

## Voyages to Mars 1

### Launch

Matt Shindell:

Hello, AirSpace fans. I'm Matt Shindell. Many of you probably know me already as one of the hosts of the Airspace Podcast. Maybe you could tell by the theme music, but today we have something different for you, a sort of airspace side hustle. We're calling it Voyages to Mars. If you've listened to our podcast, you know that NASA's newest Martian rover, Perseverance is currently on route to the red planet to accompany Percy or Vera, as I like to call her, on her seven month journey, we're compiling a mixed tape of stories that feature Mars, everything from the fantastical to the adventurous set to music by our favorite DJ, Kid Koala. We're releasing chapters each month right here, where you listen to the podcast right up until the Rover's scheduled landing in February.

To get us started on this musical and literary voyage to Mars, we figured it would be best to start where most space voyages begin, with the launch. We begin today with one of the first science fiction novels to feature a spacecraft expedition to Mars. In *Across the Zodiac*, author Percy Greg sends a daring traveler on a trip to Mars, ready to meet the intelligent Martians he's sure he'll find. There to get him there, our hero space traveler builds a ship outfitted with all the comforts of home like books, plants, and even live animals. You want a few animals if you're going into space. He names this ship, the *Astronaut*, which may seem cliché, except that this was the first known usage of the word astronaut in English.

Now how to launch this ship? Greg, writing in the 1880s had no way to foresee that Robert Goddard would launch the first modern rocket in 1926. And so he had to invent his own way to get his traveler out from the pull of Earth's gravity. Greg chose to invent a secret force called Apogee, which allowed him to use forces of atomic attraction and repulsion to propel his astronaut from the earth to Mars. Reading a selection, describing the astronaut and its off from earth is Lizzie Peabody host of the Smithsonian's podcast *Sidedoor*.

Lizzie Peabody:

*Across the Zodiac* by Percy Greg, selections from chapter two *Outward Bound*.

Ever since in childhood, I learned that the planets were worlds. A visit to one or more of the nearest of them had been my favorite daydream. Treasuring every hint afforded by science or fancy that bore upon the subject, I felt confident that such a voyage would be one day achieved. Helped by one or two really ingenious romances on this theme, I had dreamed out my dream realized every difficulty ascertained every factor in the problem.

I had determined that my first attempt should be a visit to Mars. The moon is a far less interesting body since on the hemisphere turned toward earth, the absence of an atmosphere or even water ensures the absence of any life as is known to us and would prevent landing, while nearly all the soundest astronomers agree in believing on apparently sufficient grounds that even the opposite hemisphere is equally devoid of the two primary necessities of animal and vegetable life.

That Mars has seas, clouds and an atmosphere was generally admitted and I held it to be beyond question. Briefly, having determined to take advantage of the approaching opposition of Mars in 1820, I had my vessel constructed with walls three feet thick. In shape, my astronaut somewhat resembled the form of a large sailing ship being widest and longest in a plane equidistant from floor and ceiling and sides and ends sloping outward from the floor and again, inwards toward the roof. The deck and keel, however were absolutely flat and each 100 feet in length and 50 in breadth, the height of the

vessel being about 20 feet. In the center of the floor and in that of the roof, respectively, I placed a large lens of crystal intended to act as a window in the first instance. The lower to admit the rays of the sun while through the upper, I should discern the star towards which I was steering.

The floor, being much heavier than the rest of the vessel, would naturally be turned downwards. That is during the greater part of the voyage toward the sun. I placed a similar lens in the center of each of the four sides to enable me to discern any object in whatever direction. I carpeted the floor with several alternate layers of cork and cloth. At one end, I placed my couch, table, bookshelves and other necessary furniture with all the stores needed for my voyage. At the other, I made a garden with soil three feet deep and five feet in width. I filled the garden closely with shrubs and flowering plants of the greatest possible variety, partly to absorb animal waste, partly in the hope of naturalizing them elsewhere. Covering both with wire netting extending from floor to roof. I filled the cages thus formed with a variety of bird.

I had of course, supplied myself with an ample store of compressed vegetables, preserved meats, milk, tea, coffee, et cetera, and a supply of water sufficient to last for double the period which the voyage was expected to occupy. I entered the Astronaut on the first August, about 4:30 PM. After sealing the entrance window and ascertaining carefully that everything was in order, I set the generator to work. And when I had ascertained that the [inaudible 00:06:06] was full and that the force was supplied at the required rate, I directed the whole at first into the main conductor.

After doing this, I turned toward the lower window on the West or as it was then the right-hand side and was in time to catch the sight of the trees on the hills, some half a mile off and about 200 feet above the level of my starting point. Going close to the window and looking out, I saw the earth falling away from me so fast that within five minutes after my departure objects like trees and even houses had become almost indistinguishable to the naked eye.

It was strange to observe the rapid rise of the sun from the westward. Still more remarkable on turning toward the lower window was the rapidly blackening aspect of the sky. suddenly everything disappeared except a brilliant rainbow at some little distance, or perhaps I should rather have said a halo of more than an ordinary rainbow brilliancy. Since it occupied, not like the rainbow seen from below something less than half, but nearly two thirds of a circle. I was of course, aware that I was passing through a cloud and one of very unusual thickness.

In a few seconds however, I was looking down upon its upper surface, reflecting from a thousand broken masses of vapor at different levels from cavities of mist, the light of the sun, white beams mixed with a numerable rays of all colors, in a confusion of indescribable brilliancy. Looking upward through the Eastern window, I could now discern a number of brighter stars and at nearly every moment, fresh ones came into view on a constantly darkening background. I soon found myself surrounded by a blackness, nearly absolute, except in the direction of the sun, which was still well above the sea and immediately round the terrestrial horizon on which rested a ring of sunlit azure sky, broken here and there by clouds.

In every other direction, I seemed to be looking into close surrounding darkness amid this darkness, however, were visible innumerable points of light, more or less brilliant, the stars, which no longer seem to be spangled over the surface of a distant vault, but rather scattered immediately about me nearer or farther to the instinctive apprehension of the eye as they were brighter or fainter. In short, before 30 minutes had elapsed since the start, I was satisfied that I had passed entirely out of the atmosphere and had entered into the vacancy of space, if such a thing as vacant space there be.

Matt Shindell:

Unlike Percy Greg, author Jules Verne liked to build his stories around real science and technology, imagining how those technologies might naturally progress and not attempting to foresee big leaps into completely new technologies that would be unrecognizable to his readers. In his 1865 novel, *From the Earth to the Moon*, Vern opted for a technology that he had seen make tremendous progress in his own lifetime, ballistics. Vern imagined than a fictional group of wealthy and motivated American weapons makers, The Baltimore Gun Club teamed up to build a giant gun named the Columbiad that could fire a projectile spaceship at the moon. As with all real life launches, lots of consideration went into the location, timing and trajectory of the Colombians firing. In the novel, astronomers are consulted and they determined that the gun should fire somewhere close to the Earth's equator when the moon is in perigee, meaning when it's nearest to the earth.

Matt Shindell *reading From the Earth to the Moon:*

And shortly before the moon is directly over the Western hemisphere or crossing the zenith. The astronomers tell the gun club at date on which this will happen, but they cautioned them that since perigee and zenith don't always line up. If the launch opportunity was missed, it would be another 18 years and 11 days before these conditions were seen again. And so the gun club built their gun in Florida and set it to fire straight up into space on the specified date of December 4th at 10:46 PM and 40 seconds. In the passages that follow, huge crowds of people have flocked to Florida to witness the launch. Excited, but also fearing for the lives of the travelers who will put themselves at the center of the explosion. They await the preordained moment they will see the first humans break from Earth's gravity or die trying.

Jules Verne, *From the Earth to the Moon*. Selections from chapter 26, Fire and chapter 27 Foul Weather. The first of December had arrived, the fateful day. For if the projector were not discharged that very night at 10 hours, 48 minutes, 40 seconds PM, more than 18 years must roll by before the moon would again present herself under the same conditions of Zenith and perigee. The weather was magnificent despite the approach of winter, the sun shone brightly and bathe in its radiant light that earth, which three of its denizens were about to abandon for a new world.

How many persons lost their rest on that night, which proceeded this long expected day? All hearts beat with disquietude. At dawn and enumerable multitude covered the prairie, which extends as far as the eye can see around Stones Hill. Every quarter of an hour, the railway brought fresh accessions of sightseers. And according to the statement of the Tampa town, observer, not less than five millions of spectators thronged to the soil of Florida. The whole plane was covered with huts, cottages and tents. Every nation under the sun was represented there and every language might be heard spoken at the same time. It was a perfect Babel reenacted. Up till nightfall, a dull noiseless agitation, such as proceeds great catastrophes ran through the anxious multitude. An indescribable uneasiness pervaded all minds an indefinable sensation, which oppressed the heart. Everyone wished it was over. However, about seven o'clock the heavy silence was dissipated.

The moon rose above the horizon. Millions of hurrahs hailed her appearance. She was punctual to the rendezvous and shouts of welcome greeted her on all sides as her pale beam shone gracefully in the clear heavens. At this moment, the three Intrepid travelers appeared. This was the signal for renewed cries of still greater intensity. Instantly, the vast assemblage as with one accord, struck up the national hymn of the United States and Yankee Doodle sung by 5 million of hearty throats rose like a roaring Tempest to the farthest limits of the atmosphere. Then a profound silence rained throughout the crowd. 10 o'clock struck the moment had arrived for taking their places in the projectile. The necessary operations for the descent and the subsequent removal of the cranes and scaffolding that inclined over the mouth of the Columbiad required a certain period of time. A few moments later, the

three fellow travelers had ensconced themselves in the projectile and screwed down the plate which covered the entrance aperture. The moon advanced upward in a heaven of the purist clearness, outshining in her passage, the twinkling light of the stars.

She passed over the constellation of the twins and was now nearing the halfway point between the horizon and the zenith. A terrible silence weighed upon the entire scene, not a breath of wind upon the earth, not a sound of breathing from the countless chests of the spectators. Their hearts seemed afraid to beat. All eyes were fixed upon the yawning mouth of the Columbiad. The engineer followed with his eye, the hand of his chronometer. It wanted scarce 40 seconds to the moment of departure but each second seemed to last an age, 35, 36, 37, 38, 39, 40 fire. Instantly the engineer pressed with his finger, the key of the electric battery, restored the current of the fluid and discharged the spark into the breach of the Columbiad. An appalling, unearthly report followed instantly such as can be compared to nothing whatever known, not even to the roar of thunder or to the blast of volcanic explosions.

No words can convey the slightest idea of terrific sound, an immense spout of fire shot up from the bowels of the earth as from a crater, the earth heaved up and with great difficulty, some few spectators obtained a momentary glimpse of the projectile victoriously cleaving the air in the midst of the fiery vapors. At the moment when that pyramid of fire rose to a prodigious height into the air, the glare of flame lit up the whole of Florida. And for a moment, day superseded night over a considerable extent of the country.

This immense canopy of fire was perceived at a distance of 100 miles out at sea, and more than one ship's captain entered in his log. The appearance of this gigantic meteor. The discharge of the Columbia was accompanied by a perfect earthquake. Florida was shaken to its very depths. The gases of the powder expanded by heat, forced back the atmospheric strata with tremendous violence and this artificial hurricane rushed like a water spout through the air. Not a single spectator remained on his feet. Men, women, children, all lay prostrate like ears of corn under a tempest. As soon as the first effects were over, the crowd woke up with frenzied cries, thousands of persons noses in the air armed with telescopes and race glasses were questioning space, forgetting all contusions and emotions in the one idea of watching for the projectile. They looked in vain. It was no longer to be seen.

Voyages to Mars is presented by AirSpace from the Smithsonian's National Air and Space Museum. It is produced by Matt Shindell, Katie Moyer, and Jennifer Weingart. Mixed by Tarek Fouda and music by DJ Kid Koala. We'll be releasing episodes on the third Tuesday of the month until the Perseverance Rover lands in February. This series is made possible by the Secretary of the Smithsonian and the Smithsonian Orlando Regional Council.