

Introduction

The surface of the earth is the shore of the cosmic ocean. On this shore, we've learned most of what we know. Recently we've waded a little way out, maybe ankle deep . . . and the water seems inviting.

—Carl Sagan (1934–96)

When the Soviet Union and the United States began flying humans into space in 1961, it seemed as though the path was clear for the exploration of our new frontier. To most Americans who grew up reading *Collier's* magazine and watching Walt Disney's *Man into Space* television series hosted by Dr. Wernher von Braun, the logical path laid out after the first proving flights would include the construction of manned outposts in Earth orbit. These outposts would serve to look down on our planet for study, for reconnaissance of threat countries, and to help build and fuel spacecraft for longer expeditions. Only after this logical step was taken would humankind begin its journey to the moon and beyond.

Of course, it didn't quite happen that way. On 25 May 1961, during a special joint session of Congress, U.S. president John F. Kennedy firmly put America's sights on "landing a man on the moon and returning him safely to the earth" within the decade. At that point, the goal was not so much to just explore space but to try to achieve a space first over the Soviet Union, who at the time seemed to be firmly in the lead with the accomplishments of Sputnik's launch in 1957 and Yuri Gagarin's single orbit of Earth a few short weeks before Alan Shepard's suborbital spaceflight. The goal would have serious repercussions in both the United States and the Soviet Union, many of which are felt to this day. Both countries would have to sidestep the seemingly logical approach to spaceflight and expend their efforts into reaching the moon as soon as possible. As history has

shown, the United States succeeded in the lunar-landing goal, while the Soviets fell short of that achievement.

By the start of the 1970s, the focus had turned to Earth orbit and long-term manned missions with space laboratories. For the Soviets, it would initially be another way to score a space first and divert attention away from their lack of lunar-mission success. For the United States, it would be a way to utilize hardware drawn from the Apollo program in a cost-effective manner, keeping NASA's astronauts in orbit and the workforce intact while development work began on the space shuttle. The hope of NASA at the time was that the shuttle would serve as a transportation and assembly vehicle, ferrying equipment to and from the next generation of space stations. After many years, that finally happened, but not before the shuttle became a premiere space laboratory of its own.

Along the way, some interesting things happened. The path initially envisioned by the Americans and the Soviets didn't quite take place as each side expected. At one point, both countries became partners in an initial joint space mission before political ideologies forced them to again pursue different directions for another two decades. It wouldn't be until after the Soviet Union fell that both NASA and the Russian space agency would again look to performing missions together. Additional countries would join in with the superpowers to make space exploration a truly international endeavor, with each one contributing something unique to the venture.

There were also parallel space station programs at work with more basic goals in mind—offshoots of the Cold War built with the intention of gathering intelligence at altitudes where one couldn't easily shoot down the vehicle collecting it. For the United States the vehicle was known as the Manned Orbiting Laboratory, or MOL. For the Soviets, the vehicle was called Almaz. Ultimately, only one of these observation platforms would orbit the planet, but both programs eventually provided valuable contributions to the stations and laboratories that would come along later, in ways likely not dreamed of by their creators.

At a glance, many don't consider the space station programs to be all that worthwhile compared to what had been done before. Public perception tends to regard station and shuttle missions as little more than astronauts floating around Earth for several weeks spending taxpayers' money with little to show for it. Our cultures have been brought up to regard

progress or success as being something tangible, with a prize at the end, as opposed to something open-ended for the purpose of knowledge itself. A destination on some new world is something we can understand, while Earth orbit seems more like a place already visited, complete with a giant billboard that says, “Yuri Gagarin and John Glenn were here.”

So the construction and operation of space stations and laboratories tend to generate about as much interest among the general public as a new office building going up in a city. After they are built, not many people really understand what goes on inside or care too much, unless they happen to work in the building. To put it into perspective, think about some of the petroleum and pharmaceutical companies that sponsor public-television programs in the United States, such as the Public Broadcasting System’s *Nova*. You see the advertisements that showcase the flashy graphics and imagery while a scientist talks about something he or she might be working on that could improve how we live. But other than that, can people really describe what these companies do in their labs? Day in and day out, all anyone sees are the people going to work in the morning and coming home in the evening. It is no different with space-program coverage, as only the launches and landings tend to attract live coverage, while the day-to-day activities might only yield thirty seconds on the evening news or the back page of the newspaper if there is anything “important” or unusual to report.

The problem, at least in the United States, isn’t just with the public perception of space stations; it has also been with the policy makers who decide on the space agency’s budget. While the public likes to follow high-profile missions, politicians need to secure a quick return on their investment, preferably before the next election year. New space hardware and missions can take a long time to develop, and there is reluctance to provide funding for the time required. Tangible success has to be shown early, or a program risks cancellation before hardware is ready to fly. And, of course, there are always the budget fights between those in favor of more space funding and those who push for the money to be distributed elsewhere.

The station and laboratory programs of the first half century of space exploration embrace a vast number of stories—episodes filled with excitement, danger, humor, sadness, success, and failure to rival any of those experienced on other manned missions, even ones that flew to the moon. At the heart of these tales are people, both of greatness and of modesty.

Some of these people are already well known to many, while others are not quite as well known, except to a select few.

Naturally, the people who have flown in space tend to draw most of the attention. But for every astronaut and cosmonaut who has reached space, there are thousands of behind-the-scenes support people doing work in every imaginable capacity to get them there, to assist them on orbit, and to bring them home safe. Yet while all have a story to tell, only a few can be told within these pages. So come along for what promises to be a most informative, enlightening, and hopefully enjoyable ride as we push the veil back on the dynamic history of mankind's first outposts on the frontier of space.