

Sound Off: Space Must Be Settled, Not Just Explored

by Jeff Krukin

In *Illusions: The Adventures of a Reluctant Messiah* by Richard Bach, we experience the wonder of seeing further than our own, immediate needs. The essential message is that the higher we hold ourselves, the further we can see. When I walk with my head held high, I can see great distances and imagine great things. When I walk with eyes cast down, I see only my feet and the sidewalk below them. When it comes to America's vision for space, most of the commentary on President Bush's space exploration initiative is sadly sidewalk-bound.

Many who are against sending humans to the moon and Mars argue that robots can do the job more effectively. How ironic that shortly after the President's announcement, the Mars Exploration Rover Spirit spent two weeks mentally hiccupping and twiddling its mechanical thumbs. The resuscitation of Spirit by human beings demonstrated that robots aren't entirely self-sufficient. In fact, far too many robotic missions have failed because these splendid machines couldn't overcome surprises created by human design and construction flaws. Had this trend continued with Spirit being reduced to its own tombstone, it would have further demonstrated that humans are a vital presence in space.

For decades the space debate has focused too much on exploration. The exploration of space is valuable in and of itself, but the most important reason for exploring space, the reason that robots alone simply don't count, can be summed-up in one word: [settlement](#). This time, we go to stay. Even if science was the only reason to go, the best science is performed by onsite scientists with their instruments, not by onsite instruments without their scientists. But science isn't the only, or even the best, reason to go. Survival and prosperity are the fundamental reasons, and these are worth any price.

What does space have to do with our survival and prosperity? If you think of space as a federal program, it's difficult to answer this question. When you realize that space is a place, a place where we live... just as we live in our hometown, the United States, and on Earth... the answers reveal themselves. Space is...

- [A mere 62 miles above us](#), and thus a [continuation of our environment](#)
- [An extension of the economy](#), and thus part of our lives
- [A place of abundant resources](#), and thus crucial to global prosperity, liberty and peace

Many believe we shouldn't spend money on space until we solve all our problems here. Sounds reasonable, but this offers little more than false hope. Just when will all our problems be solved? How can this be measured, and who declares this accomplished? How many nations, governments, companies, organizations, or people do you know that have solved all their problems? Humanity isn't going to solve all its problems, ever. We are too dynamic, always solving problems and creating more at the same time, and forever continuing this cycle as we endlessly evolve. We go into space for reasons that humans have historically gone elsewhere; to find resources and freedom, to create better lives. If humans didn't leave home until all was well, all six billion of us would still be in Mesopotamia, crowded and miserable.

Lunar visionary Kraft Ehrlicke said it best in 1970: "While civilization is more than a high material living standard it is nevertheless based on material abundance. It does not thrive on abject poverty or in an atmosphere of resignation and hopelessness. Therefore, the end objectives of solar system exploration are social objectives, in the sense that they relate to or are dictated by present and future human needs." With a ceaselessly growing global population requiring ever more resources, human survival and prosperity require not just the exploration of space, but also its settlement and development. It's really that simple. The only question is how long we wait to begin in earnest. We can begin now, in partnership with other nations, or wait until we endure a few more wars over diminishing resources.

Consider China and India, the two most populous nations in the world with a combined total of 2.3 billion people. Their economies are growing into 21st Century powerhouses that will require vast resources. How will the governments of these nations provide for their citizens? In 1941, the Empire of Japan used its military to expand throughout the Pacific and create the Southeast Asia Co-Prosperity Sphere. Why? Japan needed resources, such as rubber, tin, and oil. It attacked Pearl Harbor to keep the United States at bay.

Now imagine the year is 2031, and China's energy consumption is the same as the entire world's consumption today. Will China deploy its navy to seize the Spratley Islands and other resource-rich parts of Southeast Asia? Will Pearl Harbor be attacked again, only this time with a Chinese nuclear strike? And what will India do, situated between the oil wealth of the Middle East and Southeast Asia? Like China, India is enhancing its military capabilities. Is conflict the only answer? Must Earth be the sole source of energy and other resources?

I realize that some view space as a pristine environment that must be protected from the ravages of humanity. Many environmentally conscious people want to protect space from being spoiled, just as they wish to keep Earth clean. This is commendable, but humans need resources to live. From where shall we get them? Which is best to protect, Earth, or small asteroids containing resources needed on Earth? Which is preferable, increasing our consumption of polluting fossil fuels, or developing the means to harness the Sun's energy in orbit and transmit it to Earth?

If you're thinking conservation is the only answer, it isn't a realistic alternative by itself on a global basis. Besides, conservation too often reflects an attitude of scarcity. Where's the hopeful future in that? Instead, combine

conservation with vision, and you can see orbiting solar arrays beaming power to Earth and helium-3 extracted from the moon for use here in future fusion reactors. Do you think it can't be done? Countless experts are always talking about what can't be done, just as the novice goes and does it. The Wright brothers weren't aerospace experts, and look what they accomplished despite being told it couldn't be done.

If you don't like President Bush, I suspect you don't care for his Moon-Mars initiative. If such feelings are the basis of your views, put them aside temporarily and see the initiative for what it is at its core: a wondrous vision of permanent human presence in space. Both Democrats and Republicans who support this vision must unite to prevent its demise.

Space, when considered with the possibilities of an open mind rather than through the myopic prism of space = Federal spending, is precisely about our lives on Earth. Space offers a solution for energy independence and decreasing the use of fossil fuels. Space is a hotel, a college campus, a science lab, and yes, maybe a Wal-mart, in orbit and then on the moon. Space is nothing less than the ultimate economic growth engine for the entire world, and nothing more than another place for people to live, work, study, and play.

The biggest obstacle to the exploration, settlement, and development of space has been the high cost of getting to orbit. NASA has proven time and again that it cannot decrease this cost, despite numerous launch vehicle programs. This shouldn't be surprising, for while our government provides many valuable services, it isn't designed to lower the cost of products and services. This is the forte of the private sector, which until very recently has been hindered in its efforts to create a commercial space launch industry. Fortunately this is changing, as entrepreneurs have formed companies like SpaceX and XCOR Aerospace with the goal of creating inexpensive launch services. Congress is supporting such efforts, as seen with the March passage of an amendment to the Commercial Space Launch Act. Scaled Composites, having won the XPrize in October, is building vehicles for Sir Richard Branson's Virgin Galactic venture to carry passengers into orbit beginning in 2007. And Bigelow Aerospace has just announced the rules for the \$50 million "America's Space Prize," another effort to spur the development of commercial space flight.

The cost barrier is being assaulted by those most likely to succeed; new companies with out-of-the-box ideas. This means space need not be just a tax-funded expense. Instead, it can become an extension of the American economy, a creator of new industries and jobs, and a generator of tax revenues. And while all this is happening, NASA can concentrate on what it does best; developing new technologies for use in space, and pushing deeper into space as a true pioneer that paves the way for the rest of us.

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