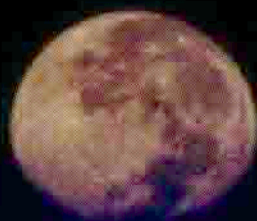


the rotarian®

JUNE 2008



MACROVIEW

APOLLO ASTRONAUT

BUZZ ALDRIN

TAKES

A

LOOK

BEYOND

THE HORIZON

When Buzz Aldrin and Neil Armstrong touched down on the moon in NASA's *Apollo 11* lunar module on 20 July 1969, our thinking about the universe – and Earth's place in it – changed forever.

Aldrin's career was distinguished from the beginning. After graduating third in his class from West Point with a bachelor of science degree, he was commissioned as a second lieutenant in the Air Force in 1951. He promptly saw action in the Korean War, flying 66 combat missions as an F-86 Sabre pilot and shooting down two MIG-15s. After completing his doctorate in astronautics from MIT, he returned to the Air Force, and in October 1963 was tapped for space travel as a member of the third class of NASA astronauts. When the historic moon flight ended,

he continued to contribute to NASA and the Air Force in various roles until his retirement from active duty in 1972.

Since then, Aldrin, an honorary Rotarian, has appeared in numerous film and television productions and is still involved in space exploration. In 1995, he founded Starcraft Enterprises, an aerospace technology company that designs reusable shuttle launchers. In 2001, he was appointed by President George W. Bush to the Commission on the Future of the U.S. Aerospace Industry. Last year, he was seen in the documentary *In the Shadow of the Moon*.

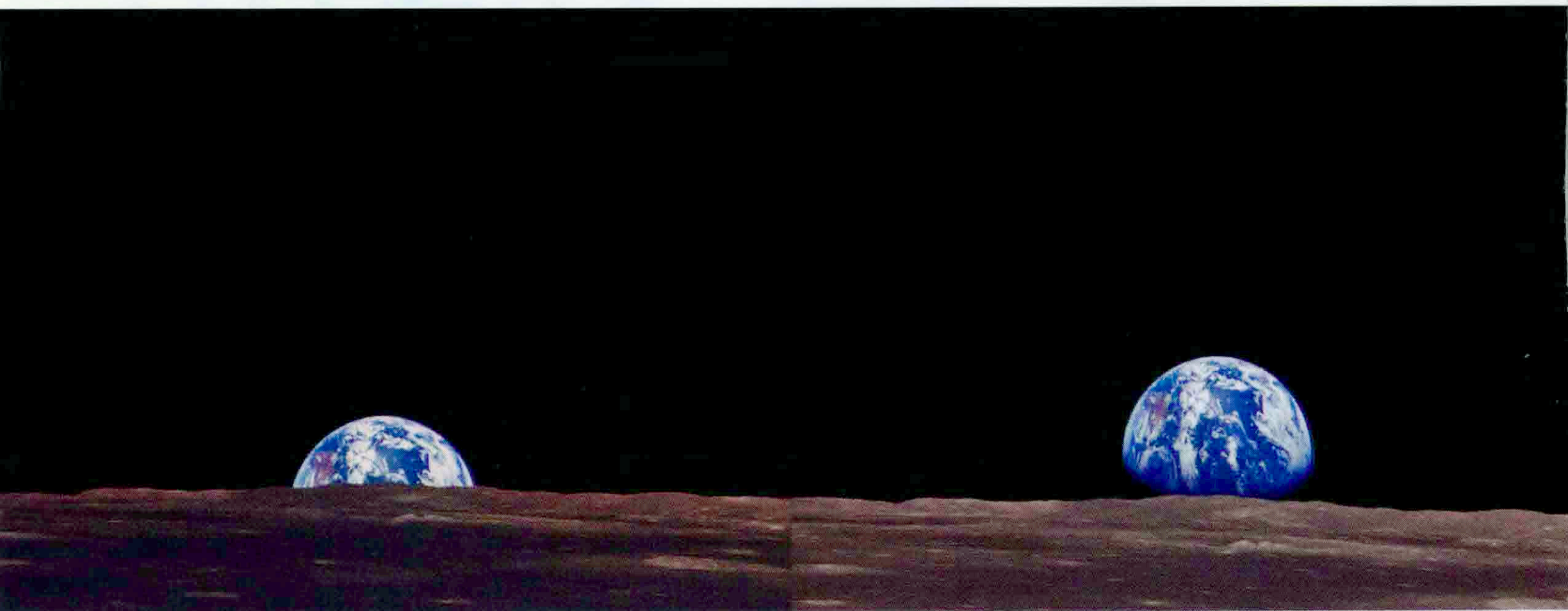
To explore Aldrin's photographic vision of the iconic Apollo images from a lunar perspective, I had a down-to-earth discussion with our man on the moon.

by Digby Diehl

THE ROTARIAN: Both the photographs you have taken of outer space and the photographs that Lennart Nilsson has taken inside the human eye have the unusual properties of bringing great beauty and scientific research together. Were you aware of that combination when you took the pictures?

BUZZ ALDRIN: At the time, I know that we marveled at the beauty of the universe and even of the stark images on the surface of the moon. However, the purpose of the photos was to document our visit to the moon and to record images of the earth and the universe from viewpoints that no human beings had ever been able to see before. Because of the lighting conditions, many of the images of outer space were taken from the lunar module as we were heading toward the

something quite unusual, and I thought I ought to get a really good picture of a boot print. Rather than take a photo of one that was already there, I looked around for a fairly smooth area, and took a picture, holding the camera at about waist level, of the area where I was going to put the boot down, so I had an image of the surface before I put my foot down. Then I stepped back and took another picture. I looked at it and decided, "That's kind of lonely looking." Then I put my foot down again, but afterward, I moved it a little bit away from the print so you can see the boot and the edge of a boot print. Thus it was a sequence of three pictures that I thought would be useful. Of course, the solo boot print is more symbolic, because it stays there long after the boot and its wearer have returned to Earth.



moon. Of course, these photographs also stretched our imaginations about space and time, as well as giving some scientific information. I think the images from the Hubble Space Telescope fall into that same category. Those are many spectacular views that have widened our understanding of just what is out there. When NASA finally launches the James Webb Space Telescope in a few years, I think we will learn even more.

One of your most famous pictures is that one of your footprint on the moon. Why did you take that photograph?

I was just fascinated with the crisp, precise way the boots left an impression in the moon's surface. As you know, the moon is covered with a fine dust that has the consistency of talcum powder. It struck me as

What did the moon's surface feel like as you stepped on it?

You have to start out with the fact that on the moon we are only attracted to the surface by a gravitational attraction that's one-sixth of what we have here on Earth. Then you have to look at the consistency of the boot. It was a heavily padded overshoe, so there was quite a cushioning effect on your foot. My foot was so insulated that there wasn't much transmission of any feeling of the surface. It was like walking around in thick bedroom slippers.

From the picture, there seems to be a very long shadow cast. What would have caused that kind of lengthy shadow?

The sun was probably between 11 and 13 degrees' elevation

from the local horizontal. We chose that angle of sun elevation behind us so that coming around the moon in the manner that we did, as you're looking from the earth, from right to left, we're crossing over. It's from east going west, as you would look at the map of the moon. The sun would be off to the right, or the east at this elevation angle, so it would cast fairly long shadows, and we would be able to see into the craters and you'd be able to see the shadows of the different craters. If the photograph is taken at an angle higher than that, then the sun would wash out all the shadows that you'd see by looking at the angle as you're approaching the landing. Getting that sharp relief was the whole intent of choosing that low sun angle for the landing. That also means you only have a few days

It must have been difficult taking any kind of pictures with the gloves and spacesuit and helmet. Did you have a special camera?

Yes, it was a Swedish Hasselblad, the same camera we used on most of the early space flights, from the middle of the Mercury program on. It's a very good camera.

Does the photograph you took of Mars have a special meaning to you?

Yes, it does, because I think that there is the possibility of colonizing Mars in the next 30 years. It depends on the steps we take between now and then, and whether there's an ability to sustain



of Earth departure launch window for any one particular desired landing site on the moon.

Another photograph that is extraordinary is the image of Earth from the curvature of the moon.

Those images were more than likely taken from orbit. Where we landed, the earth would have been 24 degrees away from the vertical, so it's quite high up in angle. That would make it 66 degrees from the horizontal, which is pretty steep. Wearing the spacesuit on the surface of the moon, it is very difficult to look up that high because of the helmet. If you lean back, then it's hard to take a picture of anything and still have the earth in it, because the earth is so high.

the impetus that we've set forth about developing the rockets and the spacecraft that are capable of moving beyond Earth's orbit. In the process of returning to the moon, we'll learn some of the things that will be necessary to support Mars activities. So when I look at that photograph, I think about the possibility of reaching out farther into the universe.

Any special message for the Rotary members reading this?

Only that I'm very pleased with the symbol and the words involved in this organization – rotating things – because there's so much rotation in the universe. The world we're in rotates, and each object seems to be in some kind of a revolving orbit around something else. That's how space exists, and I think the term Rotary is very descriptive. ■