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Gender, Race, Society, and Space:
Space History, Science Fiction, and American Society
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"Murder Board" Sequence

A "murder board" is an aerospace contractor's convention. Before any bid on an aerospace component is submitted by a design or construction firm, it is subjected to an internal "murder board," to evaluate its merits and fix any flaws before it leaves the company. I adapted the idea to construct an assignment sequence that would focus on evaluating evidence, constructing arguments, and collaborative writing.

Most of my students were engineering students. In their careers, they will need to be able to write by contributing to project teams. Although I spent most of the First-Year Writing Seminar introducing them to writing in the discipline of history, I also wanted to expose them to different forms of argument-driven writing, including directive memoranda, collaborative writing, and oral presentations.

Intention

I created this sequence of assignments to give the students in my space history and science fiction writing seminar a chance to immerse themselves in the space history they had been learning for the first third of the semester. The sequence asked them to write recommendations for NASA, advising the space agency about the programs it should initiate after the Apollo program ended in 1973. I provided three background readings, including a primary source: Personal Notes kept by George Low, NASA Deputy Administrator, on the eve of the Apollo program's end. In this guided exercise, the students sorted and evaluated the material available, then chose particular evidence on which to base their recommendations. Finally, the class convened as a "murder board" to evaluate their proposals.

The role-playing involved also introduced students to the fundamental basis of the discipline of history as it is practiced at a college level. Earlier assignments had broached the idea that historians argue about the meaning of events in the past. When talking about space history, however, it can be easy to see each successive program as the natural outgrowth of the previous initiatives. The choices -- to build a reusable shuttle, for instance – can seem predetermined. At the time, however, NASA administrators, political advocates, and space boosters did not know what was coming. They made decisions with the best information they had. In the face of constraints, they compromised and were guided by their preconceptions. More broadly, then, this assignment sequence encouraged the students to think about history as a series of decisions being made in the past. By considering what other options NASA administrators could have employed, the students could better evaluate what decisions the space agency did make.

Throughout the semester, I tried to ease the students into acting as their own historian: to evaluate how and why events unfolded in the past. I emphasized argument-driven writing. We began by analyzing other historians' arguments. We examined what evidence the scholar was

using to support his or her assertions. This assignment sequence came in the first week of October and built on the three short papers they had written in the first month of the semester. After those short papers (in which the students constructed thesis statements and wrote essays answering a specific question about the class materials), this assignment sequence asked them to assert their own opinion, not just to evaluate another historian's argument.

Components

We convened our seminar as the Space Policy Division of the Cornell Research Institute, Inc., a think tank that had won a NASA contract to advise the space agency on its next move after the Apollo moon missions. I handed out the first memo outlining our project. In the first component of the assignment sequence, we spent the class period brainstorming both the possible programs that NASA could implement (deep space probes, a reusable shuttle, or a Mars mission, for instance) and the factors constraining the space agency's options (the Vietnam War, public disinterest, and deep budget cuts). The students then used the results of this pre-writing exercise to begin work on their individual recommendations. They composed their memoranda over the Fall Break.

In the second class of the murder board sequence, each of the students gave a brief oral presentation of his or her argument. I then handed out the second murder board memo, dated December 27, 1972. From the individual proposals, we created four project teams based on clusters of their recommendations. One group suggested a reusable space shuttle. Another proposed that NASA focus on unmanned satellites and deep-space probes. The third recommended that NASA keep its entire program (shuttle, unmanned planetary exploration, and satellites) on an extended schedule to stay within budget constraints. The fourth offered a plan for privatizing parts of NASA's mission to fund its more expensive components. Each of the groups met in class to begin consolidating their individual recommendations and composing a group memorandum.

Finally, our seminar convened as a "murder board" to evaluate the project team suggestions. I handed out the final CRI, Inc. memo. Each group then offered an oral presentation and fielded questions from the class. They used an evaluation sheet to tally their assessments of the proposals. After all of the presentations, and much debate, we voted. Assuming that each project group member would vote for their own proposal (the students were fiercely loyal), I tallied votes for the second place recommendation.

In each of the stages of the murder board sequence, the assignments required a different citation form. By changing from parenthetical notes to footnotes while working with the same information in different forms, the students got to see how they could cite the same sources using MLA, APA, and Chicago methods of notation.

Revision

My initial plan for this sequence changed when I received my mid-term evaluations from my students. Most of the reviews were generally positive but one student took the time to write a very detailed response. He was frustrated because he was finding the short papers topics to be "too black and white." Instead, he urged me to "open up the possibilities." When I looked at

the murder board sequence, the next item on the syllabus, I realized that it had the same problem. In my planning for the sequence development, I had been so worried about the students feeling lost or without direction that I had not left any space in the assignments for creativity. For the session when the students would be working in small groups to offer recommendations on a particular topic, I had dictated four specific subjects. I had set up the groups before the students even wrote their individual recommendations. After I read the mid-term student evaluations, I realized that I needed to leave room in the assignment sequence to respond to the students' contributions. I rewrote the memoranda and assembled the groups based on the students' individual recommendations. I also allowed the students to bring in external sources.

My students' creativity impressed me. None of the groups focused on the topics I had composed in my construction of the assignment sequence. Several of the students looked at the evidence and suggested that NASA privatize portions of its space exploration, an option that had not occurred to me when I created the sequence. They proposed that NASA become a launch-for-hire agency, using for-profit satellite launches to fund its space exploration plans for a space station or Mars missions. They created an organizational chart for reorganizing the space agency, and a well-thought-out plan for profit distribution. The satellite/deep-space probes group looked on-line and decided to focus on satellites alone based on what they found out about project costs.

I was excited by how much the students got into the assignment and wrestled with the details. The "total program" group broke down NASA's programs into short- and long-term goals to spread the costs over several budget years. After each of the group presentations, the students responded with hard questions. They even took a lesson from modern politicians and used their questions as a means to tout the merits of their own programs. When I finally called the vote, I had to point out to them that the class had ended several minutes earlier in order to get them to stop debating and vote.

Results

The structure of the murder board encouraged class participation in a way that I had not anticipated. All of the students contributed to their group oral presentations. With a defined proposal to defend, and direct questions being leveled at them, several students who had not spoken much in class previously offered articulate and creative defenses of their ideas when pressed by their classmates. Beyond the class participation, however, I found out that the exercise helped their writing. When I spoke to my students in their individual conferences, one of them told me that the murder board sequence was the first time that he grasped the concept of an argument. In the short papers, he had struggled with composing a thesis statement. Working with his teammates to compose the group recommendation crystallized the idea of an argument-driven thesis for him.

If I had the chance to teach this seminar again, I would devote another class meeting to the sequence so that we would have more time to consider each of the ideas and debate their merits. I must credit much of the success of this sequence to the remarkable group of students I was privileged to work with this semester. I hope I will be able to teach this class again in the future and convene another "murder board."

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MEMORANDUM

To: Cornell Research Institute, Inc. staff, Space Policy Division

From: Ezra C. Days, President, Cornell Research Institute, Inc.

Date: December 24, 1972

Re: Advising NASA on Future Options

The Cornell Research Institute, Inc. think tank has received the NASA contract to provide the space agency with rationales for the direction that NASA should take in the next decade, now that the Apollo program has officially ended. (I am sure that you saw the television coverage last week when the last moon mission, Apollo 17, returned safely to earth on December 19, 1972.)

The initial requirements of the NASA contract are as follows:

- Each CRI, Inc. policy analyst will prepare an argument-driven memorandum using specific examples from the written material available to describe the best direction for NASA to take in the next decade.

    To assist in your analysis, George Low, the NASA Deputy Administrator, has sent over a copy of his "personal notes" on the space agency's direction. Written only yesterday, this document provides you with an insider's most recent thoughts on the issue.

    You also have Roger Launius' article about the space shuttle's creation and Roger Bilstein's account of other post-Apollo initiatives.

- Each proposal should be two pages, double-spaced. As you know, CRI, Inc. requires that each of its research associates use the MLA method of citation.

- **Please bring TWO copies of your proposal to the team meetings to be held next Thursday at 1:25 p.m. in the CRI, Inc. conference room.**

Project teams will be assembled there to write ONE UNIFIED PROPOSAL representing the best and most effective arguments written in each of the team members' individual proposals.

MEMORANDUM

To: Cornell Research Institute, Inc. staff, Space Policy Division

From: Ezra C. Days, President, Cornell Research Institute, Inc.

Date: December 27, 1972

Re: Advising NASA on Future Options, Project Teams

First, thank you for coming back to work so soon after Christmas, but the deadline for the NASA contract requires that we get started on the project team reports.

Each of you will be assigned to a project team based on your individual recommendation memorandum. Please see Ms. Weitekamp, the head of the Space Policy Division, for your assignments.

The next phase of the NASA contract requires that:

- By the beginning of next Thursday's meeting, we submit one Project Report from **each** Project Team outlining CRI, Inc.'s most effective arguments about what NASA's emphasis should be in the foreseeable future.

- The group recommendations be made as memoranda (with the headers modeled after the ones above). Your memo may be as long as you need it to be, but it should be **no longer than five pages.**

- Outside sources may be used, as long as they are clearly documented.

- Each memorandum should outline a clear argument and support it with specific details footnoted using the Chicago Manual of Style. (According to our NASA liaison, the space agency prefers footnotes.)

- Please **bring TWO copies** of the group Project Report **on Thursday**. We will be convening an internal "murder board."

MEMORANDUM

To: NASA Direction Project Team Members

From: Margaret A. Weitekamp, Space Policy Division Head, Cornell Research Institute, Inc.

Date: January 3, 1973

Re: Murder Board

I am please to welcome you back to work for the first time in the new year of 1973 with good news. NASA Administrator Fletcher contacted the Institute yesterday. The Project Reports that our team leaders sent to the space agency were extremely well received. However, now NASA faces a new problem. Each of the various proposals CRI, Inc. submitted argued its case so convincingly that he and the Associate Administrators are completely confused about what direction the space agency should take in the next decade. With budget hearings scheduled for next week, they need a set of rankings to help guide their thinking.

Therefore, the NASA Administrator has requested that we convene a "murder board" to evaluate and rank our proposals. He requests that we submit the rankings in one accessible document that his administration can use when it goes before Congress next week.

As you may know, convening a "murder board" has been a standard part of aerospace contractors' practice in the 1960s and continues to be in the 1970s. Before aerospace manufacturing companies submit their bids to NASA's launch vehicle or capsule construction competitions, the engineers submit their proposals to internal "murder boards." These collaborative editing and rewriting sessions aim to eradicate all errors or inefficiencies before the plans leave the company. NASA has also adopted the same process to streamline its congressional proposals.

Since NASA has asked for a set of rankings that it can use to guide its presentation to Congress next week, Cornell Research Institute, Inc. needs to evaluate the Project Reports written last week by the members of the Shuttle, Satellite/Probes, Privatization, and Full Program Project teams.

Members of each project team are requested to assemble today at 1:25 p.m. to hash out the details of the Project Reports' arguments and compile a set of rankings for the space agency. The final requirements of the NASA contract are as follows:

- CRI, Inc. has agreed to provide the space agency with copies of each of the Project Team recommendations along with a one-page cover letters explaining each one and offering the Space Policy Division's rankings of its most effective suggestions.

MEMORANDUM

To: Cornell Research Institute, Inc. staff, Space Policy Division

From: Ezra C. Days, President, Cornell Research Institute, Inc.

Date: December 27, 1972

Re: Advising NASA on Future Options, Project Teams

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Given the relative strengths of the analysts at this think tank, CRI, Inc. has decided to focus on four options. Viable options for NASA's main emphasis are:

Let them form their own groups

1. Planetary research and deep space exploration using **unmanned probes** such as Viking

2. **International cooperation** beginning with a Soviet partnership to accomplish the Apollo Soyuz Test Project.

3. Creating a **reusable launch vehicle** such as a space truck or "shuttle."

4. Constructing a **space station.**

Each of you has been assigned to one of four project teams. Please see Ms. Weitekamp, the head of the Space Policy Division, for your assignments.

- By the beginning of next Thursday's meeting, we need to submit one Project Report from **each** Project Team outlining CRI, Inc.'s most effective arguments about what NASA's emphasis should be in the foreseeable future.

- Each memorandum should outline a clear argument and support it with specific details footnoted using the Chicago Manual of Style. (According to our NASA liaison, the space agency prefers footnotes.)

- Please **bring TWO copies** of the group Project Report **on Thursday.** We will be convening an internal "murder board."

Murder Board: Project Team Recommendations
Evaluation Sheet

Use this sheet to guide your evaluation of the Project Teams's presentations. These scores will remind you how much each component persuaded you.

Shuttle	Not effective		Somewhat		Very effective
Thesis/argument	1	2	3	4	5
Evidence	1	2	3	4	5
Realistic/Doable	1	2	3	4	5
Politically Astute	1	2	3	4	5

Comments:

Satellites/Probes	Not effective		Somewhat		Very effective
Thesis/argument	1	2	3	4	5
Evidence	1	2	3	4	5
Realistic/Doable	1	2	3	4	5
Politically Astute	1	2	3	4	5

Comments:

Total Program	Not effective		Somewhat		Very effective
Thesis/argument	1	2	3	4	5
Evidence	1	2	3	4	5
Realistic/Doable	1	2	3	4	5
Politically Astute	1	2	3	4	5

Comments:

Privatization	Not effective		Somewhat		Very effective
Thesis/argument	1	2	3	4	5
Evidence	1	2	3	4	5
Realistic/Doable	1	2	3	4	5
Politically Astute	1	2	3	4	5

Comments:

History 100.11
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"Murder Board" Sequence Readings

Each of these readings was included in the Course Packet for the FWS.

Roger Launius, "NASA and the Decision to Build the Space Shuttle, 1969-72," The Historian 72
(Autumn 1994): 17-34.
>-an article by the current NASA Historian outlining the political and economic
constraints that the space agency faced in the late 1960s and early 1970s, and the many
compromises and redesigns that the space shuttle underwent before it was accepted and
constructed. Launius argues that in the end, after all of the compromises, the final design
did not satisify anyone and had abandoned the most significant aspects of the original
design.

Roger E. Bilstein, Orders of Magnitude: A History of the NACA and NASA, 1915-1990, NASA
History Series, (Washington, DC: NASA Science and Technical Information Division, 1989),
Chapter Six.
>- a chapter from a history of NASA, outlining the programs NASA conducted in the
1970s. It provided details and rationales for NASA's 1970s programs. This source
explained the goals and methods of many of the programs that George Low referred to in
his "Personal Notes" and made it possible for the students to understand that primary
source.

George M. Low, Deputy Administrator, National Aeronautics and Space Administration,
"Personal Notes," December 23, 1972, reprinted in Exploring the Unknown: Selected
Documents in the History of the U.S. Civil Space Program, Volume III: Using Space, p. 132-
135.
>-a primary source from a key decision maker at NASA in the early 1970s. While Low
was monitoring the Apollo 17 mission, he was also negotiating NASA's 1973 budget and
the space agency's future direction. His notes reflect on the options and constraints he
was facing.