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How My Dog Made It Into Orbit

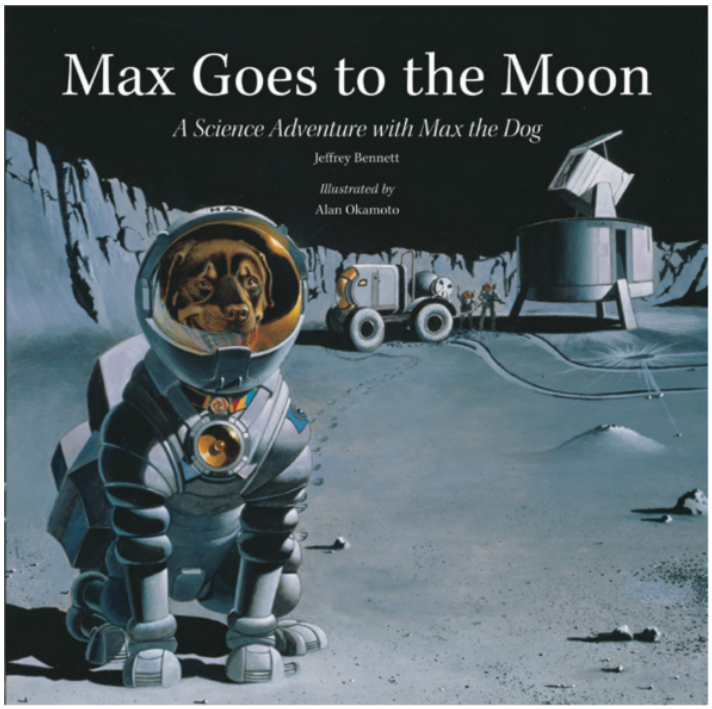
Jeffrey Bennett

Editor's Introduction

To those of us who teach astronomy, Dr. Bennett is known as the lead author of one of the most popular introductory astronomy textbooks in the U.S. He also writes textbooks in other fields and popular books for adults. Less well known is the fact that he is the author of a series of picture books for children, which convey accurate astronomy in a kid-friendly setting. When we heard that one of his books was read aloud in Earth orbit, we asked Dr. Bennett to tell us the story of how he got involved with education at the primary grade level.

I've never been to the Moon. It's a sad fact for a child of the Apollo era, and one that I have to admit to more often than you might think. You see, "Have you ever been to the Moon?" is probably the single most common question that I'm asked during the Q&A portion of my assemblies for primary grade students. The room fills with murmurs of disappointment as I explain that not only have *I* not been to the Moon, but that *no one* has been to the Moon in nearly 40 years.

The kids usually don't ask about whether my dog has been to the Moon, because I preempt that one at the beginning of the assembly. I start by showing them the cover of my children's book, *Max Goes to the Moon* (Max is the dog), and asking for a show of hands as to how many think it's a true story. Above about Grade 3, virtually everyone realizes from the start that the story is fiction. In Grade 2, I typically get a few hands thinking it's a true story. But among kindergarteners



and first graders, I often find half or more of the kids assuming the story is true until I tell them otherwise. It's rather remarkable, because this implies that young children today are growing up with an assumption that we are not only capable of doing much more in space than we are actually doing, but that we are actually doing it. I often wonder how much of their childhood enthusiasm for space and science is lost at older ages simply because they learn that reality is so far behind what they had imagined.

That brings me to some exciting news. After letting the kids down by telling them that Max has not really been to the Moon (or to Mars or Jupiter, his destinations in the sequels), I've always next had to tell them that

Max hasn't even been to space. But from now on, I'll be able to spin this more positively: In spirit, at least, Max has now traveled more than 5 million miles while completing 202 orbits of the Earth, as an Honorary Crew Member aboard the final mission of the Space Shuttle Discovery.

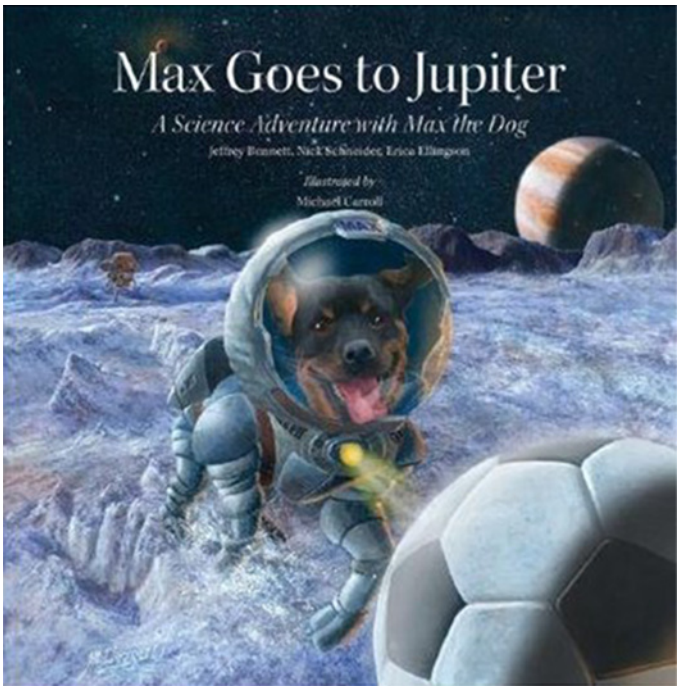
Astronaut Alvin Drew reads *Max Goes to the Moon* on the Discovery shuttle flight deck.

Max's trip began last October, when I received an e-mail out of the blue from space educator Patricia Tribe, writing to me on behalf of herself and astronaut Alvin Drew. The two of them had come up with the idea of starting a program of "Story Time in Space," in which astronauts would read children's books from orbit. For their first selections, they had settled on my series of *Max Goes to the Moon*, *Max Goes to Mars*, and *Max Goes to Jupiter*. As Patricia put it, she and Alvin had picked my series because they liked the way it combined an inspirational story with real space science, and because "we are both dog lovers." The only problem was that because weight is so precious on the Shuttle, they could not take the physical books, and wondered if I might be willing to provide pdfs that Alvin could load onto his computer. I don't think it was more than a few seconds before I had the files e-mailed to her.

To make a long story short, Discovery launched in late February, after some three months of delays. The mission kept the astronauts even busier than they had expected, and Alvin's original plan of reading all three books in front of the International Space Station's cupola, which would have offered expansive views of Earth below, did not quite materialize. Nevertheless, after Discovery undocked from the Space Station, Alvin found time to read *Max Goes to the Moon* on the shuttle flight deck, and to recruit a couple of his fellow astronauts into reading kids' books as well. You can find the video of Alvin's reading by going to http://www.bigkidscience.com/max_in_space.html and scrolling down to the video link. Alvin and Patricia are continuing to develop the "Story Time in Space" idea, in hopes that the astronauts who will be making stays on the International Space Station will make the program a regular occurrence.

Max's space journey has taken me on a few new journeys as well. His impending space mission led to my being invited to do some teacher workshops for the annual Space Exploration Educator's Conference (SEEC) at Space Center Houston, which in turn brought an invitation to Space Camp for Educators in Huntsville (AL), where I had the privilege of leading workshops for a group comprised of all 50 state winners of Teacher of the Year awards. We also got astronaut Alvin Drew to come to Boulder, CO (my home base), where he filmed an introduction for the *Max Goes to the Moon* planetarium show that is currently in its final production stages at the University of Colorado's Fiske Planetarium.

Hearing about these journeys may have some of you wondering how I got into writing children's books, and about some of the challenges and rewards of writing for children. My interest in writing children's books goes back to when I first began teaching at the elementary level (as an aide for a class of mixed grades 2 and 3) more than 30 years ago. The students were extremely enthusiastic about science, especially space science, but the available books left a lot to be desired. With few exceptions, the available science books for elementary-age children were either riddled with scientific errors or written in a very dry style (or both). I thought that it should be possible to have children's



science books that would have a plot and be fully accurate — and then it only took me 20 more years to come up with a story idea! The moment of inspiration came on a walk with Max and my young son; when I saw the Moon in the sky, it suddenly occurred to me that kids might relate well to the idea of a dog going to the Moon.

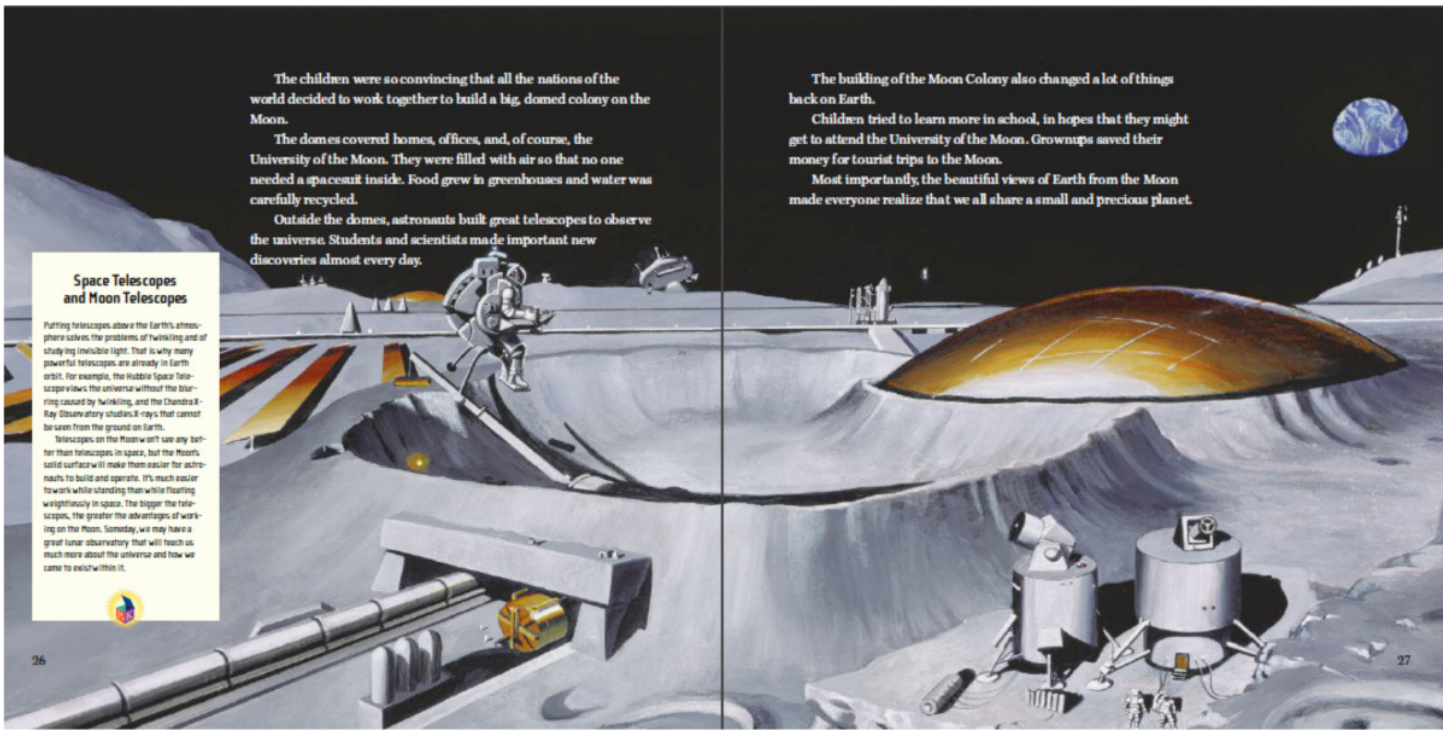
It was then time to get more specific. I decided that my goal would be for the book to connect with kids on three levels: *education*, *perspective*, and *inspiration*. The education piece is the science content, the perspective piece involves seeing ourselves and our planet in a new light, and the inspiration piece comes in trying to get kids to dream of how much better the world could be if we all work together. I quickly realized that achieving this goal would require more words than a picture book story could reasonably accommodate, so I decided to combine the story with sidebars (which we call "Big Kid Boxes") that would explain the themes — especially the science content — in more detail.

Next came what for most authors is the hardest part: finding a publisher and an artist. I dreaded this step, not only because I knew it would be extremely time-consuming just to try to find a publisher, but also because I'd heard many authors lament the loss of control they felt once publishers started telling them what to do. When I mentioned my fears to my astronomy textbook editor of the time, she surprised me by suggesting that I start my own publishing imprint, and then offering herself and two colleagues — a book designer (who then found the artist for the book) and a production manager — as volunteers who would moonlight to help get the imprint started. Thanks to all this help, the path from story idea to publication was relatively smooth and easy.

To understand the challenges and rewards, it will help if I explain what we hoped would happen next. We imagined taking the profits from our first book and using them to finance additional books, including books by other scientist authors besides myself. We'd then roll those even larger profits into larger-scale ventures. Suffice it to say that we went so far as to imagine a science theme park that would compete with Disneyland. Alas, the primary challenge turned out to be that we had grossly underestimated the upfront costs and overestimated the sales potential. As a result, despite numerous awards and strong reviews for our Big Kid Science books, we've never come anywhere close to the break-even point. From a financial standpoint, our publishing venture has been a failure.

Fortunately, I'm lucky enough to be in a position where I can afford to lose some money publishing children's books, and that brings me to the rewards that make it worth it to me. The first is very personal: I *love* talking to elementary school kids, and writing children's books gives me the opportunity to conduct the assemblies I mentioned earlier; I've done this at more than 100 elementary schools to date. The second major reward is in knowing that my books are actually being read and appreciated by kids, and that brings me to one of the biggest advantages of publishing them myself: I can give away as many as I like. I have focused my book donations on elementary school libraries, where I know that each copy will be read dozens of times. To date I've donated books to more than 10,000 elementary school libraries, which means I can realistically imagine that 100,000 or more kids have read them. The third major reward comes in those unexpected things that sometimes happen, like having a book read in space by an astronaut. Fourth, and perhaps most importantly, I find the process itself to be extremely rewarding, in that it gives me a chance to really think about what I hope the world will someday be like, and then to try to convey that vision to the next generation.

In closing, let me share a page spread from *Max Goes*



Page spread from *Max Goes to the Moon*.

to the Moon (see above) that captures many of the ideas I've discussed. This spread appears near the end of the story, after Max and Tori have returned from their first Moon trip, and after children around the world have spread a petition asking all the nations of the world to work together in building a permanent Moon base. You'll notice one of the Big Kid Boxes on the left-hand page, and you'll see from the art that the children's petitioning was successful. (You can also see the entire book online at http://www.bigkidscience.com/readmax.html.) The page concludes: "The building of the Moon Colony also changed a lot of things back on Earth. Children tried to learn more in school, in hopes that they might get to attend the University of the Moon. Grownups saved their money for tourist trips to the Moon. Most importantly, the beautiful views of Earth from the Moon made everyone realize that we all share a small and precious planet." Perhaps you won't be surprised to learn that while reading this page in my assemblies, I always ask for a show of hands as to how many of the kids would like to go to college on the Moon. It's rare that even one child doesn't put a hand in the air.

About the Author

Jeffrey Bennett received his Ph.D. in Astrophysics from the University of Colorado, Boulder. His experience in research and education includes teaching at every level from preschool through graduate school; proposing and helping to develop both the *Colorado Scale Model Solar System* on the CU-Boulder campus and the *Voyage Scale Model Solar System* on the National Mall in Washington, DC; and serving two years as a Visiting Senior Scientist at NASA Headquarters, where he helped create a number of programs designed to build stronger links between the research and education communities. He is the lead author of college textbooks in astronomy, astrobiology, mathematics, and statistics. His books for the general public include *Beyond UFOs* (Princeton University Press 2008) and *Math for Life* (Roberts & Company 2012). His books for children include *Max Goes to the Moon*, *Max Goes to Mars*, *Max Goes to Jupiter*, and *The Wizard Who Saved the World* (available Nov. 2011).

Resources for Further Information

Jeffrey Bennett's personal web site:
http://www.jeffreybennett.com

The Big Kid Science web site:
http://www.bigkidscience.com

The annual Space Exploration Educator's Conference at Space Center Houston:
http://www.spacecenter.org/TeachersSEEC.html

Space Camp for Educators (Huntsville, AL):
http://www.spacecamp.com/educators/

For planetariums interested in running the new Max Goes to the Moon planetarium show, contact Fiske Planetarium in Boulder.

For resources on understanding the Moon, see the ASP guide:
http://www.astrosociety.org/education/family/resources/moonguide.html ✦