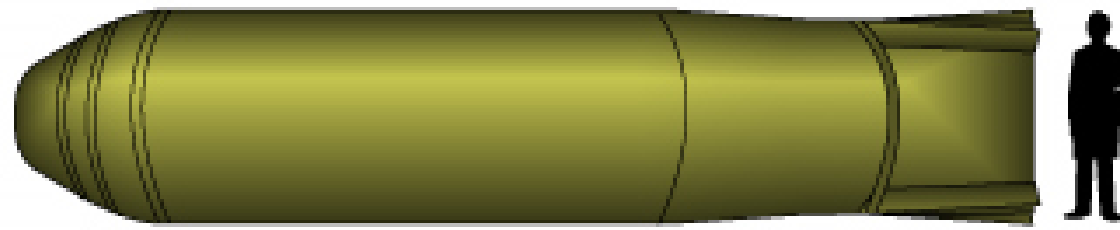
Nuclear Weapons

FIRST FISSION BOMBS



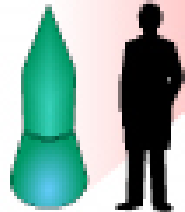
MK IV (Fat Man), 20kt (1945)

FIRST FUSION BOMBS

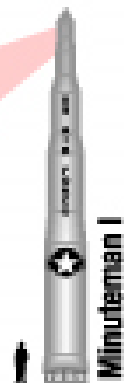


MK-17 (Bravo), 15Mt (1955)

SINGLE WARHEAD DEVELOPMENT

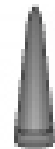


W-59, 1Mt (1962)

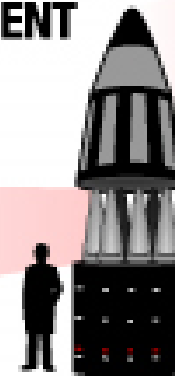


Minuteman I

MULTIPLE INDEPENDENT RE-ENTRY VEHICLE (MIRV) DEVELOPMENT



W-87, 475kt (1986)

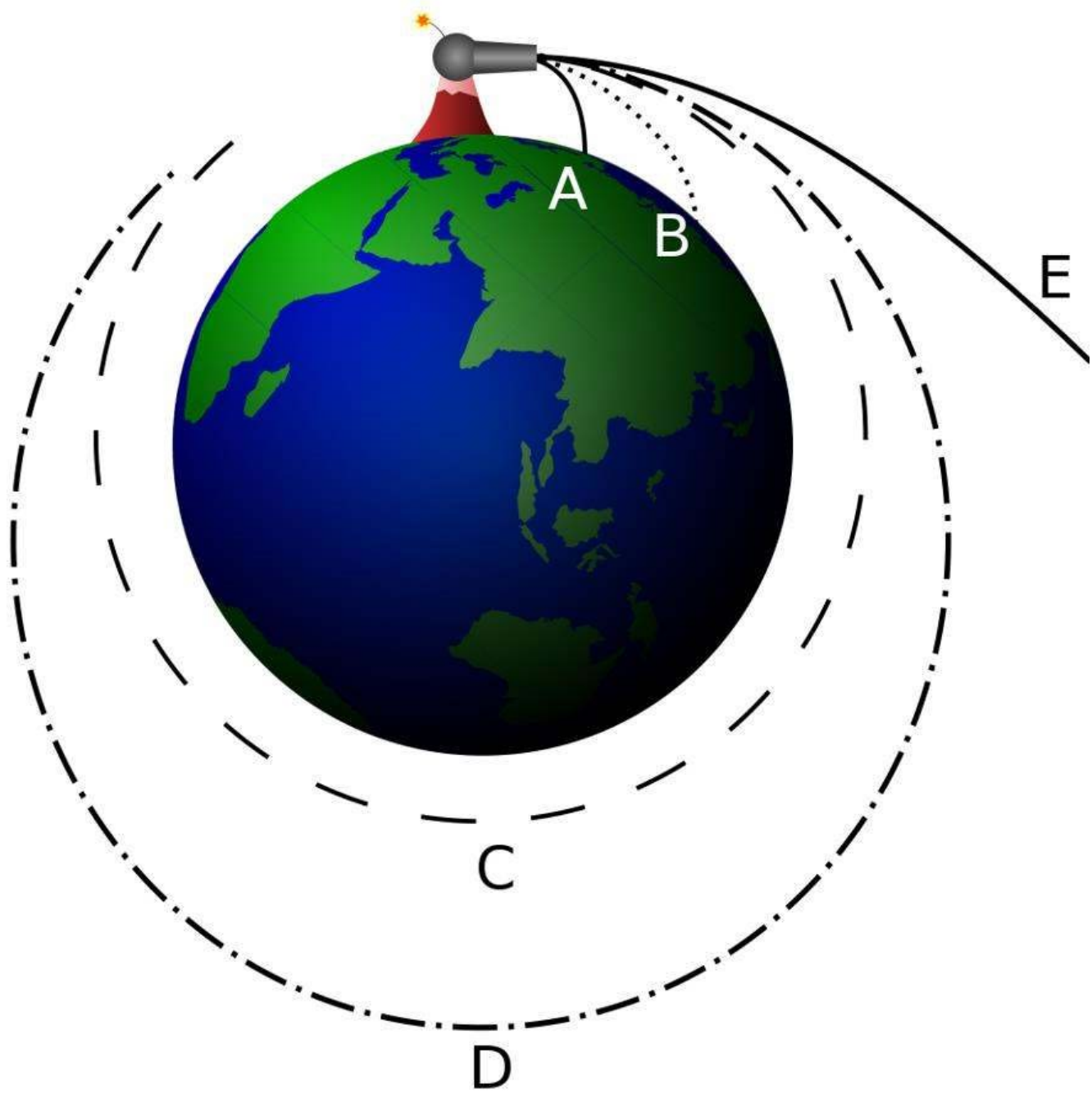


Peacekeeper MX

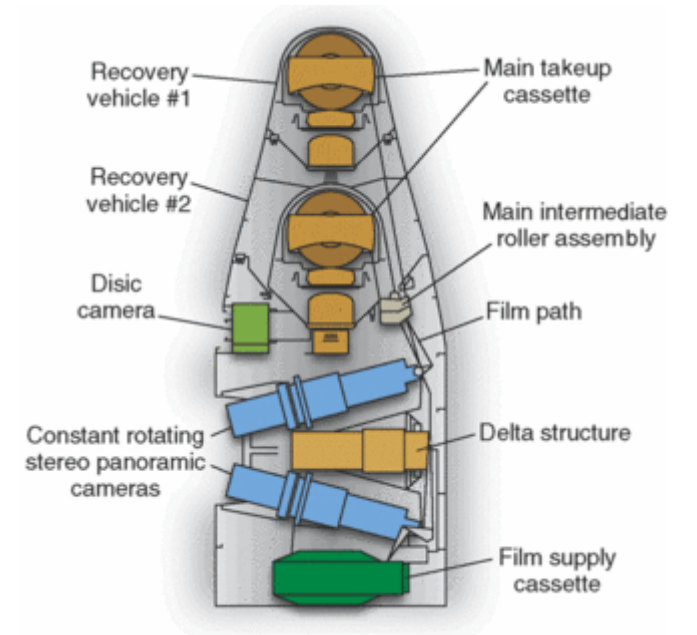
Intercontinental Ballistic Missiles



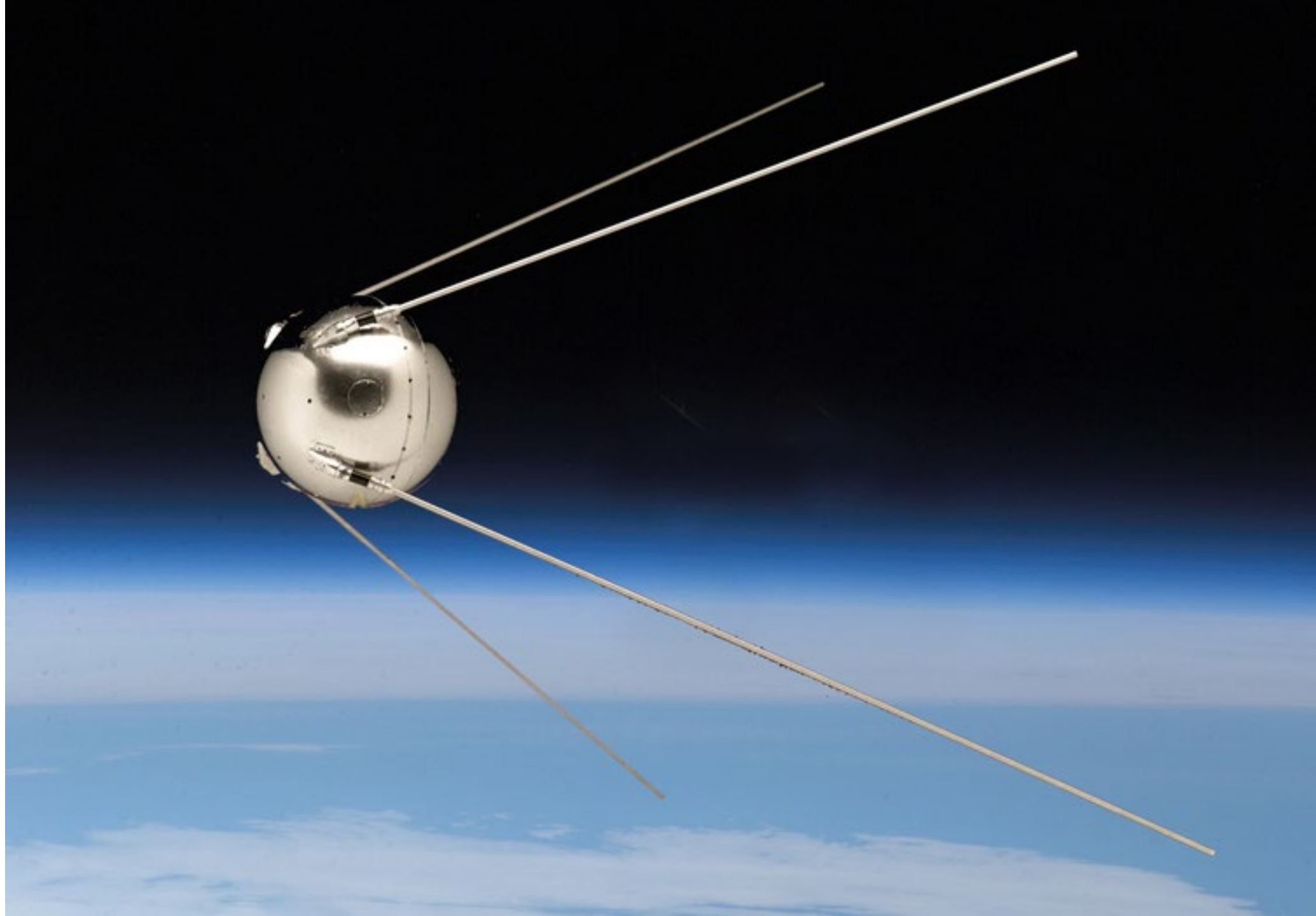
Orbital Mechanics



Reconnaissance

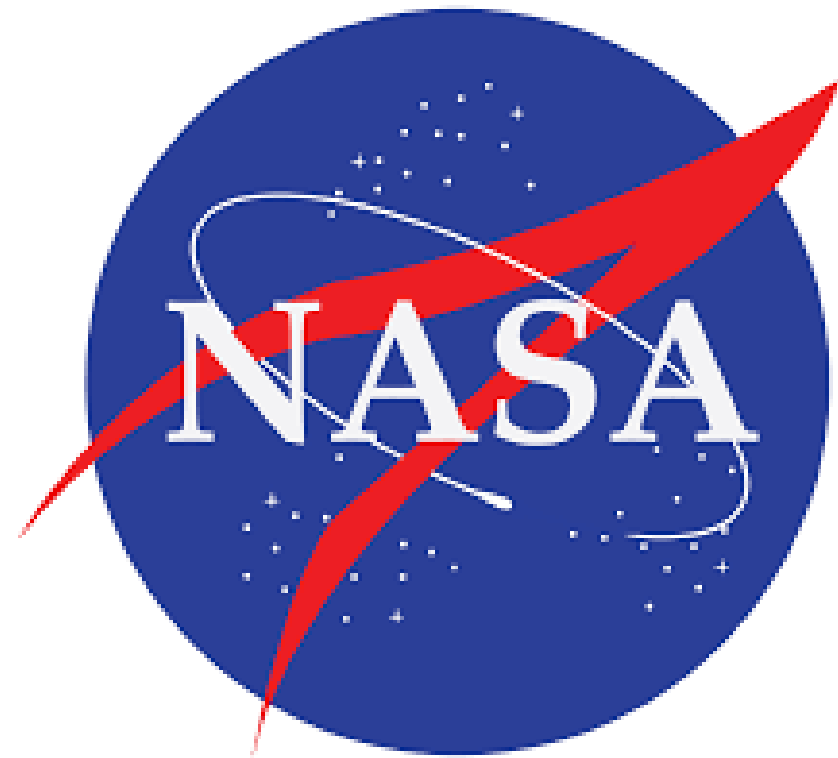


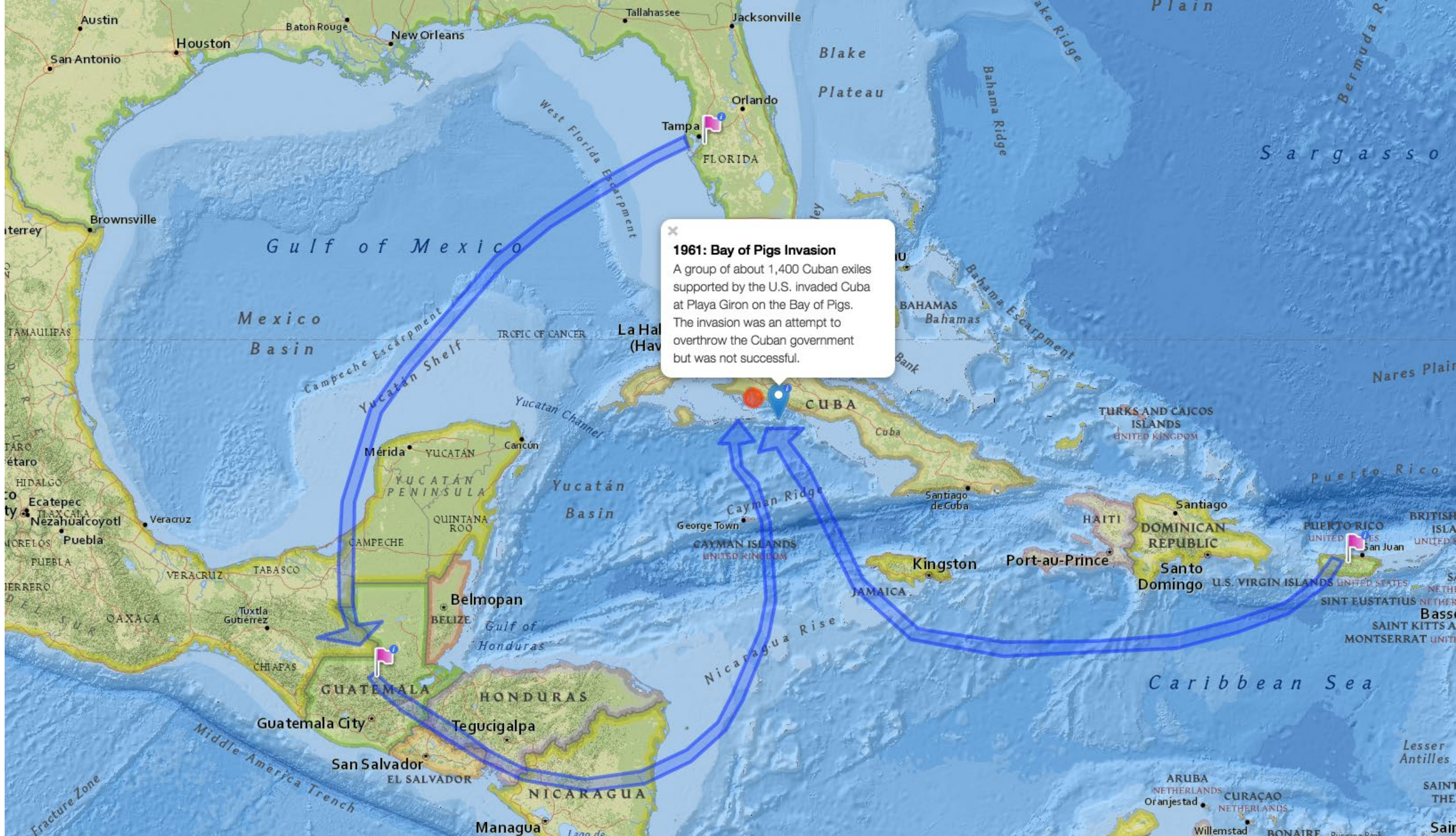
Sputnik



American Domestic Politics

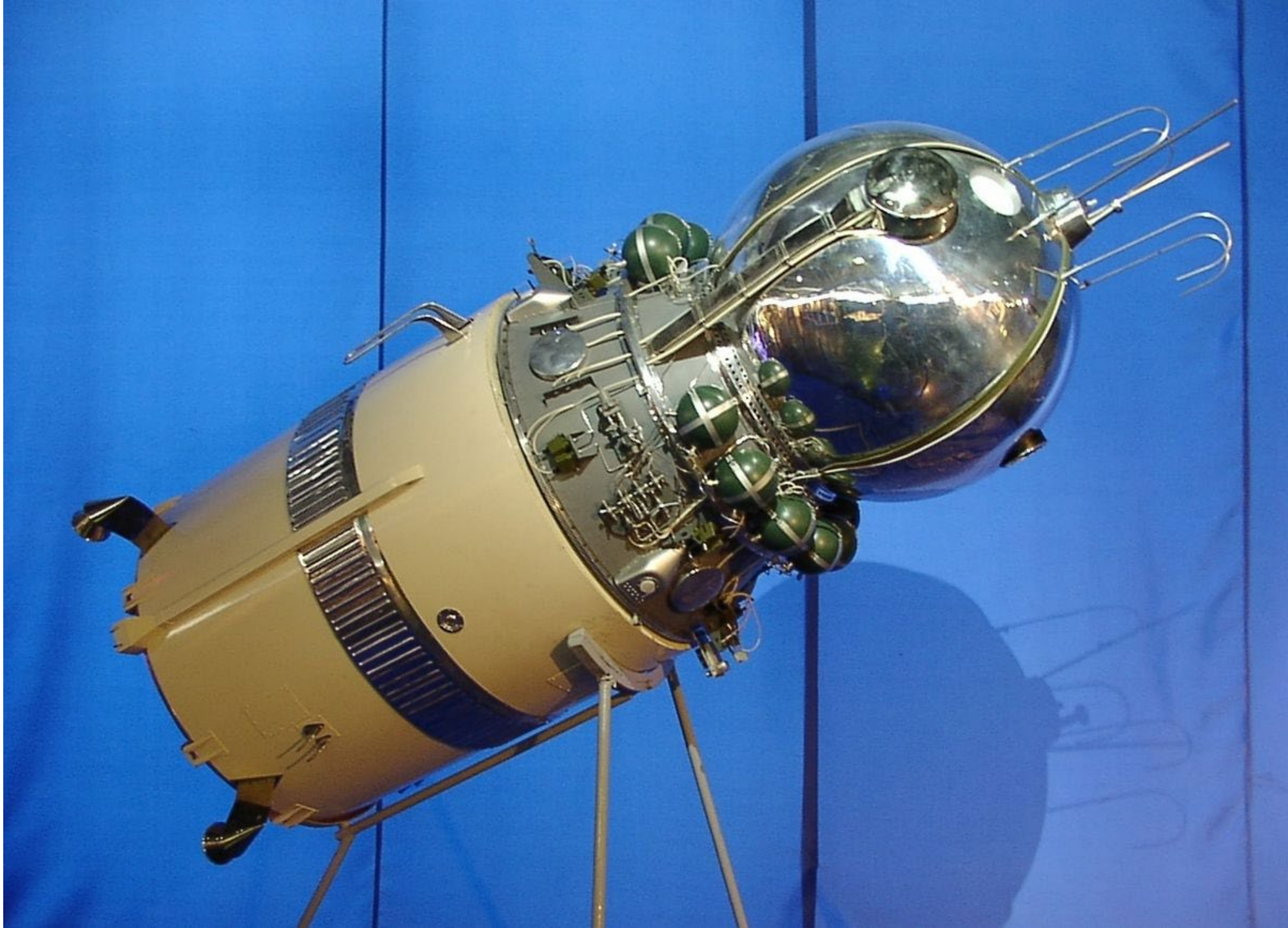






1961: Bay of Pigs Invasion
A group of about 1,400 Cuban exiles supported by the U.S. invaded Cuba at Playa Giron on the Bay of Pigs. The invasion was an attempt to overthrow the Cuban government but was not successful.

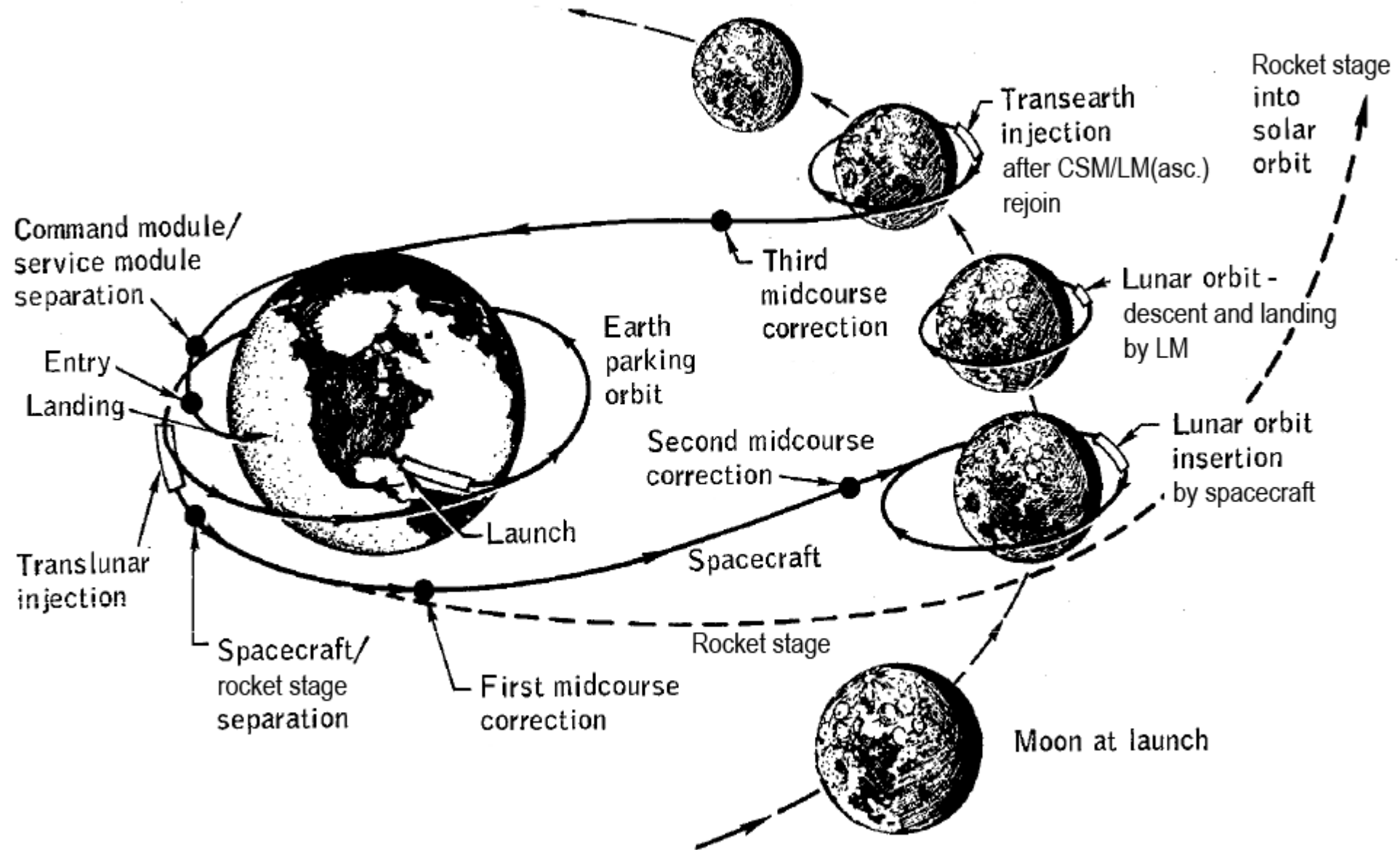
Vostok



The Apollo Decision



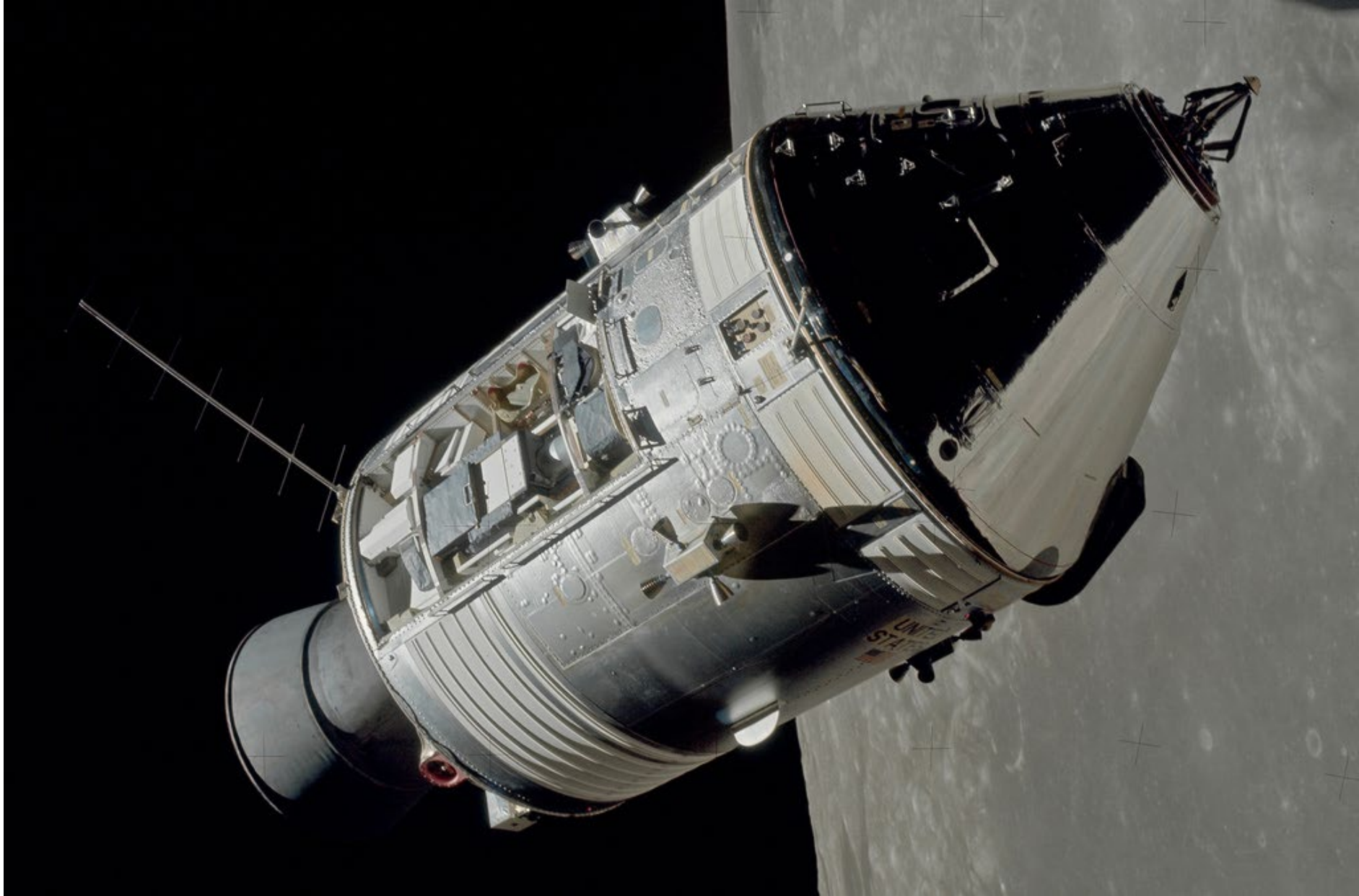
Lunar Orbit Rendezvous



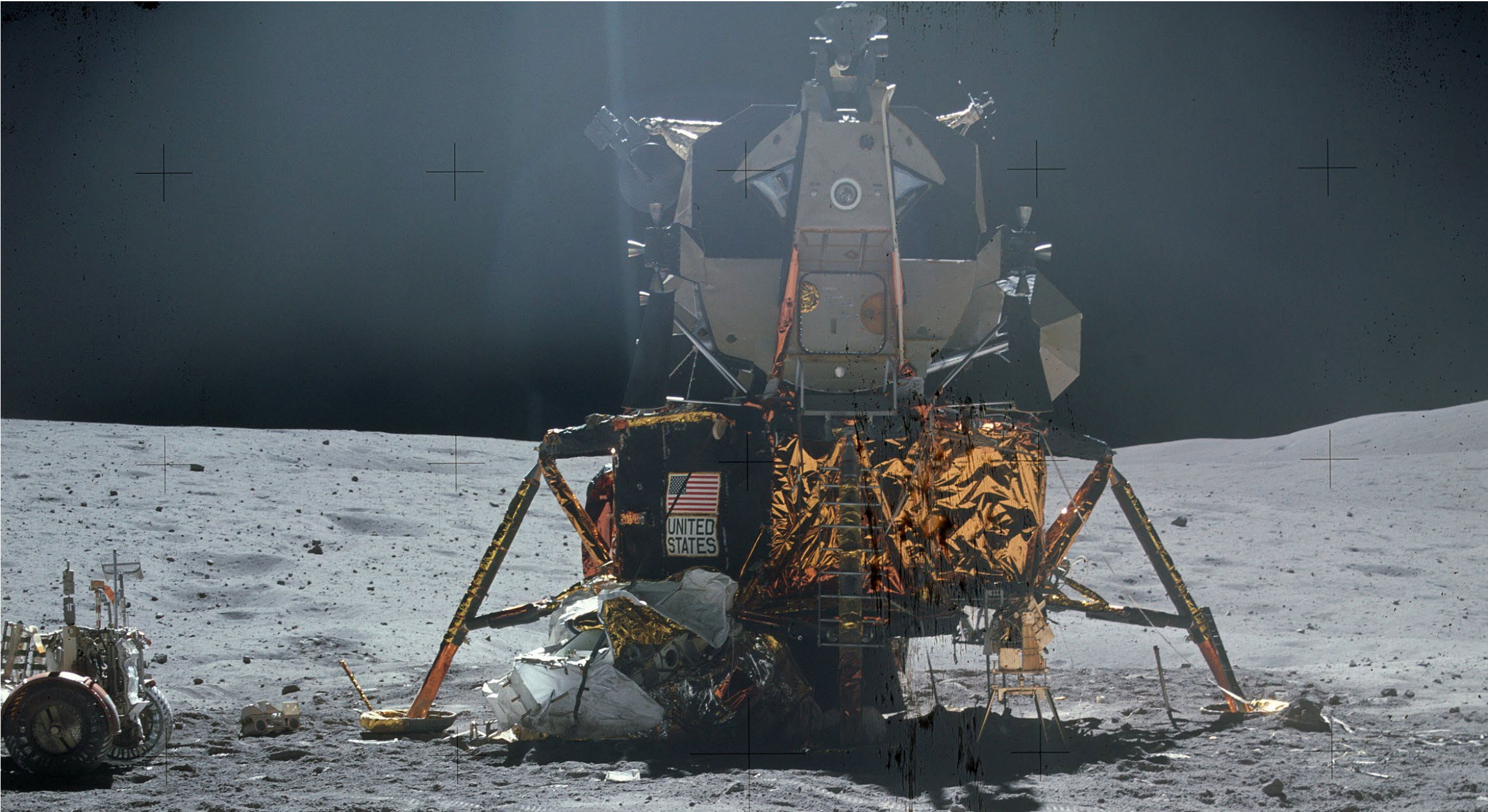
The Saturn V Rocket



The Apollo Command and Service Modules



The Lunar Module



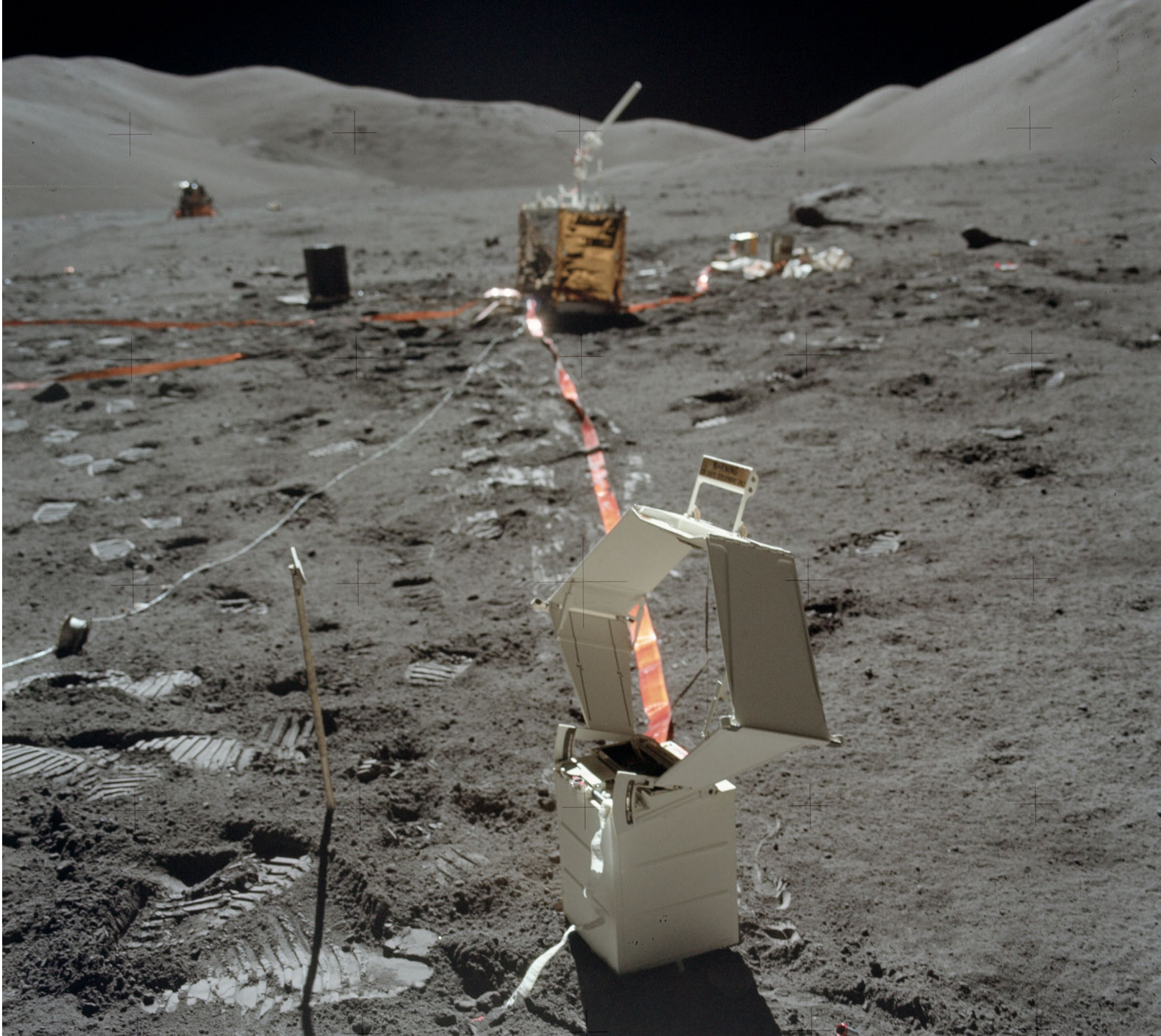
Astronauts



Gemini



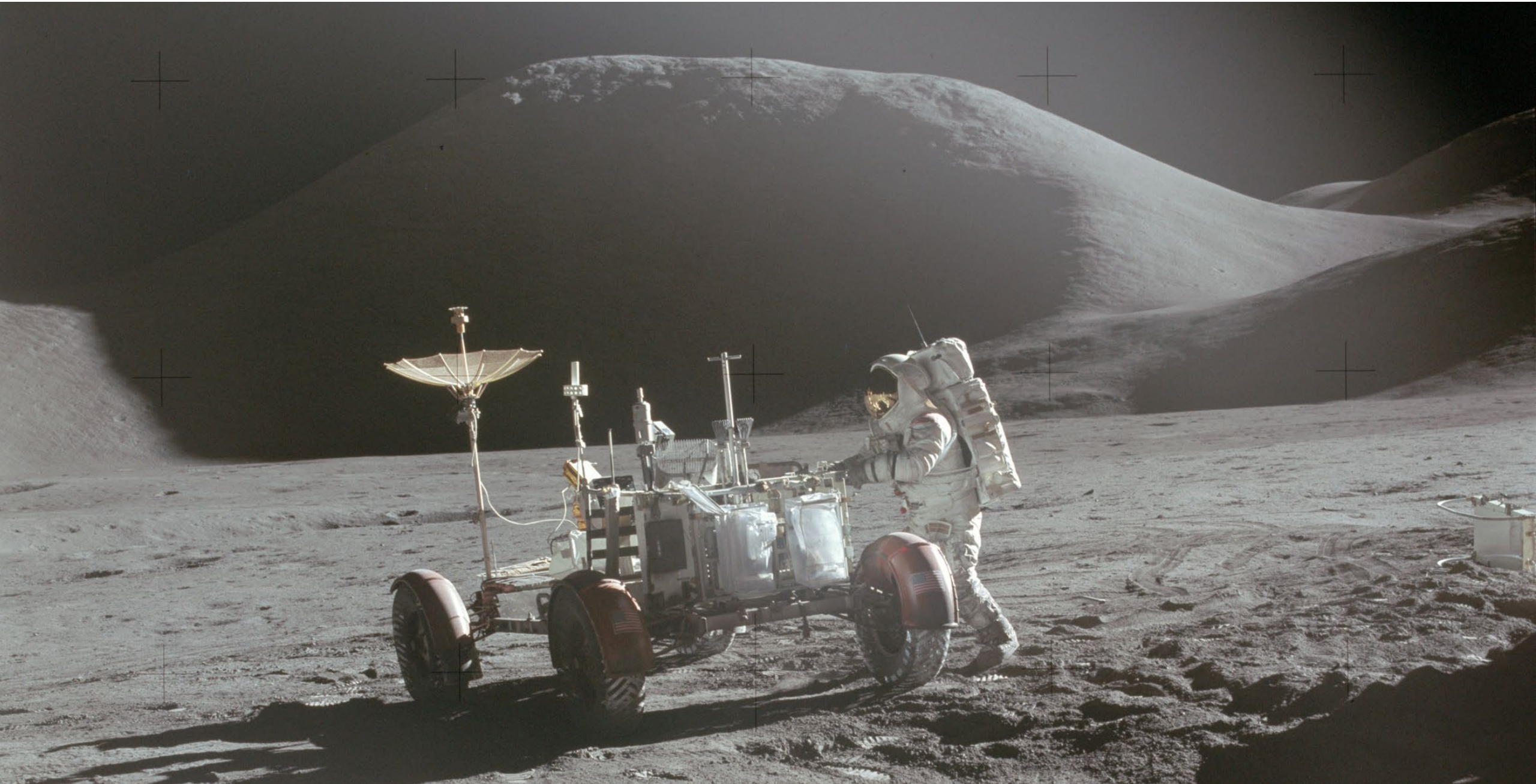
Science



Public Relations



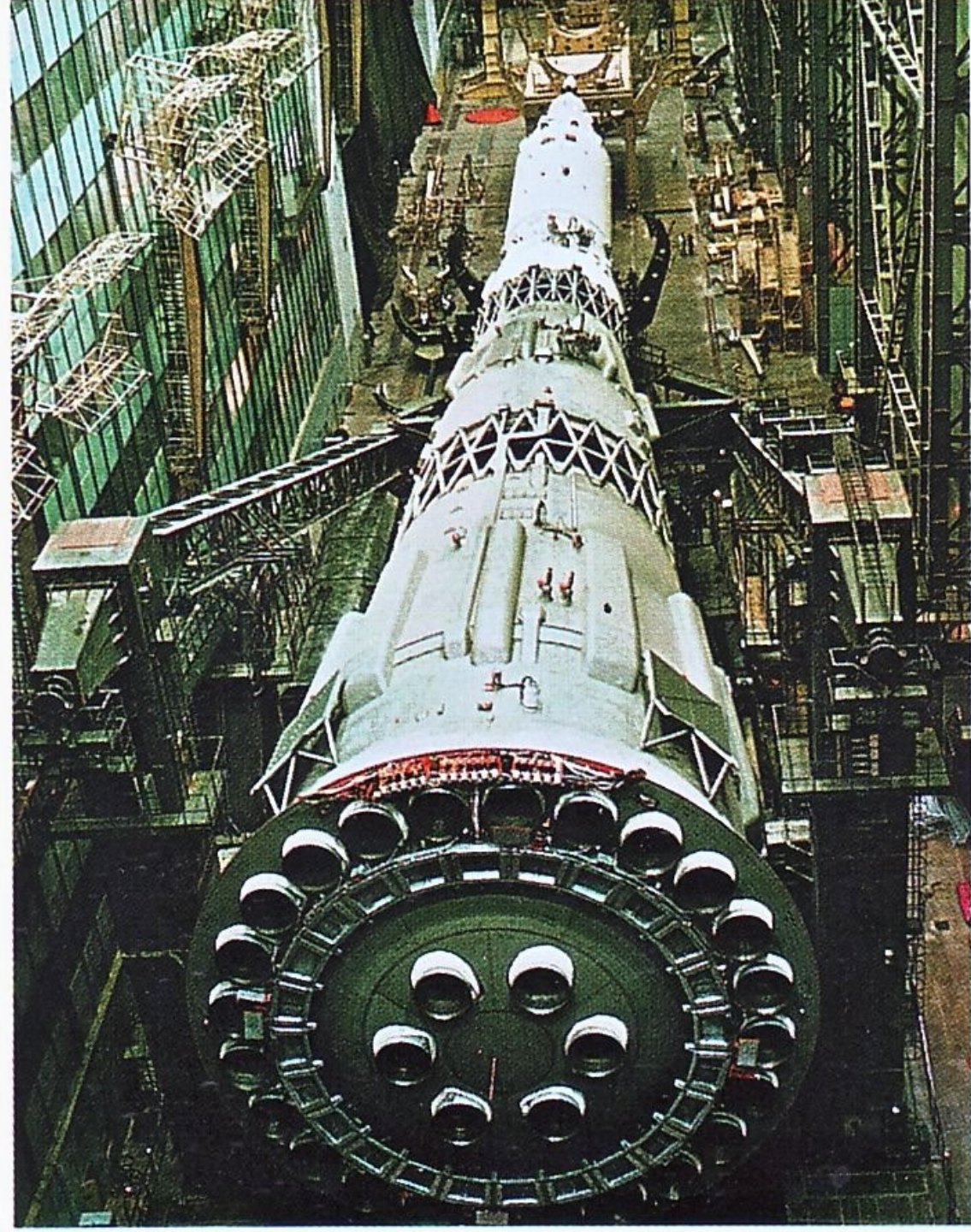
Operational Apollo



The Space Shuttle Decision



The Soviet Lunar Program



Some Lessons of Apollo

- Clarity
- Political commitment
- Societal support
- Near-term time frame
- Economic capacity
- Organizational capacity
- Technology readiness
- Existing infrastructure
- ...

Wicked Problems

1. The problem is not understood until after the formulation of a solution.
2. Wicked problems have no stopping rule.
3. Solutions to wicked problems are not right or wrong.
4. Every wicked problem is essentially novel and unique.
5. Every solution to a wicked problem is a 'one shot operation.'
6. Wicked problems have no given alternative solutions.

Term Paper

- Pick one big thing to study
 - A social challenge, a large-scale technology challenge, an armed conflict, ...
 - Choice is due in about 3 weeks (Feb 19)
- Draw on the lessons of Apollo
 - Compare and contrast, at the level of enablers and inhibitors
 - Learn about your chosen challenge –what do we know already?
 - Compile insights throughout the semester
 - Write early and then get several people to read it!
 - Due on Sunday May 19 at 9 PM

Learning Together

- 30-minute lecture
 - Provides some common background
- 30-minute group discussion
 - Collective sensemaking
 - Guided by written discussion questions
 - Scribe uploads a one-page summary to ELMS (same day)
- 15-minutes of support for your current “activity”
 - Activities are designed to be completed in 3 hours per week
 - Class discussion is intended to help you make progress


Reading, Watching, and Listening





- One hour of preparation for every class session
 - Reading, video, or audio
 - Assignments are linked from the schedule (keyed to “student number”)
- Skim first to allocate your time well
- Read for comprehension, not for detail
 - Goal is to bring important points to the discussion


Tweeting 1969





Tweets 34 Lists 0 Moments 0


Tweets Tweets & replies





 **Doug Oard** @ApolloProf · Jan 27 ⌵
America marks the second anniversary of the death of three astronauts in the Apollo 1 fire, which had delayed the first crewed flight in the Apollo program by 20 months. #ApolloAt50


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 **Doug Oard** @ApolloProf · Jan 24 ⌵
A flight readiness review is conducted for the Apollo 9 Command and Service Modules at the Manned Spacecraft Center in Houston. #ApolloAt50


   





 **Doug Oard** @ApolloProf · Jan 23 ⌵
The Apollo 11 Command and Service Modules arrive at the Kennedy Space Center. #ApolloAt50


   

 **Doug Oard** @ApolloProf · Jan 22 ⌵
The window seals of the Apollo 9 Command Module are modified to reduce the chance of the windows fogging, which had been a problem on Apollo 7 and Apollo 8. #ApolloAt50

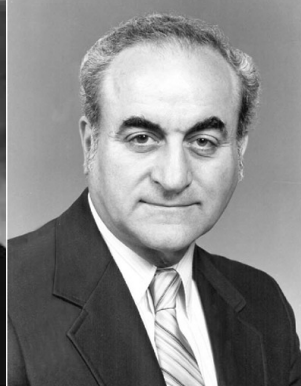
   

 **Doug Oard** @ApolloProf · Jan 20 ⌵
The docking systems of the Apollo 10 Command Module and Lunar Module are tested together at the Kennedy Space Center. #ApolloAt50

 **Doug Oard** @ApolloProf · Jan 20 ⌵
The Apollo 11 Command and Service Modules are launched from the Kennedy Space Center.

Adopt Someone: An Individual Perspective



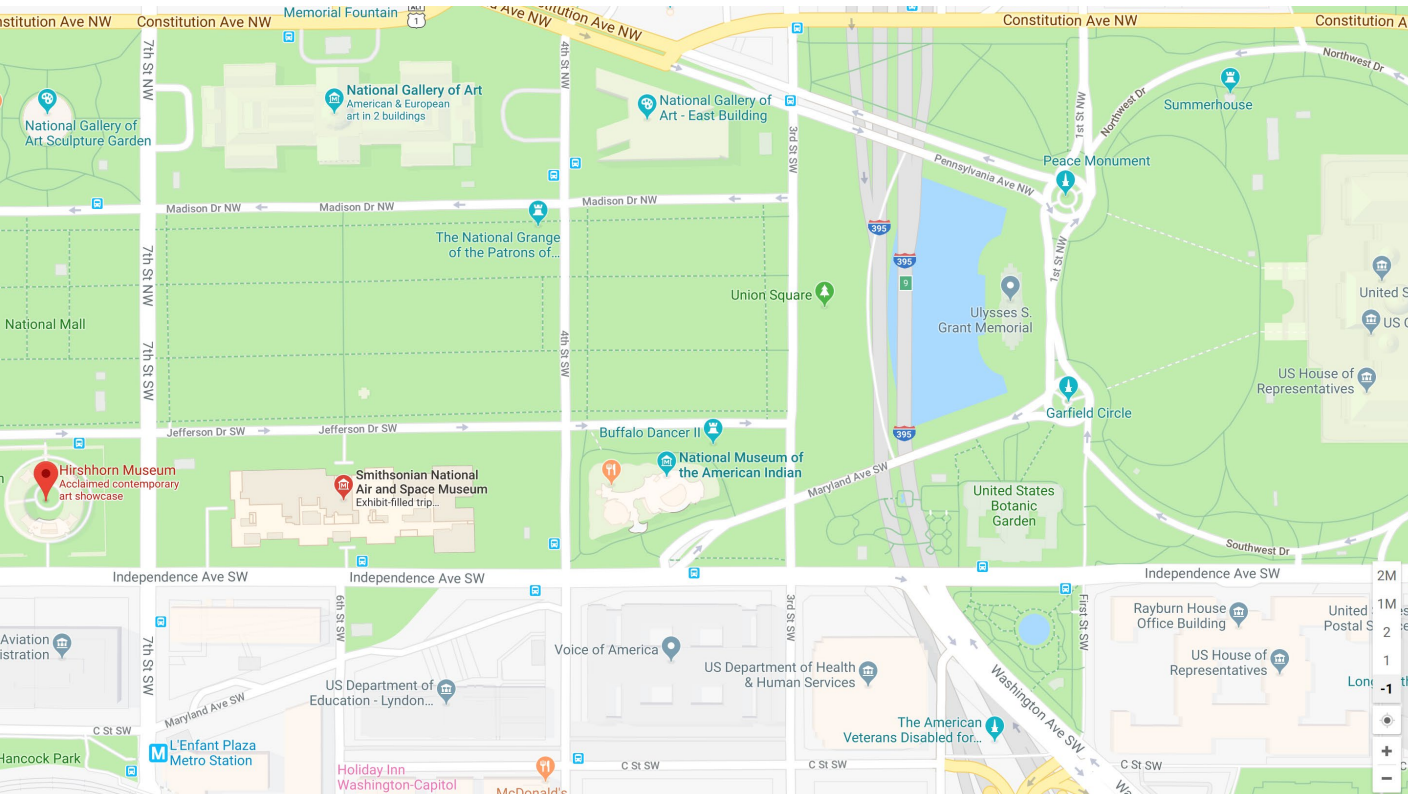
Archival Records: An Organizational Perspective



Immersion: An Operational Perspective



But First: A Museum Tour



This Sunday (Feb 3) at 2 PM
A week from Saturday (Feb 9) at 2 PM

What's Where

- Course Web Site
 - Schedule
 - Grading, etc.
 - Links to most things (including most readings)
- ELMS
 - Copyrighted materials (Files for PDF, Modules for Video)
 - Recorded class sessions (Panopto)
 - Student work
 - Grades
- Twitter (#ApolloAt50 or @ApolloProf)
- Email (oard@umd.edu -- please don't use ELMS to send messages)
- Office Hours (Tu/Th before class in PXT 1109C, Wed 1:30 in HBK 0302C)