



## Humans in Space *Future Thinking*

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Who in the beginning of the 1900's would have thought that we would have set foot on the Moon less than 70 years after the first ever powered human flight by the Wright brothers in 1903? This 'Earthrise' photo by the Apollo 11 astronauts is a testament to how we can achieve almost anything if we put our minds to it - even travelling to other stars. Photo courtesy NASA.



Since the dawn of the Space Age, nearly all the ideas and inspiration for the scientists involved came from those who looked to the future and imagined what possibilities space held. Some call them 'dreamers' and we see that term as describing someone who will open their mind to what science and space might be able to do to improve human life and help us discover more about the universe. When Arthur C Clarke first made his prediction for orbiting communication satellites - when the first science fiction authors dreamed of landing on the Moon, they were ridiculed. Yet look at where we are now.

In the next few decades, and for some cases even now, we will have the know-how and the technology to send humans across the Solar System, to colonize Mars and perhaps even to construct ships that will travel to other stars. In *Future Thinking*, we examine the science behind these ideas and how they might be achieved. We might take our lead from science fiction, but everything within these pages is science fact.



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#### Generation Ships

Travelling interstellar distances takes decades if not centuries at sub-light-speed velocities. If you are on a ship for that long, the original travellers would end up having children and grandchildren along the way - So we have Generation Ships.

#### Human Hibernation

A possible way of circumventing the difficulties of constructing Generation Ships is to place the travellers in a state of hibernation and simply waking them up on arrival. It's not quite as easy as Aliens and 2001 make it out to be, but it's not impossible...

#### Colonizing the Solar System

There are already plans to send humans to Mars, and from there it is not far off to the asteroid belt and eventually the moons of Jupiter and Saturn - will we ever see humanity spread throughout the planets?

#### Colonizing the galaxy

If you thought colonizing the Solar System would be difficult, imagine what would be involved in colonizing our galaxy. Yet some scientists think it can be done - even without faster-than-light spacecraft.

#### Space Culture

Getting into space is the easy part - but what will a space-based society be like? In this thought experiment, we discover that many aspects of our culture will change irrevocably when we make the leap into space.