

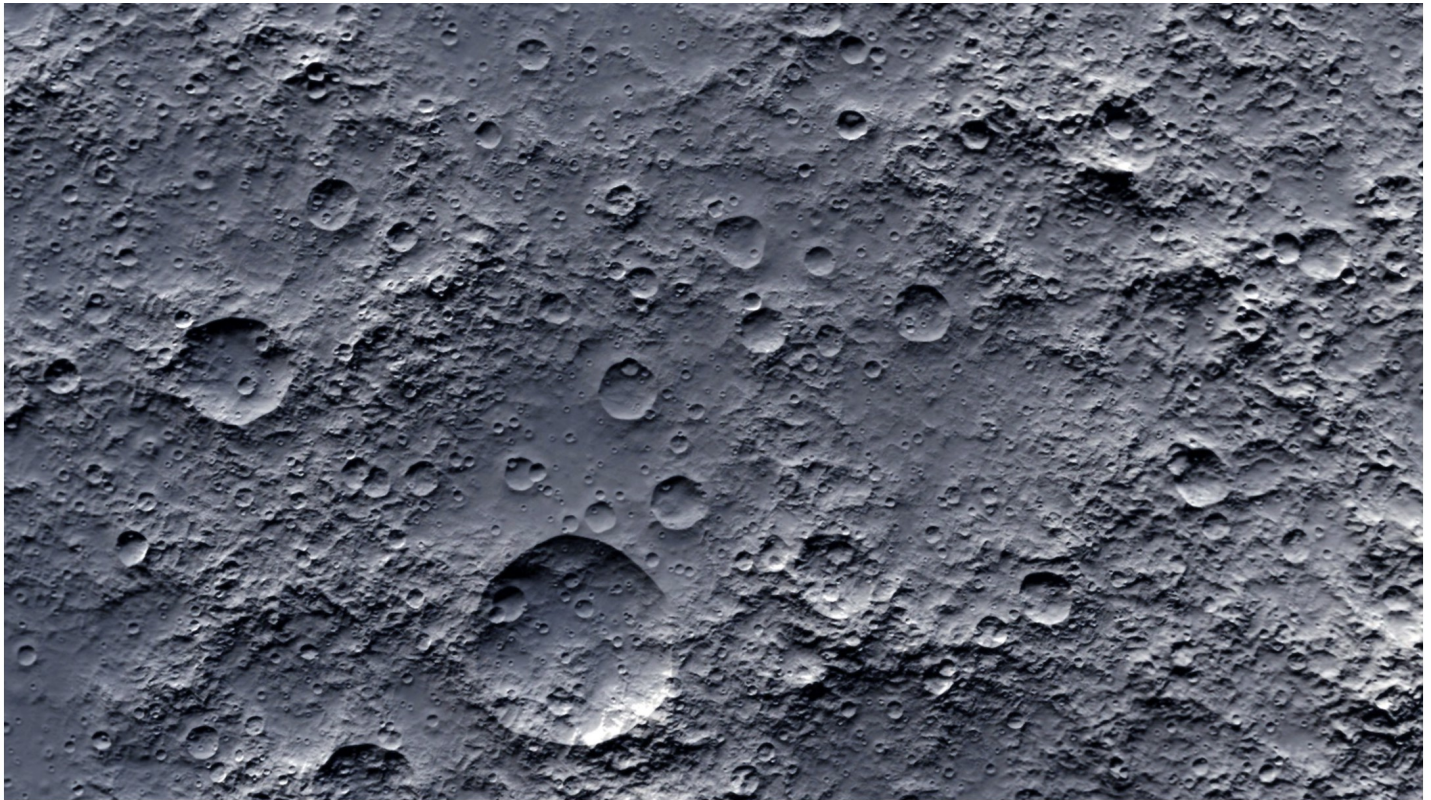
The Atlantic

TECHNOLOGY

Why Land on the Moon? To See If We Can

Revisiting a classic 1963 essay that argued in favor of a manned lunar mission—and tried to quiet the critics who called it a moondoggle

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Forty-six years after it happened, people still talk about the moon landing as though they're gathered around a finish line. Understandably so. With Apollo 11's successful mission in 1969, Americans beat the Soviets in a race to the lunar surface. But putting a man on the moon also represented the keeping of a promise. A promise that, for many years, seemed untenable if not downright impossible.

A promise, laid out by President John F. Kennedy in the months and years before he died, to all those who believed manned space exploration represented values so fundamentally American—and so undeniably human—that the United States had an obligation to become, as Kennedy put it, “the world’s leading space-faring nation.”

In the decade leading up to the moon landing, there was much debate over whether such an expedition would be worth it. The backdrop of this debate, which can be strange to consider in hindsight, was the question of whether landing on the moon was actually possible. At the time, a successful moon-landing existed only in the collective imagination. An extraordinary feat, in theory, but an untested one. Human lives and billions of dollars were hanging in the balance. By 1962, the nation’s annual spending on the space program exceeded \$5 billion—the equivalent of more than 50 cents per week for every man, woman, and child in the country. (In 2015 dollars, that’s about \$4 per person per week.) “We meet in an hour of change and challenge, in a decade of hope and fear, in an age of both knowledge and ignorance,” Kennedy said in an address about the nation’s lunar ambitions at Rice University in September 1962. “The greater our knowledge increases, the greater our ignorance unfolds.”

The lingering question of failure—one that was at the forefront of debate about the space program throughout the 1960s—seems foreign today. The moon landing is such a source of national pride, and has been for so many decades, that it has become its own cliché, the ultimate measure for what’s possible: “If we put a man on the moon...”

Which is what makes the arguments in “Why Land on the Moon?” seem, at times, oddly pragmatic by today’s standards. The authors, writing for *The Atlantic* in August 1963, were the NASA scientists Robert Jastrow and Homer E. Newell. The pair outlined their support for manned space exploration and defended the moon mission against critics who called the plan—brace yourself—a moondoggle.

To Kennedy, the importance of a moon mission was as political as it was scientific. If not for the military implications of manned space flight, the extraordinary budget required to make it happen may not have moved through Congress as it did. But to Jastrow and Newell, something more sacred was at stake. There were, of course, the scientific questions—ones that couldn’t be answered with even the keenest telescope. The moon may have resembled a peeled orange in photographs, but what was the surface of the moon really like? Dusty as talcum powder? Hard like peanut brittle? Or maybe covered in “treelike cobwebby ‘fairy castles’ in which a spacecraft would sink out of sight,” as the Associated Press posited in 1963. Did the moon have an iron core, Jastrow and Newell wanted to know, or flecks of iron distributed throughout, “like raisins in a fruitcake”? More than that, a visit to the moon promised to reveal great mysteries about the origin of the solar system.

There is little left on the surface of the earth of features that existed several hundred million or a billion years ago, and the same is probably true of Mars and Venus, whose properties resemble those of the earth. But on the moon there are no oceans and atmosphere to destroy the surface, and there is little if any of the mountain-building which rapidly changes the face of the earth.

For these reasons the moon has retained a record which probably goes back billions of years to the infancy of the solar system. The moon is the Rosetta stone of the solar system, and to the student of the origin of the earth and planets, this lifeless body is even more important than Mars and Venus.

(The moon does, scientists would later learn, have an atmosphere—though one so thin it seems like a vacuum by Earth standards.)

Making it to the moon was as much about the gropings of the human spirit as it was about answering scientific curiosities. And they saw, as scientists so often do, scientific gains and spiritual ones as inextricable. “One of the classical problems of science concerns the origin of the solar system—how we came to be here in the physical sense. It is a question which has occupied the mind of man for centuries, and a matter of the deepest scientific interest and philosophical importance,” they wrote.

Unravel the moon’s mysteries, they argued, and man might unlock the meaning of life. Space exploration was not unlike religious studies. Implicit were questions, as Jastrow later wrote for *The New York Times*, such as: “What am I? How did I get here? What is my relationship to the rest of the universe?” For *The Atlantic*, Jastrow and Newell tugged at those questions with the kind of romance—a sort of delight in the unknown, while still in pursuit of it—that’s typical among physicists.

“Everything in the earth,” they wrote, “including the constituents of our bodies, was once manufactured within other stars, dispersed to space, and condensed again to dust and solid matter. We believe that all this happened 4.5 billion years ago, but we do not know precisely how it happened, or exactly what the tangled complex of events was which surrounded the genesis of the sun and the planets.”

Manned space exploration was not just “a renaissance of the older tradition of natural philosophy,” but a way of rethinking humanity’s place—in the strictest, most physical terms—in the actual universe. “But the driving force of the program is not in scientific research alone, valuable though that may be in the long run,” they wrote. Putting a man on the moon, the feat itself, was reason enough to justify the endeavor.

“The fact remains that the space effort is greater than the sum of its parts,” they wrote. “It is a great adventure and a great enterprise, not only for the United States but for all humanity. We have the power and resources to play a leading role in this effort, and it is inconceivable that we should stand aside.”

President Kennedy was killed three months after Jastrow and Newell published their essay, so he died before realizing his wish for the United States to land on the moon. When that finally happened, when Neil Armstrong’s “small step for man” left footprints on the lunar surface in 1969, Kennedy’s words echoed in the aftermath.

“Many years ago, the great British explorer, George Mallory, who was to die on Mount Everest, was asked why did he want to climb it,” Kennedy had said at Rice University years before. “He said, ‘Because it is there.’ Well, space is there. And we’re going to climb it. And the moon and the planets are there. And new hopes for knowledge and peace are there. And therefore, as we set sail, we ask God’s blessing on the most hazardous, and dangerous, and greatest adventure on which man has ever embarked.”



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