

Lyrics and other Human Messages to the Unknown.

Lyrics for Jupiter Moon Europa

The most actual effort in sharing human civilization within the Universe was initiated by U.S. Poet Laureate Ada Limón. She composed a new poem that will fly into space aboard NASA's *Europa Clipper* mission on a years-long journey to explore Jupiter's icy moon Europa. The poem, first shared publicly during a special reading at the Library of Congress, will be engraved on the spacecraft set to launch in October 2024.

Interested members of the public are invited to add their names to fly with the poem — like a message in a bottle from Earth — traveling billions of miles as the mission investigates whether the ocean thought to lie beneath Europa's icy crust could support life. As part of the "Message in a Bottle" campaign, names received before midnight December 31, 2023 will be stenciled onto a microchip, to accompany the original poem by Limón.

In Praise of Mystery: A Poem for Europa
Arching under the night sky inky
with black expansiveness, we point
to the planets we know, we
pin quick wishes on stars. From earth,
we read the sky as if it is an unerring book
of the universe, expert and evident.

Still, there are mysteries below our sky:
the whale song, the songbird singing
its call in the bough of a wind-shaken tree.
We are creatures of constant awe,
curious at beauty, at leaf and blossom,
at grief and pleasure, sun and shadow.

And it is not darkness that unites us,
not the cold distance of space, but
the offering of water, each drop of rain,
each rivulet, each pulse, each vein.

O second moon, we, too, are made
of water, of vast and beckoning seas.
We, too, are made of wonders, of great
and ordinary loves, of small invisible worlds,
of a need to call out through the dark.

"Writing this poem was one of the greatest honors of my life, but also one of the most difficult tasks I've ever been assigned", Limón said. "Eventually, what made the poem come together was realizing that in pointing



toward other planets, stars and moons, we are also recognizing the enormous gift that is our planet Earth. To point outward is also to point inward." [1]

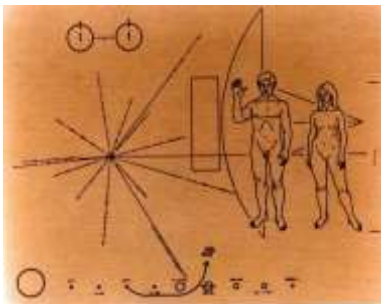
Left: Limón at JPL, Pasadena

Collaboration with the U.S. Poet Laureate and the Library of Congress, the “Message in a Bottle” campaign is similar to other NASA and international projects that have enabled thousands of people to send their names to ride along with Artemis I and several Mars spacecraft. Even the European Columbus module of the ISS is carrying the names of its designers and operations people engraved on a plaque mounted close to the entry hatch.

Other Messages

Pioneer 10 and 11

Carl Sagan, the renowned astrophysicist and science communicator was very successful in convincing NASA to put messages to unknown civilizations on one of its first ‘outer space’ exploration missions Pioneer 10 and Pioneer 11, thus boosting the interest for space exploration in public..



The two Pioneer probes, launched in 1972 and 1973, respectively, were the first to explore the outer regions of our solar system. As part of these missions, a message known as the "Pioneer plaque" was created under Sagan's guidance to potentially communicate with extraterrestrial beings.

The Pioneer plaque featured several elements designed to convey information about Earth and its inhabitants. It included a pictorial message that depicted a human man and woman alongside a

representation of the spacecraft, with a scale diagram of the solar system in the background.

The man and woman were presented in a way that showcased their anatomical proportions and positions relative to the spacecraft, along with a binary representation of the frequency of hydrogen, the most abundant element in the universe.

The plaque also included a map indicating the location of our solar system in relation to nearby pulsars, which were used as reference points. By including this map, the hope was, that intelligent extraterrestrial life might be able to decipher and understand our position in the Milky Way galaxy based on these pulsar patterns.

The message on the plaque was primarily intended as a symbolic representation of humanity and our desire for communication and exploration. It aimed to convey basic information about our species and provide a glimpse into our scientific understanding and achievements.

Although the Pioneer spacecrafts continue their journey into interstellar space, it is important to note that the likelihood of them being intercepted by extraterrestrial life forms is extremely low.

Nonetheless, the Pioneer plaque remains a symbol of human curiosity and our fascination with the possibility of encountering other intelligent beings beyond Earth. [2]

Voyager 1 and 2



The ‘Golden Records’ were intended to communicate information about our planet to any potential extraterrestrial civilizations that might encounter the spacecraft. The Voyagers’ records sent a time capsule of sounds and images to communicate the diversity of life and culture on Earth, the program was also aimed to spark the imagination of people around the world – which it did, and still is doing. [2]

In the upper left-hand corner is an easily recognized drawing of the phonograph record and the stylus carried with it. The stylus is in the correct position to play the record from the beginning. [2a]

Voyager ‘Golden Records’ were mounted on the outside of the Voyager 1 and Voyager 2 spacecraft, both launched in 1977, each carrying a gold plated record that contained sounds and images

representing Earth in all aspects. Instructions on how to play the record as well as information about our solar system was engraved on the cover for any potential intelligent users.

Arecibo Message



The Arecibo message was an interstellar, digital radio message carrying basic information about humanity and Earth that was sent from the biggest, 304m-diameter fixed radio telescope dish, embedded in a natural sinkhole at the Arecibo Observatory in Puerto Rico to the globular cluster Messier 13 in 1974. It was meant as a demonstration of human technological achievement, rather than a real attempt to enter into a conversation with extraterrestrials.

The Arecibo Message was a binary-coded representation of Earth's characteristics, designed to be understandable by potential extraterrestrial recipients, like the numbers of one to ten (on top), atomic element numbers constituting our DNA, and a graphic representation of our solar system below a digitized human being. [3]

Mars Rovers

The Mars rovers, such as *Spirit*, *Opportunity*, and *Curiosity*, have carried messages from Earth to Mars. These messages include names of individuals who signed up for special campaigns, as well as inscriptions on the rovers themselves. These messages serve as symbolic representations of human presence on the Martian surface.

Microchips on various Satellites

Some satellites, such as commercial communication satellites or space probes, have carried microchips containing messages from individuals or organizations. For example, the New Horizons spacecraft, which flew by Pluto in 2015, carried a small aluminum plaque with the inscription "To Pluto and Beyond" and a message from the New Horizons team.

The 'Starman'

On February 6, 2018, Elon Musk's SpaceX company successfully conducted the maiden launch of its Falcon Heavy rocket. As a demonstration payload, Musk's personal Tesla Roadster was placed inside the rocket's payload fairing and launched into space. The car, with a mannequin named "*Starman*" sitting in the driver's seat, was sent on a trajectory towards Mars.



The Tesla Roadster was launched primarily as a symbolic gesture and to demonstrate the capabilities of the Falcon Heavy rocket. The car's destination was an elliptical orbit around the Sun that would bring it close to Mars' orbit but not directly to Mars itself. The car was equipped with cameras to capture images and a dummy driver playing David Bowie's "Space Oddity" on loop. [4]

Ben Pearson created a website that tracks the Roadster's location, whereisroadster.com. According to Pearson, the vehicle was on course to "cross the orbit of Mars for the fourth time since it launched" at the beginning of last week in June 2023. It apparently takes 557 days for the vehicle to orbit the Sun, and the odds that it could hit Earth one day are calculated at roughly 6 percent in a million years. [5]

The electric car Tesla roadster, cycling the Sun in eternity, might also be a symbol for the end of the fossil fueled age on Earth.

References

[1] <https://newsroom.loc.gov/news/u.s.-poet-laureate-ada-lim-n-reveals-poem-to-fly-on-nasa-s-europa-clipper/s/78e154e1-5a8d-4507-8430-083aa2f49597>

[2] ChatGPT. User: Which space satellites carried messages?

[2a] Cover description: <https://voyager.jpl.nasa.gov/golden-record/golden-record-cover/#:~:text=In%20the%20upper%20left%2Dhand,the%20record%20from%20the%20beginning.>

[3] Arecibo message:

https://en.wikipedia.org/wiki/Arecibo_message#:~:text=The%20Arecibo%20message%20is%20an,into%20a%20conversation%20with%20extraterrestrials.

[4] Chat GPT. User: Elon Musk's sending a Tesla car to Mars?

[5] <https://www.govtech.com/question-of-the-day/where-is-elon-musks-car-after-5-years-in-space#:~:text=The%20stunt%20was%20for%20SpaceX's,Roadster's%20location%2C%20whereisroadster.com.>