Mr. Bridenstine's "To Do" List

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In a recent, party-line 50–49 vote, the U.S. Senate confirmed James Frederick “Jim” Bridenstine’s nomination to be the NASA Administrator. This was a historically close vote. Since NASA was created in 1958, the space agency has been considered not only bipartisan but, perhaps, non-partisan. The extraordinary contributions of NASA to the nation’s worldwide prestige, technology, high-tech jobs, scientific discovery, and public inspiration have been countless and usually engage both sides of the aisle.

In the current environment though, where science is under attack in many quarters, Bridenstine’s prior comments that questioned anthropocentric climate change nearly torpedoed the nomination. Although Bridenstine has since recanted and now acknowledges human contributions to climate change, another widely circulated criticism was Bridenstine’s lack of technical knowledge or experience in the space realm. These concerns and others led to confirmation by a whisker.

All of these factors suggest to me that Mr. Bridenstine has a substantial task ahead of him in leading the agency in the U.S. Government with arguably the most technical mission of any. Here’s my personal “to do” list for the Administrator.

First, Mr. Bridenstine must establish the mutual respect for and necessary cooperation with the approximately 20,000 civil servants and 60,000 contractors that are directly employed by NASA.

NASA is not a monolithic organization. There are 10 NASA centers: some that focus on human space flight and launch capability, some largely devoted to science and scientific missions, and a few that mostly conduct advanced research. While NASA’s origins in the cold war and roots in military aeronautics provide some culture of top-down command and control, there is also a questioning attitude that is part of what makes NASA special. Famously, a previous NASA official who came from the military was known to have stated that only in NASA was a direct order considered an invitation to a debate...

Jim Bridenstine might remind the employees that he has been deeply interested in the future of the nation’s space program before he was nominated. In the American Space Renaissance Act document presented at the Space Symposium in 2016, Bridenstine described his thoughts about commercial

and civil space in particular. For a Congressman from Oklahoma (not home to a NASA center) to spend that much time on the future of space was quite interesting to me at the time—and represents more than a passing engagement.

And there is no substitute for visiting each center to become personally familiar with the nuance and culture of each. As a former elected official, Mr. Bridenstine must be aware that each institution has a devoted group of Representatives and Senators who jealously guard the jobs and role of the center. An administrator who ignores this political reality will find ongoing resistance when leading the agency.

Second, the new administrator must provide NASA and the rest of the world much more clarity on the brief statement issued by Vice President Pence and the newly revived Space Council that the United States will “lead the return of humans to the Moon.” Studies of the future of human space exploration have for decades emphasized that Mars is the target of greatest interest for reasons of science and exploration.^{1–4} The last initiative that attempted to include both human landings on the Moon and eventually Mars, the so-called Constellation program, collapsed from its own budgetary (over) weight.

Using international collaboration, commercial providers, and some clever operations in the lunar space, it may be possible to lead the return of humans to the Moon and also keep the Mars goal in clear focus. Cost control, rigorous execution, and careful program management are paramount. I also implore Mr. Bridenstine to avoid the politicization that seemingly appears everywhere. The Moon is not a Republican and Mars is not a Democrat! These are space exploration destinations for the good of all humanity.

Third, Mr. Bridenstine must realize the value and strength of the U.S. science community. Over the past 50+ years, the scientists, technologists, and engineers who create and support NASA programs have devised a mechanism to provide the Agency with sound advice on the future strategic directions for science missions. Through the National Academies of Science, Engineering and Medicine, the so-called Decadal Surveys have defined the gold standard for planetary science, astronomy and astrophysics, Earth science, and heliophysics. By committing to support the recommendations of these Surveys, the new administrator will send a strong signal that he understands the scientific process and is committed to the best possible programs for each discipline.

Of course, such missions must be constrained by cost realism. In this vein, I applaud Thomas Zurbuchen of the Science Mission Directorate for proposing the “lean” Mars Sample Return (MSR). MSR has been a Holy Grail of planetary science for more than 40 years and is currently the top strategic priority of the Planetary Science Decadal Survey. Supporting fiscally and scientifically sound initiatives such as the lean MSR will garner much support for Bridenstine. Similarly, an even-handed treatment for Earth science, ongoing funding for heliophysics, and seeing a successful launch for the Webb Space Telescope for astrophysics will underscore support for a major element of NASA’s portfolio.

Finally, Mr. Bridenstine should study the previous, non-technical administrators. Two such examples come to mind: James Webb and Sean O’Keefe. Webb was a lawyer who knew well the processes of Washington and Capitol Hill. Webb provided powerful leadership during the Apollo era, and history indicates he was crucial in ensuring the success of the United States in the “Space Race” of the 1960s. However, Webb was sufficiently astute to have two deputies who were world-class engineers: Bob Seamans and Hugh Dryden.

My own experience as a Center Director was with Sean O’Keefe who came from the Office of Management and Budget and was known as a financial management expert. Sean selected an astronaut as his deputy and was known to ask his staff to read *Powering Apollo*, the story of James Webb’s experience. O’Keefe appointed me to be the Center Director of NASA Ames and, when the Columbia Shuttle accident

occurred, asked me to serve as the sole NASA representative on the 13-person failure review group. The recommendations that emerged from the Columbia Accident Investigation Board (CAIB) were partly very technical fixes and also a critique of management failures in a high-risk environment. To his credit, Sean embraced the entire CAIB report and set about implementing each recommendation. As far as I could tell, any political considerations about the findings were set aside in the interest of fixing the problem and getting back to flight.

Mr. Bridenstine should surround himself with the most highly qualified individuals he can find who understand both the ambition and risk that is inherent in NASA’s visionary mission. Every space professional I know wants NASA to succeed at returning humans to deep space and successfully executing the scientific and aeronautics goals of the agency. It is my fervent hope that Mr. Bridenstine will fully embrace a bipartisan leadership role, engage the emerging space entrepreneurs, and provide international leadership for the crown jewel of U.S. exploration capability.

REFERENCES

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