



## Viewpoint

## Why did the United States retreat from the moon?☆



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## ABSTRACT

On July 20, 1969, Neil Armstrong and Buzz Aldrin took the first human steps on a celestial body other than Earth. Just over two weeks later, on August 4, NASA presented to a committee charged with making recommendations on the U.S. post-Apollo space program a bold plan of continued lunar and Martian exploration. Over the next six months, that plan was decisively rejected by the administration of President Richard M. Nixon. In 1970, NASA canceled the final two Apollo missions to the Moon, and on January 5, 1972, President Nixon announced approval of the space shuttle program. Focusing the U.S. space program on operating the space shuttle and building a space station has kept the United States human space flight program confined to low Earth orbit for over four decades. There are lessons to be learned from the post-Apollo decisions in the United States for today's attempts to gain political support for a renewed and sustainable program of human exploration of the Moon, Mars, and other solar system destinations. This paper, drawing on in-depth research on the events of the 1969–1972 period in U.S. space policy, will discuss those lessons.

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As Apollo 17, the final lunar landing mission, lifted off the lunar surface on December 14, 1972, U.S. President Richard Nixon issued a statement saying “this may be the last time in this century that men will walk on the Moon.”<sup>1</sup> By the decisions he made between 1969 and 1972, Nixon ensured that his forecast would come true. This paper will discuss those decisions, their impact on the U.S. space program over the last four decades, and their relevance to today's planning for future human missions beyond Earth orbit.

### 1. After the Moon, Mars?

As Richard Nixon became president on January 20, 1969, the first steps on the Moon were exactly six months in the future. Nixon's predecessor as president, Lyndon B. Johnson, had explicitly deferred a decision on what the United States should do after Apollo to his successor. Nixon soon after taking office chartered a top-level review, managed by what he designated as the Space Task Group, to recommend post-Apollo space goals and programs. That review

took place even as Apollo 11 gained world-wide acclaim; Nixon made sure that he would bask in the glow of that achievement. But when presented with a Space Task Group recommendation for an ambitious post-Apollo space effort, including establishing lunar bases and preparing to send Americans to Mars in the 1980s, Nixon decided that the United States public neither wanted nor could afford such an undertaking. The first Nixon space decisions were thus made with respect to what *not* to do—not to continue during the 1970s a fast-paced, high priority, Apollo-like effort aimed at rapid development of new space capabilities, more permanent stays on the Moon, and leading to human missions to Mars. The refrain “after the Moon, Mars” did not resonate with the Nixon White House.

### 2. Three key decisions

Having quickly rejected setting human missions to Mars as a new national goal, the Nixon White House was faced with the question “if not an ambitious post-Apollo program centered on human space flight, then what?” The answer to that question came in the form of three major decisions:

- **To treat the space program, not as a special, high priority government activity as had been the case during Apollo, but rather as part of the “day in and day out” activities of government, with its budget determined “within a rigorous**

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<sup>1</sup> Unless otherwise noted, all quotations and other material in this paper are drawn from my forthcoming book *After Apollo? Richard Nixon and the American Space Program*, to be published by Palgrave Macmillan in spring 2015.

**system of national priorities.**” The Nixon administration formalized NASA’s need to compete through the political and budgetary process with other government agencies for budget priority, and then assigned a relatively low priority to the space budget in that competition.

- **To lower U.S. ambitions in space by not setting another challenging space goal and by ending for the foreseeable future human space flights beyond low Earth orbit.** As assistant to the president Peter Flanigan remarked at the time, there was in the White House in 1969 and early 1970 “a feeling that the country had had enough excitement [in space] for now”; there was no inclination on the part of Richard Nixon to propose another Kennedy-like space goal for the post-Apollo period or even to indicate in any but the most general terms that the United States would continue to work towards human exploration beyond low Earth orbit.
- **To build the post-Apollo program around a space shuttle, without linking the shuttle to a long-term strategy for its use.** The shuttle was seen as a new capability for carrying out the space program of the 1980s and beyond. However, its approval was not coupled by the Nixon administration to a strategic perspective on space program goals for that period, and particularly not to the resumption of human travel beyond Earth orbit. As historian Walter McDougall would observe, “Apollo was a matter of going to the moon and building whatever technology could get us there; the Space Shuttle was a matter of building a technology and going wherever it could take us” [1]. That “wherever” turned out to be low Earth orbit.

### 3. The space program and national priorities

Richard Nixon made it clear to his associates that he did not want the post-Apollo space effort to appear to take money away from government programs on Earth. As a March 7, 1970, statement outlining his space policy was being prepared, Nixon stressed that it should be written in a way to avoid “positive statements on space” being “invidiously” compared to his attitude towards “problems in poverty and social problems here on earth.” He did not want to be put in a position of seeming to be “taking money away from social programs and the needs of the people here to fund spectacular crash programs out in space.”

This perspective was formalized in what is characterized here as the “Nixon space doctrine,” clearly stated in that 1970 presidential statement. The framework for space decision-making set out in the Nixon statement has in its essence been accepted by most presidents since, and thus has had a four decade impact. The Nixon space doctrine had two elements. The first was to change the status of the space program from an effort formally assigned the highest national priority, as had been the case during Apollo, to just one of many “normal” government activities. In the language of the space statement: “We must think of them [space activities] as part of a continuing process—one which will go on day in and day out, year in and year out—and not as a series of separate leaps, each requiring a massive concentration of energy and will and accomplished on a crash timetable.” Space was to become “a normal and regular part of our national life.” The second element of the doctrine was to declare that the space program from 1970 forward would have to compete with other government activities for priority and corresponding budgetary support. The space statement said: “Space expenditures must take their proper place within a rigorous system of national priorities. What we do in space from here on in must therefore be planned in conjunction with all of the other undertakings which are also important to us.”

At the peak of the Apollo buildup in 1966, the NASA budget comprised nearly 4.4 percent of Federal spending overall and 19 percent of discretionary non-defense Federal spending. (The NASA share of the Federal budget is most frequently cited in terms of a percentage of the overall budget. This can be misleading. Given the inexorable growth of the portion of the U.S. budget devoted to mandatory entitlements, it seems more useful to discuss the NASA budget in terms of its share of the discretionary non-defense budget, since it is in that realm that space spending competes with other government programs for funding priority.) As President Lyndon B. Johnson refused to approve any of NASA’s post-Apollo proposals in the 1966–1968 period, that budget share quickly began to decline; by the time Richard Nixon became president in 1969 the NASA budget was just above eight percent of discretionary non-defense spending. The early Nixon space decisions continued this trend; by mid-1973, the NASA discretionary budget share was approximately six percent and continuing on a downward trajectory. While it was Lyndon Johnson rather than any of his successors that made the biggest percentage reduction in NASA’s budget share, that reduction came from deferring a decision on what to do in space after Apollo, not on the basis of a specific decision to lower the space program’s priority. By contrast, Richard Nixon consciously made that crucial choice—to reduce NASA’s priority rather than assign it new, expensive programs. This choice continued the decline in NASA’s budget share. The NASA portion of discretionary non-defense spending vacillated between six and four percent between 1977 and 2002 and between four and three percent since. By any measure, the space program has not done well in competition for budget share; in fact, compared to other government programs, it has declined in priority over the years [2].

The consequences of this declining share of the overall discretionary budget have been clear to most observers. For example, the Columbia Accident Investigation Board in 2003 observed that “NASA has had to participate in the give and take of the normal political process in order to obtain the resources needed to carry out its programs.” In that give and take, “NASA has usually failed to receive budget support consistent with its ambitions. The result is an organization straining to do too much with too little” [3].

The reaction to this situation on the part of the mainstream human space flight community has been predictable—continuing advocacy that the NASA budget share should be increased. A 1990 space program review led by aerospace industry executive Norm Augustine suggested that “a reinvigorated space program will require real growth in the NASA budget of approximately ten percent per year (through the year 2000), reaching a peak spending level of about \$30 billion per year (in constant 1990 dollars) by about the year 2000” [4]. A NASA budget of \$30 billion in 1990 dollars would have been the equivalent of a budget of almost \$40 billion in 2000 dollars; the actual NASA budget in 2000 was \$13.6 billion [5]. Almost two decades later, a similar review of NASA’s human space flight program, again led by Norm Augustine, reached a similar conclusion, observing that “NASA’s budget should match its mission and goals,” but then suggesting that “meaningful human exploration” would be possible only if the NASA budget were increased by up to \$3 billion per year [6]. Given that the proposed NASA FY2010 budget at the time the review was taking place was \$18.7 billion, this was a call for an over 15 percent increase in NASA’s annual resources. More recently, astrophysicist and science spokesperson Neil deGrasse Tyson has gained widespread attention by his advocacy of doubling the NASA budget, bring it back to one percent of overall Federal spending, equivalent to some six to seven percent of discretionary spending. Such an action, suggests Tyson, would “give NASA enough money to do everything everyone has wanted NASA to do over all these years *and* enable us to go back to the moon and on to Mars in a bold and audacious way” [7].

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