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Analysis

The Spirit of Discovery

Thoughts on President Bush's New Vision for NASA

In a speech at NASA headquarters on January 14, 2004, President Bush laid out a new vision for America's manned space program. The three articles below analyze President Bush's plan and examine the larger question of whether humans should go into space at all. Adam Keiper *discusses the details of the proposal and looks at the objections that have been raised so far.* Dr. Robert Park, *a leading critic of manned missions in space, argues in favor of sending telerobots instead of humans.* Dr. Robert Zubrin *explains why the president's plan is needed, and why humans should head to Mars. These essays are based on remarks delivered at the Ethics and Public Policy Center on February 5, 2004.*

The Right Plan

Adam Keiper

The setting seemed ideal in 1989 when President George H. W. Bush announced his new Space Exploration Initiative. It was the twentieth anniversary of the first manned Moon landing, and all three Apollo 11 astronauts were on hand at the inspiring location of Bush's speech: the National Air and Space Museum, "a symbol of American courage and ingenuity." There was a great sense of promise in the air as the president spoke of "a new and continuing course to the Moon and Mars and beyond." Unlike the 1960s space race, which was part of the larger conflict of the Cold War, the Space Exploration Initiative was to be "an opportunity," the president said—a choice, not a necessity.

But the Space Exploration Initiative fizzled once the details were spelled out. The plans proved much too complex and too costly, the president abandoned his own proposal, and all talk of space exploration evaporated. Through the 1990s and into the new century, America's manned spaceflight program would remain consigned to low earth orbit, flying up and down in the space shuttle, building a space station that never fulfilled its promise.

Fast-forward to 2004. Once again, a president is proposing a return to the Moon and then "human missions to Mars and to worlds beyond." Once again, the mission is a choice, not a necessity. But this time, the White House is closely managing the plans and the budget. President George W. Bush has given NASA a vision worthy of America; he has also developed a realistic way to make it happen.

The most-needed change called for in the president's plan is the retirement of the space shuttle and its replacement with a new kind of vessel. The shuttle is expensive and unsafe—two of the five spaceworthy shuttles have been lost in accidents—and it isn't capable of going anywhere except into orbit and up to the International Space Station. Under the president's new plan, the shuttle will be used for the next few years to finish assembling the space station, but as soon as the station is completed the shuttle will be taken out of service—in about 2010.

The shuttle will be replaced by a new capsule spacecraft. The capsule design, used by NASA before the space shuttle and still used by the Russians today, is simple and safe. The new capsule will become the vehicle for transporting astronauts to and from the space station, but according to President Bush, "the main purpose of this spacecraft will be to carry astronauts beyond our orbit to other worlds." Hence the capsule's name: the "crew *exploration* vehicle." According to the White House, the capsule should be designed and tested by 2008, followed by manned flights no later than 2014.

A series of robotic missions to the Moon will also start by 2008, "to research and prepare for future human exploration." As the plan stands now, human exploration of the Moon—not visited since 1972—will resume some time between 2015 and 2020. According to the president, we'll establish "an extended human presence on the Moon," and use the lunar surface as a proving ground for "new approaches and technologies and systems that will allow us to function in other, more challenging environments."

There is no timetable for those subsequent missions to "more challenging environments," but the prime destination is Mars. To that end, the president's plan steps up the robotic exploration of Mars and calls for more research into power generation, propulsion, life support, and other capabilities that must advance before we can begin manned Martian missions.

The reaction to President Bush's space proposal has been tepid—and understandably so. The United States has other national priorities at the moment and, not surprisingly, public attention is more focused on the war on terrorism, our efforts in Iraq, the state of our economy, and this year's presidential election. The notion that people are bored by space exploration is certainly false—witness the enormous interest in the rovers currently on Mars—but the public response to the president's new space policy has been subdued.

The low-key nature of the president's announcement has a lot to do with the lack of public excitement, but that was intentional: shying away from the fanfare that accompanied his father's 1989 space speech, the president spoke to a restrained audience at NASA headquarters—that is, at the nerve center of the agency that he is trying to redirect and reform. There was no mention of space in the State of the Union address, nor any other subsequent attempt to galvanize

public opinion in favor of the new vision for space exploration.

Yet the chief criticism of the president's plan, leveled in the print press and online, is that it is an election-year ploy, an attempt to make political gains by evoking memories of a bygone era of American achievement. Here is how one pundit, Joshua Micah Marshall, put it in his column in *The Hill*, a newspaper that covers Washington politics:

> [The space announcement] was supposed to be a campaign sound bite to give a running start to the State of the Union roll-out and a bullet point for the president's onward-and-upward-with-optimism reelection theme.… Yet when it didn't strike a chord with voters or the Sunday shows, it got tossed aside without a second thought. It wasn't a policy proposal. It was a political ploy.

This is preposterous. The announcement was the culmination of a two-year review of U.S. space policy—begun by the White House and NASA in 2002, even before the *Columbia* accident made it painfully obvious that the manned space-flight program needed serious revision. Far from tossing aside the proposal after the lukewarm public reception, the president appointed a commission—led by former Secretary of the Air Force Pete Aldridge and known informally as the "Moon-to-Mars Commission"—to make specific recommendations for implementing the plan. The president's budget proposal for fiscal year 2005 takes the first steps to execute NASA's new mission, starting with immediate changes to programs and personnel within the agency. The new space plan is no cynical political ruse—it is serious and thoughtful, and has already moved into the nitty-gritty arena of policies and budgets.

The second major criticism of the president's plan is that we shouldn't be spending money on space exploration at this time. This is a reasonable complaint: the federal deficit is half a trillion dollars, and there are other priorities competing for funds. But the president's new plan doesn't bust the bank. Most of the money for new exploration comes from reallocations within NASA's existing budget, with a relatively small increase in the agency's overall funding (just $200 million per year for the next five years).

The small size of these proposed budget increases has given rise to the third major criticism of the president's new vision for NASA—that no real space exploration can be done for so little money. Armed with an arsenal of impressive-sounding numbers, the detractors who voice this claim make it sound like the president has given NASA pocket-change to pay for impossibly difficult missions. Upon closer scrutiny, however, the figures that these critics cite are completely speculative, and often based on bogus comparisons.

For instance, Gregg Easterbrook, a Brookings Institution fellow and *New Republic* senior editor, has argued that since it took $40 billion to develop a rocket powerful enough to take us to the Moon in the 1960s, "a similar outlay would

be entailed to develop a new super-rocket." Alex Roland, a former NASA historian and an outspoken critic of the Bush plan, has put the number even higher: "$100 billion seems a modest estimate." But Easterbrook and Roland are comparing apples and oranges; they both ignore the fact that we know much more about rockets now than we did during the days of Apollo. What's more, the companies that manufacture some of the major rockets now used for launching satellites into space already have plans, at least on paper, to extend their product lines to include rockets powerful enough for missions to the Moon or Mars—for a fraction of the prices quoted by Easterbrook and Roland.

Comparisons to the 1960s are bad enough, but many critics have also disingenuously cited figures based on the cost estimates produced for the bloated 1989 plan, some claiming the president's new plan would cost $1 trillion. These wobbly and exaggerated numbers have no connection to the president's real plan, and no place in serious discussion of space policy.

All of which isn't to say that the president's plan is perfect. For one thing, the plan overemphasizes the importance of returning to the Moon. In his speech, the president claimed it would cost "far less" to assemble and provision spacecraft on the Moon than on Earth. This is misguided. While it might make sense under certain conditions to assemble spacecraft in orbit, it doesn't make sense to assemble them under the conditions of lunar gravity. The president also claimed that the Moon has "abundant resources"; in fact, the Moon has fewer economically useful resources than the most barren desert on Earth.

NASA would probably also benefit from a more ambitious timetable. Under President Bush's plan, the soonest astronauts will return to the Moon is 2015, eleven years away—even though it took only eight years to get there in the Apollo era, when we were starting from scratch. It isn't true, as some critics have claimed, that the president's plan leaves all the major challenges to later administrations. If President Bush is re-elected, the development and testing of the crew exploration vehicle will occur during his second term, and the new robotic missions to the Moon will begin before he leaves office. But the plan could—and should—move much faster.

After all, speed is of the essence. Earlier deadlines translate into less wasteful spending on programs that don't support the main objective. And the nearer the date set for our goals in space, the better the chance that the required political support will stay intact—after all, it isn't clear that American politicians have sufficient patience and stick-to-itiveness to sustain a manned space exploration program for decades.

All in all, however, the president's new vision for NASA is a giant leap forward. It phases out the ailing space shuttle program. It calls for new robotic missions, new space vehicles, and new destinations. And it recognizes that we choose

to go to space because, in the president's words, exploring space "improves our lives, and lifts our national spirit," and because "the desire to explore and understand is part of our character."

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