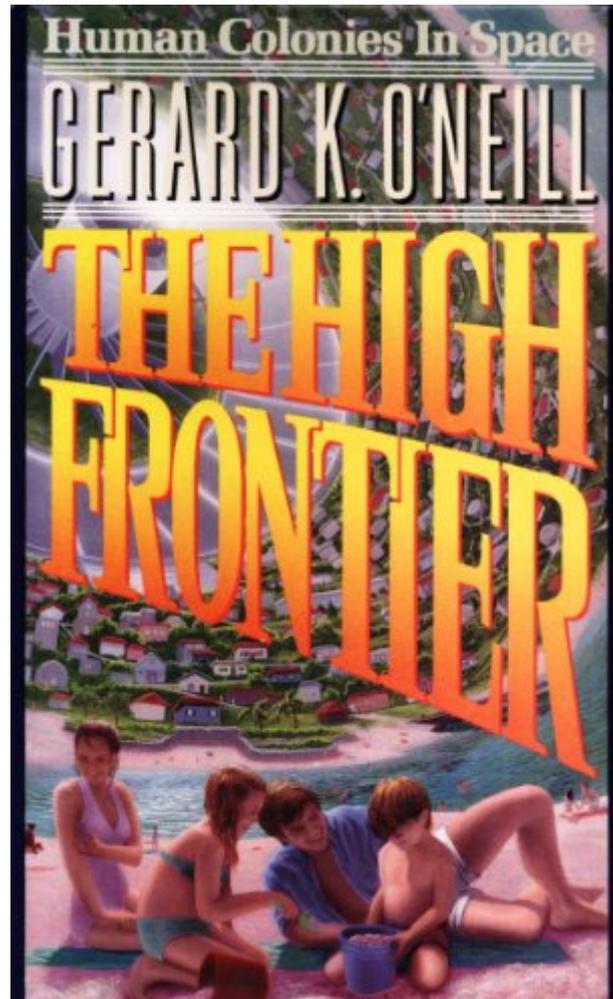


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# The High Frontier: Human Colonies In Space



## Synopsis

In the early 1970s America had proved its leadership in Human Spaceflight but among the nation's youth an anti-technology mindset was growing. Princeton Physicist and Professor Dr. Gerard K. O'Neill, inventor of the revolutionary Colliding-Beam Storage Ring technology that is now the basis of all high energy particle accelerators, asked his students if they could come up with a working Space Colony system to permanently and happily house tens of thousands of regular people. They dug into the challenge. Soon his small band of students grew to scores of researchers both young and old, all united in the Big Dream of letting real people have a real choice in their futures. In 1974, Dr. O'Neill put his three-pronged plan of Space Colonization, Space Solar Power and Large Scale Space Construction into easily accessible form with the release of the book *The High Frontier*. Fourteen years later, The Space Studies Institute, founded by O'Neill, re-released the original text, unchanged except for the doctor's addition of the Appendix A View from 1988. • Now, The Space Studies Institute makes *The High Frontier* exclusively available electronically for Kindle owners. This is one of the milestone and timeless classics of Space Habitation, Alternative Power and Human Potential, all made possible with technology we already have. A Must-Read.

## Book Information

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## Customer Reviews

THE HIGH FRONTIER is an excellent book on the practicality and economics of the human colonization of space -- very entertaining to read and full of interesting technical information. It is the classic work on the subject -- highly regarded by folks such as Carl Sagan, Isaac Asimov, and Thomas Paine (former administrator of NASA). When this influential book was first published, it changed a lot of minds throughout the world. Is human colonization of space achievable even with 1970's-1980's technology? Could it be profitable on a global-economic scale? The author thinks so and tells us why and how; and his credentials are impressive. The author, Dr. Gerard K. O'Neill, was a tenured professor of physics at Princeton and one of the founders of the Geostar Satellite Corporation (a company that worked on implementing GPS satellites). Many of the conclusions in the book are backed up by actual experiment and by numerous studies done both within and without NASA. This is one of the handful of books that have helped to shape my outlook on the future of mankind -- a strong statement reserved for an excellent and influential work.-- Brooke P. Anderson

This book is amazing. This 3rd edition has two parts: the first is the original text by the late Gerard O'Neil, one of the great visionaries of the 20th century. Though things did not develop in the time scale he hoped for, his message is as valid today as it was in 1980 -- or even more so. The second part of the book is a series of chapters by contemporary leaders in the aerospace industry, and provide a fresh, modern perspective on where we've come since O'Neil's day, where we need to go, and how to get there. The emphasis of this book is more on what we need to do, why we need to do it, and what that would be like, than on the details of "how." Other books cover the "how" in more detail. But because of the focus of this one, it is easily read by anyone; no special technical or math skills are required. After reading only part of this book, I did some web searches and found that the concept of space solar power (which is central to O'Neil's thesis) is still very much alive today. NASA did a new study on it just a couple years ago, and it has been discussed in Congress increasingly often since then. It is a very real concept, very nearly ready for implementation. Read this book to find out why it's so very important.

O'Niell's writings (the first 12 chapters) are as well written and exciting as ever. His vision of how

humanity should enter space is unsurpassed, despite now being some 25 years old. The additional chapters don't seem to add too much. I was hoping for a good description of where we've got to, and how things have changed. For example, in O'Neill's time, the richness, number and accessibility of Near Earth Asteroids was not known, but there is little in the book on the how these could be used to make O'Neill's original vision easier to fulfill. Likewise, Tether technology could reduce Earth launch costs and bring the vision closer to reality. None of this is covered. John Lewis has a good section on Space Law, but to see new ideas from him, you have to read "Mining the Sky". Overall, if you've never read *The High Frontier*, this book is an excellent buy. If you've already got the previous edition at home, the six chapters don't add too much, and there's better information on the internet.

Written in the 1970s, this book details O'Neill's vision of space colonies - huge space stations built from lunar material, selling solar power beamed to earth. Although his timetable of such colonies by the 1990s turned out to be too optimistic, this book is very much worth a look, both for historical reasons, and also to see what will happen once the price of access to space drops. Packed with technical detail, O'Neill's plan is based on two assumptions - that the price of access to space would drop, and that the price of energy would rise. Neither came true in the early 1980s. The Space Shuttle did not make space flight cheap as promised, and low energy costs did not make space based solar power economical. In the near future though the space frontier may very well develop just as he foresaw.

This was written in the 1970s, and all the numbers and budgets and economic models are based on the published performance of NASA's Space Shuttle - which turned out to be wildly optimistic. Rather than flying 60 times a year for a cost of US\$ 20 million per flight, the Shuttle ended up with a maximum flight rate of nine per year (which NASA only managed once, in 1985) and a per-flight cost of between \$500 million and \$1.5 billion depending on who's doing the math. Given that huge discrepancy in the initial assumptions, everything following is essentially pure fantasy. However, this is not to say that it's worthless. The designs of the stations are ingenious and practical (given the availability of funds and in-space infrastructure, which isn't looking like it'll happen very soon). Other technologies described in the book, such as the mass driver and solar power satellites, have become part of the list of tools we expect to use during the conquest of the solar system. The main problem with the book is that Dr. O'Neill started with the idea of an orbital paradise he would like to live in, then worked backwards from there and attempted to figure out a way to make it happen. His economics and politics strike me as being hopelessly unrealistic. The engineering is the good stuff

here. And if capitalism can fix the economic and political problems, which I believe will happen, then we may someday see people living in space habitats that look a lot like what's described here.

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