

Flight: My Life in Mission Control by Chris Kraft
16.895 Engineering Apollo Book Review by Amy Brzezinski

Flight: My Life in Mission Control, by Chris Kraft, is a memoir written by the man generally considered as “the father of mission control.” Kraft’s book details the history of NASA from its NACA roots and the establishment of the Space Task Group (STG) up through to the Mercury, Gemini, and Apollo missions. This history is presented through Kraft’s viewpoint, a man intimately involved in NASA from its beginning, through personal stories about the people and events related to his time at NASA. The book begins with Kraft writing about his childhood in Phoebus, Virginia, his education at Virginia Polytechnic Institute, and the beginning of his career at NACA’s Langley Field in the Flight Research Division. Kraft details his recruitment into Bob Gilruth’s STG, which eventually became NASA’s Manned Spaceflight Center (MSC) in Houston, Texas. The majority of the book focuses on Kraft’s role in the creation of mission control and as NASA’s first flight director for mission operators. In particular, the book focuses on the Mercury and Gemini missions when Kraft was in charge of missions of as “Flight.”

It appears that Kraft has two objectives in writing Flight: First, to pass on lessons he learned from his work in early manned spaceflight, and second, to offer his personal viewpoint on events and people involved with NASA. Kraft is quite elderly, and probably wishes to pass on the lessons from NASA’s “golden age” to future generations. At the end of Flight, which was published in 2001, Kraft comments upon the current state of space exploration: “There’s still so much to be done out there. We don’t use near-Earth space...to proper advantage... government policies inhibit and even prevent private adventures [in space]” (pg 354). It’s clear that Kraft is not happy with the current state of space exploration. Perhaps by writing Flight, Kraft wants to leave suggestions and “lesson learned” for future people involved with manned spaceflight.

Kraft may have written Flight to “set the record straight” as he sees it on a few stories, events, and people related to NASA in the Apollo era. As a key decision-maker at NASA before, during, and after the Apollo era, Kraft was directly involved with many NASA activities and people. Some of these people have been heralded as heroes, while others may have never received the recognition they deserved. Kraft praises and berates various individuals. In particular, Kraft has strong negative comments about astronaut Scott Carpenter, who Kraft

personally made sure never flew in space again. In contrast, Kraft continually praises Bob Gilruth, the director of MSC, at one point saying “No man of space did more or received less credit than Robert R. Gilruth” (pg 351). Kraft uses Flight to tell the early NASA story as he saw it, characterizing people and explaining events through his personal lens of involvement and perspective.

In this way, Kraft has a bit of an “agenda” of telling the early NASA story in his own personal way. His memoir does not cite any sources; he is the sole, yet primary source, a figure involved in NASA from its birth and growth up through and beyond the Apollo program. Kraft only quotes other people through anecdotes; it is questionable how true to memory these quotes are, or how shaded they are by Kraft relating them. Kraft’s primary positioning within the Apollo program is as Flight Director, although Kraft technically did not perform that duty for any of the Apollo missions (he was head of the Flight Operations Division). However, Kraft indicates that even though he “sat in the back row” (for management) of mission control for Apollo, his mentality and perspective were always that of a Flight Director.

Having read other books about the Apollo era, some of Kraft’s statements could be disputed by other people in NASA during the same time period. For example, Kraft writes about an incident when Joe Shea, head of the Apollo program office, gave a presentation after the Apollo 1 fire:

“Joe Shea got up and started calmly with a report on the state of the investigation...within a minute, he was rambling, and in another thirty seconds he was incoherent. I looked at him and saw my father, in the grip of dementia praecox...That was the end of Joe Shea...he was out of the NASA loop and never really recovered.” (pg 275)

In this passage, Kraft implies that post Apollo 1, Shea was started displaying schizophrenia-like symptoms similar to what Kraft had seen in his father. Few sources discussing Shea post-Apollo 1 would state that he wasn’t shook up by the death of the astronauts, but other sources do not imply that Shea lost his mind. Shea worked for Raytheon after he left NASA. It’s doubtful that if Shea had “never really recovered,” he would have been able to continue working in a technical field (Kraft’s father eventually ended up in an institution.)

Although Flight is work shaded by personal perspective, it is central in Apollo literature. Kraft was part of NASA before it existed, and was critical in decision-making for Mercury,

Gemini, and Apollo mission operations. He is a key inventor of mission control, an organization that exists today. Many of the practices mission control still uses (mission rules, procedures, etc.) were envisioned by Kraft. From the perspective of being a Flight Director, Kraft's description of early NASA gives reason as to why history turned out the way it did. His memoir differs from astronaut memoirs in that Kraft essentially "flew" *all* the missions up to Apollo as a member (in varying roles) of mission control. This perspective is not captured in other written works, and is essential in understanding the Apollo program, especially from the "Apollo Technology" point of view, as classified by Lanius.

In Flight, Kraft describes the engineering decision to make Apollo 8 a lunar orbiting mission. Technical problems with the LM, making it behind schedule, initially motivated the decision. Because the LM was holding up the progression of missions, George Low proposed making Apollo 8 a circumlunar trip without a LM, and testing the LM in earth orbit later. After Kraft discussed the idea with his people, the Apollo 8 proposition became an orbital mission to generate a better math model of the orbit that would be used to land on the moon. Additionally, the moon's surface could be photographed for future landings. As the idea was proposed four months before the launch date, the primary technical consideration against Apollo 8's orbital mission was if everything could be made ready in time. The preparations for mission control, crew selection and training, flight controller training, and software development, particularly trajectory software, were considered. The decision was also dependent on Apollo 7's success, and thus was not solidified until after that mission. According to Kraft, political considerations were not as strong as the technical ones, even though Apollo 8 a lunar orbital mission would "ace the Russians and take a lot of pressure off Apollo "(quoted pg 284). A large number of people from different levels within NASA, industry contractors, the military, and the U.S. Government had to sign off on the mission in terms of support. Kraft even had to go directly to the commander in chief of the Pacific Fleet to ask for splashdown recovery support for Apollo 8. In the end, the decision was made to have Apollo 8 orbit the moon.

Kraft's description of the decision shows how fast, and yet slow, the decision was made. Within the NASA engineering community, the decision was made quickly; top-level engineering managers were accessible to one another, right down to Gilruth calling von Braun out of a meeting. The key NASA technical people that needed to be involved in the decision were virtually immediately, and gave their approval only days after the idea surfaced. However, the

decision slowed when NASA headquarters, contractors, the Navy, and the U.S. government needed to give their approval. Bureaucracy slowed down the process, which is usually the case in large projects like Apollo. However, most people recognized a good idea when they saw one, and Kraft attributes the Apollo 8 decision as being “the gutsiest and most important decision of the entire program” (pg 302).

Although shaded with personal perspective Kraft’s Flight is an important Apollo-era account providing an in-depth personal account about Apollo mission operations. Part of what makes the memoir so wonderful is Kraft’s opinionated stories and comments. But along with his personal perspective comes universal lessons relevant to anyone working in a technological field. As a graduate student aspiring to someday become a flight controller (or even flight director), I found this book useful in terms of the lessons Kraft passes on from being the “inventor of mission control.”

Word Count: 1,451 (Not including title)