



# The Evolution of the Idea of Life Beyond Earth

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## *Fascination With Alien Life Through Time*

17th Century- Galileo's new telescope allowed us to look up close at the heavens

1947- Marks the start of the UFO fascination

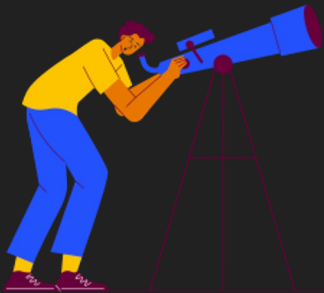
- A pilot reported seeing disc-shaped objects

1950's- Aliens were seen as intelligent beings

1961- Barney and Betty Hill

- Driving late at night and had seen a flying object whizzing in the sky. Barney thought it was a plane until he saw it swiftly switch directions.

1961- Carl Jung, a famous psychologist, analyzed the UFO obsession



# Greeks, Egyptians and the Romans



## Greeks:

- First speculators on extraterrestrial life in ancient Greece were those of Epicurean philosophers
- Democritus and Epicurus believed that the universe was the result of a chance collision of atoms and believed that other worlds in the cosmos existed and that they were inhabited

## Egyptians

- Religious and spiritual beliefs of life beyond Earth
- Views stars and celestial bodies as divine, possibly hinting at life beyond Earth
- Artifacts and texts suggesting awareness of other realms

## Romans

- The Romans followed the Greeks and expanded on the Greeks concept of extraterrestrial life
- The Roman Epicurean poet Lucretius wrote: "Nothing in the universe is unique and alone and therefore in other regions there must be other earths inhabited by different tribes of men and breeds of beasts."

# Middle Ages and the Renaissance

The Middle Ages were a "dark" period of astronomy, with barely any scientific revolutions and discoveries. This was mainly due to the church's significant impact and dogmatic beliefs. There was no strong central government, and this caused education to decline. After the fall of the Ottoman Empire, scholars rushed to Western Europe, which paved the way for the Renaissance, a rebirth of science.

-Thinkers like Copernicus, Brahe and Kepler questioned the geocentric view of our solar system. They came up with the heliocentric model, which paved the way for more supporters like Bruno, Galileo and Newton to come along and add to these laws and ideas and have a more complex and different way of thinking about our place in the universe.

-Galileo's invention of the telescope revealed a more complex cosmos than what was thought before. He discovered 4 of Jupiter's moons, supernovae, and stars of the Milky Way, all of which suggest a universe greater than people had known at the time, with more possibilities of life outside Earth. If we are not at the center of the solar system, and there are so many stars, and each has planets which orbit them, what is so special about our planet that we are the only place where life sprouted?



# The Enlightenment and Scientific Revolution

- Philosophers like Rene Descartes supported the idea of a heliocentric solar system, and his vortex theory of the universe included stars were part of a universe of systems, meaning that he was theorizing the existence of other galaxies out there, with life that could appear in those other galaxies.
- In 1698, Dutch astronomer Christiaan Huygens believed life existed outside of Earth due to the Heliocentric model, and he also stated that since God created matter in all parts of the universe, it must be populated with living beings. Huygens believed that like humans, beings outside of the Earth would also have hands, feet and an upward stance. He also thought that some of them might have wings. On bigger planets like Jupiter or Saturn, he thought the beings might be bigger than us. He thought they would be similar to humans in ways like they would also believe in God, live in houses, have social lives and hobbies.
- Later on in 1755, another philosopher Immanuel Kant also had a similar idea about the existence of other galaxies. His idea was that the dim, tiny nebulae discovered by William Herschel were "island universes" outside and independent of the Milky Way.



# The 19th and Early 20th Centuries: Modern Theories and Cultural Impact

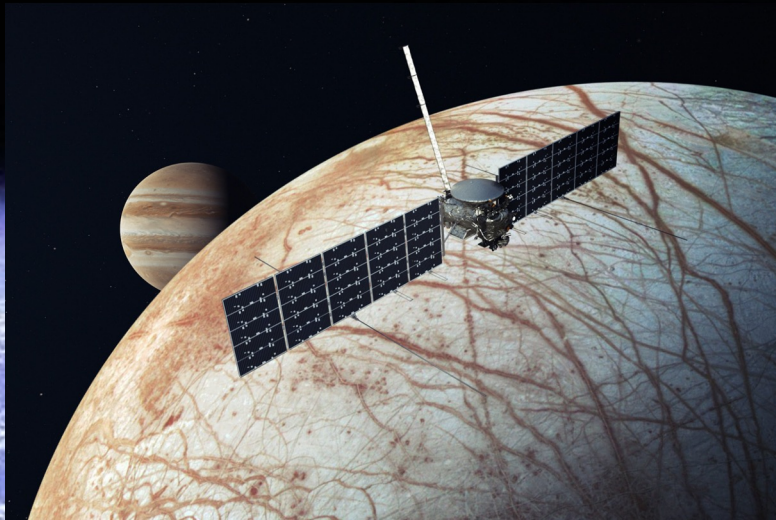
- The misinterpretation of dark lines on Mars by astronomer Giovanni Schiaparelli, led to speculation of life on Mars.
- Percival Lowell an American Astronomer dedicated his life work to observing Mars and speculating about life on Mars.
- H.G Wells "*The War Of The Worlds*", Pioneered the alien and science fiction genre in popular media.



# Contemporary Views and Exploration

## Current Missions to find Life:

- Europa Clipper mission to Jupiter's Moon to explore subsurface ocean for the possibility of life.
- James Webb Space telescope



# TIMELINE FOR UFO'S

## Flying Saucers 1947

First well-known sighting occurred. Businessman Kenneth Arnold claimed to see nine high speed objects while flying his small plane

1

## The Roswell UFO Incident 1947

In the same year, Mac Brazal came across a 200-yard wreckage near an army airfield in New Mexico. Local papers claimed it was the remains of a flying saucer.



2

## Dummies in the sky 1948

Conspiracies were circulating when dummies with latex "skin" and aluminum "bones" fell from the sky across New Mexico. They eerily resembled the look of aliens.

3

## Area 51 1950-60

In 1950s and 60s, multiple UFO sightings were reported around Area 51 in Nevada, a sight used by the government to test flights of experimental aircraft.

4

## The Belgium wave 1989-90

Citizens of Belgium reported seeing a large triangular UFO hovering over the sky. No evidence was found beyond visual sighting. A few months later, new sightings were reported. 13,000 people witnessed the incident.

5

## East Coast GO FAST video 2017

News leaked in 2017 about the Advanced Aviation Threat Identification Program where a video emerged and revealed an encounter between an F/A-18 Super Hornet and an unidentified aerial object. It was a fast white-moving object about 45-feet long without wings or exhaust plume.

6





# TIMELINE FOR EXOPLANETS

## First exoplanets discovered January 1992

Two rocky planets were discovered orbiting PSR B1 257+12, a pulsar in the constellation Virgo. A year later, planet PSR B1620-26 orbiting a binary system composed of a pulsar and a white dwarf.

1

## First planet found in “habitable zone” April 4, 2001

The discovery of planet HD 28185 b, a planet that orbits its star as earth does from the sun. the planet, which is 6x as massive as jupiter, is the first to be found that could potentially carry life.

2

## Kepler finding-planet mission launch March 6, 2009

This was the launch of the Kepler Space Telescope, which revolutionized the search for exoplanets by detecting thousands of new worlds through the transit method

3

## Kepler’s discovery, Earth's cousin July 2015

The discovery of Kepler-452b, often called earth's cousin, as it orbits the habitable zone of a SUN-like star, raising the possibility of finding earth-like conditions.

4

## Seven Earth-sized planets February 2017

NASA announced the discovery of seven Earth-sized planets in the TRAPPIST-1 system, three of which are in the habitable zone, representing the best opportunity for studying potentially habitable worlds.

5

## James Webb space telescope launches December 25, 2021

Launched on Christmas in 2021 the James Webb Space Telescope captured the first direct image and detailed spectra of an exoplanet, marking a new era of studying exoplanet atmospheres and potential biosignatures.

6

# Conclusion

The idea of life beyond Earth has captivated humanity for centuries, evolving from early philosophical musings to rigorous scientific exploration. Historical milestones, cultural influences, and groundbreaking technological advances, such as the James Webb Space Telescope, have transformed this curiosity into a thriving field of study. With the discovery of over 5,000 exoplanets, we gain insight into the dynamic history and diversity of planetary formation. As we continue exploring the cosmos, our understanding of the universe and the potential for extraterrestrial life grows, challenging us to rethink our place within it. The journey from ancient speculations to modern discoveries demonstrates the enduring human desire to uncover the mysteries of the universe.



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