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Book Review

Apollo: The Epic Journey to the Moon
David West Reynolds

David West Reynolds' Apollo: The Epic Journey to the Moon presents a roughly chronological accounting of man's journey to the moon, focused chiefly on the efforts of the American space program of the 1950's and -60's. Reynolds covers a fairly wide range of historical events and accomplishments which led up to the moon landings; everything from the first detailed observations of the moon's surface by Galileo in 1609 and the publishing of Jules Verne's From the Earth to the Moon in 1865, to the layout of Wernher von Braun's fantastic, yet extremely detailed vision for the future of space exploration in *Collier's* magazine from 1952 to 1954 and the Soviet Union putting the first man-made object into orbit with Sputnik in 1957.

The brunt of the text however, discusses the events of, and the achievements made during the Apollo program, from its inception as the ultimate near-term objective of the U.S. Manned Space Program in late spring of 1961 (with President Kennedy's address to Congress), to the conclusion of the canonical "Apollo Program" following the successful completion of Apollo 17 in December of 1972. Both human and technological achievements are discussed (ranging from the Apollo 13 crew's struggle to survive in the harsh conditions inside their capsule to Rocketdyne's key development of the efficient, liquid hydrogen-burning J-2), though the technical milestones of the program are the chief subject matter. This focus on the artifacts of the program, and how they relate to the astronauts, isn't surprising, given Reynolds' training as a Classical archaeologist. Finally, Reynolds goes into detail about the activities of the U.S. Manned Space Program between the last lunar landing in 1972 and the first Space Shuttle launch in 1981. Additionally, some commentary on the current (1981-present) activities of NASA is given.

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This last section of the book, that dealing with the events post-Apollo 17, is really where the interesting part of this work lies. With the possible exception of Skylab, little of what happened in the U.S. space program between 1972 and 1981 is well-known outside of the Aerospace community. Reynolds does a good job of detailing the activities of NASA during this time period (at least with respect to manned space flight), and uses it as a backdrop for his main

argument, that good leadership in several key positions, more than any technical accomplishment or political environment, allowed NASA to successfully complete the task of landing a man on the moon.

Beginning with the election of Richard Nixon as President, in 1968, Reynolds shows that the space program began to lose focus, which was truly what brought about the demise of Apollo, in its fullest form. Originally, there were supposed to be Apollos 18, 19, and 20, which would further build on the capabilities of the J-mission Apollo-Saturn system. In particular, the ability for the astronauts to travel great distances on the moon by means of a rocket-powered “scooter”, and extended-stay landings on the poles or the far side of the moon were all in development when the final three landings were cancelled.

Apollo 20 was canned in 1969, and 18 and 19 were similarly dispensed with in 1971, under political pressure from President Nixon, who wanted to distance his administration from the Apollo program, which was seen even at the time as being strongly associated with his Democratic predecessor Kennedy. This, of course, ran diametrically opposed to von Braun’s ultimate vision of an integrated set of space hardware, all derived from, and building on, Apollo-era components. This lack of a cohesive, wide-spread leadership vision was, according to Reynolds, very much what caused the transformation of NASA into what might simply be termed a government jobs program for the now basically goal-less Apollo workforce and infrastructure. Without a clear end purpose, and strong central leadership to drive NASA towards that purpose, it seemed as though the drive for NASA to further push the cutting edge of manned exploration was lost.

In addition to providing a backdrop for his assertions about why the U.S. was able to land men on the moon, Reynolds’ discussion of the transition from the moon landings to the Space Shuttle provides an interesting parallel to what is going on today in the U.S. Manned Space Program. With the accomplishment of the first successful landing on the moon, Congress and the American public began to rapidly lose interest in Apollo, and NASA in general. This, combined with funding being lowered every year since the peak in 1967, and the Nixon White House’s desire to distance itself from the Kennedy legacy, caused NASA, and the Manned Space Program in particular, to enter a time period where there was no clear, unified purpose to the activities being carried out. What was once von Braun’s visionary concept for an Integrated Space Program turned into only one actual project: Skylab. Already-built hardware (including

the Saturn V's for Apollos 18 and 19) was scrapped. And a myriad of low-cost uses and developments of existing Apollo hardware designs were cancelled before they even left the drawing board.

Von Braun initially envisioned a very modular set of manned space hardware which could be used for a variety of missions. Among the proposed missions were the first manned exploration of Mars, and the first permanent human presence on the Moon. These missions and the modular hardware architecture proposed by von Braun are strikingly similar to the current proposal for Project Constellation. While Reynolds' book was published even before the Columbia accident, the lessons which can be learned from his account of the Manned Space Program from 1972 to 1981 have great relevance today, as NASA transitions from the Shuttle to Constellation.

With the CEV scheduled to have its first flight in the next 5 years, but be the backbone for a system architecture stretching into the 2030's, it is critical that a strong chain of leadership be present to support the program, especially considering that the upcoming presidential election will occur before the first flight. Based upon the end of the Apollo Project, we can most assuredly learn some lessons about how to keep this program going where Apollo failed. To that end, Reynolds' book holds great relevance today, as a link between Apollo's legacy, and our future manned spaceflight plans.

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