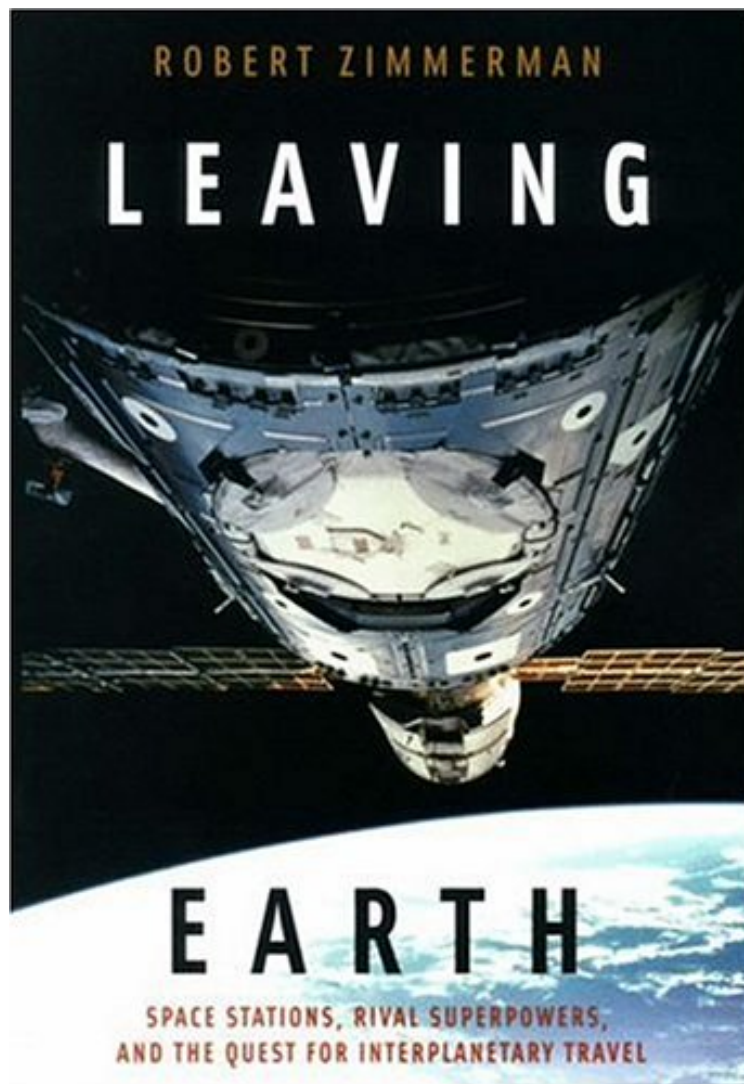


(Read and download) Leaving Earth: Space Stations, Rival Superpowers, and the Quest for Interplanetary Travel

Leaving Earth: Space Stations, Rival Superpowers, and the Quest for Interplanetary Travel

Robert Zimmerman

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#2971519 in Books 2003-09-06 Format: International Edition Original language: English PDF # 1 1.15 x 6.04 x 9.00l, 1.60 #File Name: 0309097398544 pages | File size: 44.Mb

Robert Zimmerman : Leaving Earth: Space Stations, Rival Superpowers, and the Quest for Interplanetary Travel before purchasing it in order to gage whether or not it would be worth my time, and all praised Leaving Earth: Space Stations, Rival Superpowers, and the Quest for Interplanetary Travel:

1 of 1 people found the following review helpful. A fantastic history By Jackson R. Pope III In a lot of thinking about the history of space in the American popular conception it ends with the 1969 Apollo moon landing and a win for the

United States in the Space Race. The history since then, if considered at all, is seen as a footnote to this historic event and contains little of importance in itself. Zimmerman's excellent book compels us to rethink this aspect of history which has largely been ignored in the United States. Part of the reason that it has been glossed over in the United States is because this is a history of Soviet triumphs in an era where U.S. achievements in space lacked high profile accomplishments. To someone unfamiliar with the history of space-stations it can come as somewhat of a shock to learn that between the deorbiting of Skylab and the ISS the United States had no presence on space-stations. The 70s and 80s were a period of Soviet re-consolidation of their programs and eventual dominance in space (similar to what happened with us in the Gemini program where we were able to catch up and surpass the USSR) with regards to space-stations in a way that should make us reconsider the traditional narratives of the Space Race and maybe relegate it to the graveyard of unhelpful historical terminology. Zimmerman's detailed history focuses on many different facets of the U.S. and Soviet experience with building and living in these space stations. For instance, he examines the material differences between Skylab and the very early Soviet Salyut stations. Skylab was luxurious in comparison, while the crew of the early ones suffered severe psychological problems living in the cramped space of the station. The issue of the crew psychology is featured prominently in the book and the experiments with ever longer duration missions took a heavy toll on the mental well-being of the cosmonauts. This issue of psychological health was a fundamental one because it was important not only for the mission but as a springboard to missions to Mars that were in the works. The medical data provided by these missions, both psychosocial and mental, were thus invaluable for coming to an understanding of what humans could endure in space, what problems they faced, and how to deal with them. Another interesting aspect of the book is the focus on the long history of Soviet experimentation with trying to grow pea plants in their stations which iterated through many different station programs. The tending of the peas became an integral part of helping cosmonauts stave off the mental ill-effects of such long duration missions in space and it follows this biological experiment through years and years of frustrations and failures before finally a viable plant grew in space. Changing politics is also examined. The changes in Soviet society are reflected in the station missions. Zimmerman examines how the closed nature of Soviet society in the early years forced Cosmonauts to leave Earth without even being able to inform their families and not being able to communicate with them person-to-person. The mental strain this produced and the eventual cooperation with the U.S. in specific missions eventually led to more openness in Soviet society as a whole. One of the preceding lines to Glasnost in the late 80s and early 90s. It also looks at how the stations were used in wider Soviet geopolitics, especially with the Interkosmos program which trained cosmonauts from aligned nations to travel to the space stations as part of a wider propaganda campaign in an increasingly unstable Eastern Bloc. These are just some of the interesting topics covered in Zimmerman's remarkable and well researched book. Though it focuses on the Soviet by default it should fill us with a great admiration for HUMANITIES quest in becoming a space-faring species as our collective shared history and the bravery of all those who took on the dangers to advance us one small step to living among the stars.

3 of 4 people found the following review helpful. A Space History Must Read By David B. Gillespie Having just finished this book, I must say I was greatly astonished. I have read almost everything on the American space program and what little has been written on the Soviet/Russian program. I apparently knew very little of the incredibly brave and tenacious Russian program. What a great story of risk, perseverance, personalities and achievement. This book casts their accomplishments in a whole new light. To say it again; I was astonished. Robert Zimmerman tells this story in a wonderfully readable and dynamic way. It was hard to put the book down. This is also the sad story of how NASA has become a bureaucratic do nothing agency since the glory days of Apollo and Skylab. Zimmerman also writes with an eye toward future journeys to Mars and beyond that gave me hope that someday we will really go!

9 of 9 people found the following review helpful. Insight from the Russian Experience in Space By Arthur P. Smith Robert Zimmerman, space historian and enthusiast, combines a love of technical issues with extensive background research in this account of the nine space stations flown so far by the Soviet Union (now Russia) and the United States. As the full title suggests, Zimmerman sees an important rarely stated purpose for the stations: learning how to maintain, operate, and work within vessels that closely resemble those that will first carry humans between the planets. This detailed historical account of space station development is a powerful demonstration of how people have learned critical skills for living in space through repeated failure of almost every imaginable variety. Today we remember Mir and Skylab, but the early Soviet Salyut stations were where much of the real learning happened. Fires, propellant leaks, repeated docking failures and failures in all sorts of science experiments (particularly attempts at plant growth) characterize much of the early history. Failures in crew relationships were at least as frequent - some crews (generally 2 men for the Salyuts) got along famously, but others quickly got on one another's nerves and bitterly endured through months of orbital isolation. Human failure is here too - the toothaches, infections and heart problems of normal life, and then also the worrying problem of loss of bone mass - up to 2 percent a month, in zero gravity. And political failure, which showed up in relationships with ground controllers who seemed to cease caring, in later years, about what were very serious problems in orbit. The first failures were docking problems, and sadly, the loss of three cosmonauts. Brezhnev gave the go-ahead to the Salyut program apparently to improve international public relations for the Soviet Union, and so missions were much more public than they had been in the past. Soyuz 10, the first mission to Salyut 1, failed in

attempts to dock, and had to return. Soyuz 11, carrying a last-minute crew, successfully docked, and was met by the smell of burning insulation when they opened the hatch. At least half the equipment they'd been asked to work with didn't work as planned in zero gravity. The three men spent three weeks on the station, dealt with another electrical fire, broadcast to the world from orbit, and managed to magnify a few personality conflicts along the way. And then, in their descent module shortly after leaving the station, a pressure equalization valve opened, and, despite their best efforts, they were dead in minutes. The US Skylab came next, and it too started in failure - the last launch of a Saturn V rocket - during launch part of the meteor/heat shield was ripped away, destroying one solar panel and tangling another so it could not open, and exposing the workshop enclosure to direct sunlight, raising its temperature to as high as 130 degrees (F). Skylab's first crew, launched 10 days later, managed to fix essentially all the problems (except for the lost solar panel) through ingenuity and hard work. Follow-on crews learned a lot about living in space - but ironically, the science experiments approved did not include any of the plant-growth experiments the Soviets were so keen on - growing plants in zero gravity was not something US scientists were funded to study, despite the apparent usefulness for long-term living in space. The Soviet Salyut stations followed one after another; the first really successful one, as described by Zimmerman, being Salyut 6, launched in 1977. They had learned a lot from earlier failures and experiences, and now had a station that could sustain itself for long periods in orbit, with human assistance. Salyut 6 had a fire too - these early experiences with fires in space explain why the later fire on Mir was much more frightening to the American on board, than to the Russians. Salyut 7, which was still orbiting when Mir's first pieces launched in 1986, suffered a very severe propellant leak that nearly disabled the station; a later crew ripped open the outer shell of the station to get at the various bits of tubing they needed to test and replace, and managed to make the repairs needed over a series of space walks that amounted to more than all previous Soviet space walks combined. The Russians had learned how to deal with problems in space, how to fix them with their own ingenuity. Since Salyut 1 they have not lost a single person, not even had any severe injuries. There had certainly been some very close calls - the fire on Mir and the later collision of a Progress freighter with the station could have been very serious. But somehow they managed, through luck and ingenuity, to keep things working. As Zimmerman puts it, the station had proved that the technology for going to other planets was available, and buildable. "Provide human beings with the necessary tools and supplies and they can go anywhere." The Soviet space program had become, in the new Russia, independent and profit-oriented - driving hard bargains and keeping a technology edge. In the US, in contrast, things had become very rigid, bureaucratic, and "focusless". In Zimmerman's phrase, the two "ships passed in the night": America's efforts in space now resemble those of the early Soviet Union; astronauts have little freedom to do their own things, with everything prescribed down to the minute. No room for learning, or ingenuity among those who are actually experiencing spaceflight firsthand. Problems and risks are ignored or downplayed by the bureaucracy. Commonsense is thrown out the window. And tourists like Dennis Tito are seen as threats, not vindication. One of the strengths of Zimmerman's book is the focus on the people - but this also leads to many somewhat formulaic biographies of many cosmonauts and figures such as Boris Yeltsin. The psychological interactions among the different crews are certainly interesting, as are all the wonderful historical details Zimmerman has dug up. A great book for space history buffs, and anybody interested in the experiences of the first to practice what we'll need to do to travel between the planets.

Charged with the ever-present potential for danger and occasionally punctuated by terrible moments of disaster, the history of space exploration has been keenly dramatic. The recent disaster of the Space Shuttle Columbia was a sad but certain reminder that space travel is an extraordinarily dangerous occupation. Oddly enough, it often takes a tragic accident to remind us that we still have a presence in space. In the decades between triumph and tragedy we tend to ignore the fact that there have been scores of space pioneers who have risked their lives to explore our solar system. Indeed, the International Space Station is sometimes referred to as "Alpha," a moniker that implies that it is our first real permanent presence in space. But this notion is frowned upon by the Russians - and for good reason. Prior to the construction of the controversial International Space Station, a host of daring Russian cosmonauts, and a smaller number of intrepid American astronauts, were living in space for months, some of them for over a year. In this definitive account of man's quest to become citizens of the cosmos, noted space historian Robert Zimmerman reveals the great global gamesmanship between Russian and American political leaders that drove us to the stars. Beaten to the Moon by their Cold War enemies, the Russians were intent on being first to the planets. They believed that manned space stations held the greatest promise for reaching other worlds and worked feverishly to build a viable space station program - one that would dwarf American efforts and allow the Russians to claim the vast territories of space as their own. Although unthinkable at the time, the ponderously bureaucratic Soviet Union actually managed to overtake the United States in the space station race. Leveraging their propaganda machine and tyrannical politics to launch a series of daring, dangerous, and scientifically brilliant space exploits, their efforts not only put them far ahead of NASA, they also helped to reshape their own society, transforming it from dictatorship to democracy. At the same time, the American space program at NASA was also evolving, but not necessarily for the better. In fact, the two programs were slowly but inexorably trading places. Drawing on his vast store of knowledge about space travel, as well as hundreds of interviews with cosmonauts, astronauts, and scientists, Zimmerman has superbly captured the

excitement and suspense of our recent space-traveling past. For space and history enthusiasts alike, *Leaving Earth* describes a rich heritage of adventure, exploration, research, and discovery.

From Publishers Weekly In the aftermath of the space shuttle Columbia disaster, Americans may have forgotten that for a quarter-century men and women circled Earth in space stations for as long as a year at a time. Most of these astronauts were from Russia and the Warsaw Pact countries. Zimmerman (*Genesis: The Story of Apollo 8*) recounts this era of space exploration, beginning with the American-Russian rivalry in the 1960s and concluding with their present-day collaboration on the International Space Station. He reminds us about the short-lived 1970s Skylab program, which was to have been followed by other U.S. space stations. Granted access to Russian archives and interviews with cosmonauts and their families, the author describes the Soviet program in great detail. The original Russian space stations, he reports, were intended primarily for propaganda and military purposes, but they also included a variety of scientific experiments and perfected the use of unmanned "freighters" to bring supplies and parts from Earth. If readers remember anything about the Russian program, it is probably the troubled final months of the Mir station, but Zimmerman describes the heroic efforts of cosmonauts to put out fires and make extended space walks to undertake complicated repairs. The Russians also conducted extensive research on the effects of living in space on the human body, research that will be invaluable for possible future travel to other planets. This book will be of interest primarily to scientists and hard-core science buffs, but it will undoubtedly be the leading book on the Russian space station program for the foreseeable future. Copyright 2003 Reed Business Information, Inc. "Space enthusiasts worried about where the manned space program is headed will take some heart from reading [this book]. ...Mr. Zimmerman shows that engineers and astronauts have the ability to survive, and even thrive in space, to conquer everything that can be thrown at them by nature and their fellows. ... Man has the ability to travel to the stars. The haunting question Mr. Zimmerman leaves us with is, does he have the will?" "From the Inside Flap" *Leaving Earth* is one of the best and certainly the most comprehensive summary of our drive into space that I have ever read." -- Arthur C. Clarke "The book is a 'must-read.' As the first American member of a Russian crew, I thought I knew it all but the book revealed aspects of the Shuttle-MIR program and my MIR 18 mission of which even I was unaware. I found myself muttering 'So that's what was going on!' Be prepared to learn the 'real' story behind the race to the colonization of space." -- Norm Thagard, former NASA astronaut and the first American to fly on a Russian rocket and to live on Mir "Zimmerman's new work is an exciting, authoritative, meticulously researched history of long-term human presence in space. We visit the American Skylab, the seven Soviet Salyuts and Mir, and the evolution of tentative Freedom and Alpha designs to the current International Space Station. Especially intriguing are Zimmerman's brilliant interweaving of events on the ground--often political--with those of Mir crews in orbit, and his description of cultural trials facing Americans and Russians learning to work together in orbit. A literary tour de force." -- Frederick I. Ordway III, author of *The Rocket Team* and *Wernher von Braun: Crusader for Space* "A great book!" -- David M. Harland, space historian and author of *The MIR Space Station: A Precursor to Space Colonization* "In the 18th century, a handful of Russian adventurers--who 'lived' where other navigators only 'explored'-- established a series of colonies on the Alaskan coast. So it has been in space. Zimmerman's comprehensive account of the push to 'live' in space is necessarily populated largely by Russians, but it is an adventure that belongs to the entire human race." -- George Dyson, author of *Project Orion* and *Darwin Among the Machines* "*Leaving Earth* is a provocative voyage through thirty years of space exploration to the threshold of interplanetary flight. This adventurous book features sharp analysis and engaging writing. -- Tom Jones, former NASA astronaut