

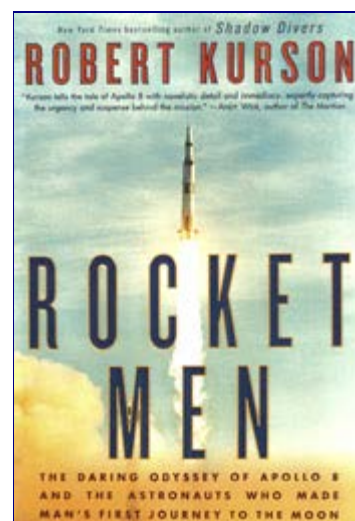
Site Map: [MAIN](#) / [A Reader's Journal, Vol. 2](#) [Webpage](#) [Printer Ready](#)



A READER'S JOURNAL

Rocket Men The Daring Odyssey of Apollo 8 and the Astronauts Who Made the First Journey to the Moon by Robert Kurson

ARJ2 Chapter: Reading for Enjoyment
Published by Random House/NY in 2018
A Book Review by Bobby Matherne ©2018



About a year ago, I visited the Chicago Museum of Science and Industry and on the way out, I noticed an old beat-up space capsule which seemed to have been forgotten about. I walked over and read the nameplate which said, "Apollo 8", but no further information. Must have been one of those meaningless trips into space leading up to Apollo 11 which set a man on the Moon for the first time and brought the three-man crew home safely, I thought. I couldn't have been more wrong! About three years before my visit the author Robert Kurson had made a similar trip to the museum and decided to investigate the Apollo 8 trip into space. What he discovered was a unique pioneering trip of three brave men who "boldly dared to where no man had gone before" and blazed a trail to the manned Moon landing of Apollo 11. But for their courage, Russia might have put the first men on the Moon and President Kennedy's pledge to put a "Man on the Moon" before the end of the 1960s might never have happened.

The first Saturn V rocket test went fine, but the second one blew up on the launch pad. Their chief rocket scientist Werner Von Braun worked to correct the problems, but NASA lost precious time doing so. Three more launches were to happen before Apollo 11, namely 8 (low Earth orbit), 9 (high Earth orbit), and 10 (Moon orbit). But a funny thing happened to George Low, NASA's leading engineer, on the way home from the beach: he decided to have Apollo 8 moved up to the Moon Orbit trip, skipping two preliminary launches. Low saw this was the only way of ensuring Apollo 11 would happen on schedule. This was so dramatic a change, he feared that NASA might not accept the leap in schedule. Luckily the first man he proposed the idea to was named a key NASA manager who was named after a great explorer, Christopher Columbus Kraft.

[page 32, 33] The idea seemed heresy to Kraft. No man had ever flown more than 853 miles above earth's surface. Now Low was proposing to send three astronauts a quarter of a million miles away, and to do it half a year sooner than anyone at NASA had planned. As if that weren't enough, Low was proposing to skip not one but two preparatory Apollo flights, violating one of NASA's foundational philosophies: that missions be incremental to assure mastery and success.

And yet Kraft saw elegance, even genius, in the plan. Low wasn't proposing to land Apollo 8 on the Moon, just to fly around it, so no lunar module was necessary. By going in December, NASA could prove many of the systems and procedures, and much of the equipment and technology, required for a lunar landing. It could gain valuable deep space experience, and avoid the months of downtime that would come from delaying

Apollo 8 until the lunar module was ready. That would put the agency back on track to make Kennedy's deadline. And there was another benefit: A December launch gave America a chance to beat the Soviets to the Moon.

Kraft asked a day to study Low's proposal and his response nearly knocked Low over: not only did he accept the speeded up schedule, but he wanted Apollo 8 to orbit the Moon, not just a simple flyby as the Russian were contemplating at that time. The level of complexity had suddenly increased and made Low's head spin. The capsule would fire rockets to slow down enough to be captured by the Moon, orbit it several times, then firing the rockets again to continue its return voyage to Earth! The challenges were enormous, but the benefits outweighed them.

[page 35] Yet the benefits of orbiting the Moon could be immense. Putting Apollo 8 into lunar orbit would provide NASA with all kinds of experience it needed for the upcoming landing mission. Everything from deep space maneuvers to rocket firings to navigation to communications to propellant consumption to life support systems could be tested under the same conditions NASA would face when landing men on the Moon. New mission rules and procedures could be put through their paces, simulations appraised, training revised. And once the spacecraft arrived, the crew of Apollo 8 could photograph the Moon from up close, scouting potential landing sites for the lucky successors who would be the first to step onto its surface.

The three man crew of Borman, Anders, and Lovell were bowled over by the sudden change in status: "We are going to the Moon!" they thought, excited about the new plans. They looked at each other with an expression which said, "*We know this is impossible, but we still think it can work.*" (Page 51) The change in plans meant it was unlikely Anders would get to collect rocks on the Moon, but it meant something important:

[page 70] Flying on Apollo 8 meant that he, Lovell, and Borman would be the first human beings ever to leave earth, and the first to arrive at the Moon. And the first to see its far side. That was like being another Christopher Columbus, and what more could a curious man hope for than that?

These three astronauts were taught by a team of men whose job it was to kill them! Each man was called the SimSup and in turn each needed to teach the astronauts the correct procedures and sequences for each stage of the flight, any deviation from which could kill them by sending them flying into the Moon's surface or out in deep space forever. So it was their job to program deviations which if not correctly responded to would kill the astronauts. One of those out-of-sequence maneuvers due to a slip of the finger will nearly kill them on the way home.

[page 75, 76] Space flight was inherently complex and unpredictable crews were nearly certain to encounter problems with the rocket and spacecraft during their mission. To give them a fighting chance, the SimSup would unleash an arsenal of emergencies, failures, malfunctions, and conflicts into the simulation, forcing the crew to learn to survive, showing them the consequences of every wrong move. It would do no one any good to take it easy on them. Only by theoretically endangering the lives of the men inside the simulator could the SimSup hope to save them during actual flight. In this way, the best SimSup's had a streak of the devil inside them.

The author gives us insight into the flight career of the three astronauts. On pages 90 and 91, he details an experience where Lovell nearly crashes when his cockpit lights go out during a night carrier landing. Making a night carrier landing is one of the most challenging piloting jobs, even with everything is working. For a jet pilot it is said, "the best things in life are a good landing, a good orgasm, and a good bowel movement, *and* a night carrier landing provides you with *all three at the same time.*" (See [Military Advice](#).) Lovell uses the green algae glow from the carrier's propellers and in guiding his ship to Earth

from Moon, he is forced to use the patterns of dust swirling in his Apollo 8 capsule.

Anders related a story of how Anders went on a deer hunting trip with Deke Slayton to get to know him. What he didn't know was that Slayton put newbies through a "one-shot" hunt, providing them only one bullet with which to have a successful hunt. Anders succeeded in getting his deer with one shot, but he had no idea at the time, that he was to travel to the Moon and back on a similar "one-shot" hunt; if he wasn't successful on his Apollo 8 trip, he would be unlikely to return home at all.

Going through the Van Allen belt of radiation for the first time, Anders reported to the crew they had only received about 1/10 the radiation of an average chest X-Ray. A continuous problem was the overheating of the capsule on the side facing the Sun's rays. The solution was called "barbecue mode" which Borman initiated in space for the first time: it put the capsule into a rotation rate of one revolution per hour which allowed the heat of the Sun's rays to dissipate uniformly over the capsule during long flight periods.

The word 'nominal' to engineers means the amount named on the device, so the nominal voltage for a AA battery is 1.5 volts, even though the setting of a new AA might be 1.65 and over usage drop to 1.2 or lower. NASA Manager Christopher Kraft wanted the rocket that will put the capsule in orbit around the Moon tested right away, so they could have time to fix any problems which were uncovered. After the test, the PA Officer reported, "The burn was completely nominal in all respects." But Kraft noticed a problem. The thrust did not build up fast enough and was too low. Kraft put the engineers on the problem but did not mention it to the astronauts as there was nothing they could do until the cause of the problem could be determined. It was due to a bubble of helium in the propellant line, and that first test, while showing a bad response, likely cleared up the problem.

Lovell couldn't sleep because of the lights inside his eyeballs due to cosmic radiation. The rays were mostly harmless, except they could not be turned off and caused Lovell insomnia. NASA tried to control the amount of sleep, the amount of food intake, etc that the three astronauts got, and worried over each deviation.

[page 214] But what was NASA to do? They were dealing with three grown men, each of whom was risking his life for his country, who now didn't want to eat their beef and egg bites. If the men began to starve, they'd eat.

Basically the men hated the taste of the beef and egg bites! But there were some fun moments, like when the Apollo 8 crew broadcast the television image of their home planet to Earth! It provided the entire rest of humanity with a selfie, decades before the term *selfie* made it into popular jargon with the arrival of smart phone cameras.

[page 216] Suddenly, an orb drifted dead center into the middle of the picture, and the shape of clouds and continents sharpened into view. For the first time in history, mankind was looking back at itself -- at all of itself. Every human culture and language and idea and conflict and difference fit into a single picture.

The most incredible event in the history of Earth was marked by complete silence; only the engineers marked the arrival of *equigravisphere*, the place where a human being left the gravity of Earth and was taken over by the gravity of another planet. It was like when I drove my young children across a time zone line. I did a small ding! to give the abstract time change a reality.

[page 218] There would be nothing to mark the place in space, no bump or jolt to the space craft. But in its silence, the crossing would make a thundering announcement — for the first time, man had become captured by the pull of another celestial body.

The crew had to make a rocket burn while behind the Moon and out of contact with Earth by radio. This meant that NASA control would not know if the rocket burn went on-time, too long, or too short. Anything but on-time meant disaster for the crew and this was one of the few times, the crew what was

going on and NASA control did not. When the crew responded to the call from NASA with, "Go ahead, Houston, Over" everyone was jubilant and cheering, and some like Chris Kraft had misted over eyes. They all hear Lovell's "Burn Complete" words and saying, "We're still here!" (Page 240)

Everyone has seen the Sun rise in the morning or the Moon rising over the horizon at night, but humanity got to see something for the very first time, something for which we had no word to describe, up until it happened during Apollo 8: Earthrise!

[page 247] In the distance, the astronauts could see the arc of the lunar horizon, and beyond it, the pitch-black infinity of space. As Apollo 8 continued to roll, Anders saw something appear in his window, just over the Moon's eastern horizon.

"Oh, my God!" he called out. "Look at that picture over there! Here's the Earth coming up. Wow, is that pretty!"

A shining sphere of royal blues, swirling whites, and dabs of sunbaked browns rose over the rough, all-gray Moon. And now Borman and Lovell saw it, too.

No one had the word "Earthrise" available; it had not been invented yet. Earthrise had not risen into usage. But Anders as a photographer knew this moment could *not* be photographed in Black & White! It must be captured in full Living Color! He was right. He created one of the iconic images of what was later called the "Big Blue Marble" of our planet. That photograph appeared everywhere in later weeks, months, and years.

[page 247] Anders reached for his camera.

"Hey, don't take that, it's not scheduled," Borman joked.

But no one could take his eyes off the scene.

"Hand me that roll of color, quick, will you?" Anders said.

"Oh, man, that's great!" Lovell said.

The rising Earth moved out of view, but the crew quickly found it in another window and Anders got a spectacular shot with his Hasselblad 500 EL camera with its Zeiss Sonnar 250 mm telephoto lens. With it he took the Earth rising over the horizon of the Moon, the most famous photo taken by Apollo 8, known ever since as Earthrise.

[page 248] Earthrise was the most beautiful sight Borman had ever seen, the only color visible in all the cosmos. The planet just hung there, a jewel on black velvet, and it struck him that everything he loved — Susan, the boys, his parents, his friends, his country — was on that tiny sphere, a brilliant blue and white interruption in a never-ending darkness, the only place he or anyone else had to call home.

Anders thought it strange: we have come here to discover the *Moon*, and yet here we have discovered the *Earth*. (Page 249) On the way home, they also discovered their humanity. It happened when the three crewman lined up to read a Christmas message to those watching their broadcast to Earth. With the Moon moving across television screens shining out into homes, bars, and offices all across Earth, Anders began with a passage from the Bible, "In the beginning, God created the heaven and the earth . . ." Lovell with the next passage "And God called the light Day, and the darkness he called Night. . . ." And Borman ended with the third passage "And God called the dry land Earth. And the gathering together of the waters He called seas. And God saw that it was good." (Page 262)

[page 262, 263] Borman paused.

"And from the crew of Apollo 8, we close with good night, good luck, a Merry Christmas, and God bless all of you — of you on the good Earth." A moment later, television screens around the world went dark.

Inside Mission Control, no one moved. Then, one after another, these scientists and

engineers in Houston began to cry. . . . In his studio at CBS, Walter Cronkite fought back tears as he came back on the air.

They were aiming for home and Anders recalled watching man at the top of the main tent pole announce to the crowd that he was going to dive into a small bucket of water on the ground. Anders thought to himself: "My bucket is even smaller than that guy's from the circus." (Page 278) But something was going to happen, something very human, an error, and it would shake up the crew and Mission Control. And it was the maestro who made the mistake.

[page 288] Lovell had become a maestro at this job, "shooting" stars, entering data, and aiming the sextant like a concert pianist playing a Steinway. In fact, Lovell had earned the nickname Golden Fingers for his proficiency at punching these keys. But he was human, and not immune to a bad note. Early on December 25, Houston time, Lovell missed a step. He meant to enter *Program 23* and then select *Star 01*. Instead, he entered *Program 01* into his computer.(1)

BANG! An alarm went off and Apollo 8's guidance system reset itself to the first position on the launchpad at the cape. No one, neither man nor computer, knew which way was up anymore! Anders heard thrusters firing, which was a bad idea, since the control system was a blind man pushing buttons. Unsure what action to take to stabilize the capsule, Anders noticed the cabin was rotating by watching the sunlit dust particles floating inside it. With all the technology at his fingers confused, Anders stopped the rotation by firing the thrusters until the dust particles stopped moving. Collins on the ground relayed procedures to provide an accurate attitude reference for the capsule and then uploaded the correct values to the control system. Lowell sighted the stars with his sextant and in about a half hour more, the men and the spacecraft knew how they stood in relation to the universe and most importantly to their home on Earth. (Page 290) Like Lovell had once used the green algae glow in the seawater from the carrier's propellers to guide his airplane to the carrier safely, Anders, when returning to Earth from the Moon, was forced to use the patterns of dust swirling in his Apollo 8 capsule to stop the rotation of the capsule and allow them to reboot the navigation system successfully. Neither of these procedures were written in their operation procedures, only in their brains from life experience. During their last broadcast before landing, Lovell poked a little fun at himself, "I tried to hurry up the voyage home by calling up Program 01 to get us back on the pad, but it didn't work." Golden Fingers had done a little Golden Tongue excuse.

Their last challenge of landing safely in the sea had been compared by someone as equivalent to "throwing a paper airplane into a mailbox slot from four miles away." But land they did, into a bumpy sea at night, but they were airlifted safely. One of the pilots asked the astronauts a question, "Is the Moon really made of green cheese?" "No," Anders replied. "It's made of American cheese." When Americans set foot on the Moon on July 20, 1969, we were watching the broadcast with friends and eating a green cheese ball with a tiny US flag stuck into its top. When we began eating the green cheese with crackers, we didn't know whether the Moon was made of green cheese, but by the end of the night we were sure it was not. As promised Americans had walked on the Moon and flown back safely in one of the greatest performance of engineering, courage, and bravery!

~^~

----- *Footnotes* -----

Footnote 1. Remember this the next time your computer asks you, "Are you sure you want to do this", or asks you to confirm your intention after some manual operation. A redo would have been nice for Anders right there.

[Return to text directly before Footnote 1.](#)

