

EIR Science & Technology

Recapturing the spirit of the Apollo Moon landing

It is almost 25 years since man first landed on the Moon. A new book commemorates the contributions of German space scientists to one of America's greatest achievements. An interview with Marsha Freeman.

Marsha Freeman, associate editor of 21st Century Science & Technology magazine, was interviewed on March 8, 1994 for the cable TV program "The LaRouche Connection" about her recent book How We Got to the Moon: The Story of the German Space Pioneers (Washington, D.C.: 21st Century Associates, 1993). The following has been edited from her remarks, and subheads have been added.

Tell us why you wrote this book?

There were two reasons for writing a book about the Apollo history and the role of the German space pioneers at this time. One was the fact that, today, and really since the end of the Apollo program, there's been very little vision for our space effort. I don't think that this is because there are no people in NASA or the space program with vision, but because there has been an environment in this country where science and technology projects—great projects, long-range goals—have just not been a priority. I felt that in this year of the 25th anniversary of the first lunar landing, people should re-familiarize themselves with the history of what I've called mankind's greatest achievement in this century.

Second of all, the German space pioneers were not the only people who contributed to the Apollo program, but I felt that their contribution was unique. They were a group of people who worked together as a team, made up of individuals who were very creative and talented, but who were able to team up together as a group and accomplish something very vital and very dramatic. In addition to that, they worked very hard for over 40 years and this was something that didn't exist in the rest of the space program.

Over the past 10 years many of the German space pio-

neers have been vilified, especially in the press. They have been under attack, they have been under investigation, and they have been accused of various kinds of war crimes and Nazi affiliations from their work during the Second World War.

In 1984, Arthur Rudolph was intimidated by the Justice Department into leaving the United States and giving up his citizenship because the Office of Special Investigations was threatening to have him prosecuted. He was getting on in years, not in good health, and he decided that he did not want to go through a legal battle, so he left the country. Since that time, the then-West German government investigated whatever evidence the U.S. Justice Department said they had. After nearly a two-year investigation he was exonerated of all charges. Arthur Rudolph is the leading example, but there have been other members of the German team who have been hounded, investigated, and under surveillance by the Justice Department. I thought that it was very important to write this story, to tell the truth about these people and what they've done and to clear their name.

I knew a lot of these people personally, and that was a good part of the reason why I felt a responsibility to take the time and write this history. I have been very fortunate to know some of the space pioneers and people they worked with in the United States quite well. What I found among people who worked with the Germans and among the Germans themselves, is that this was an unusual group of people. They had a goal, and a dream, and a vision that they started working on as early as the 1920s. In Germany in the 1920s, there was the depression, as we had here, but also a tremendous economic collapse. There was the mobilization for the

war, the Hitler regime, and the war itself.

After the war, the intermediate-range missile program in the United States was headed by Gen. John Bruce Medaris and the Army group in Huntsville, Alabama. The Germans were able to spread their ideas, excitement, and commitment, and the people who worked with them, including military people who were not working on civilian programs, after a while began to catch the enthusiasm. I spoke with General Medaris soon before he died in 1990—30 years after he had worked with the German team; he still had a strong commitment to continuing the civilian space-science program which, I think, he credited to working with them.

Crucial role of the German space pioneers

Could the United States have had a space program without what the Germans had to offer?

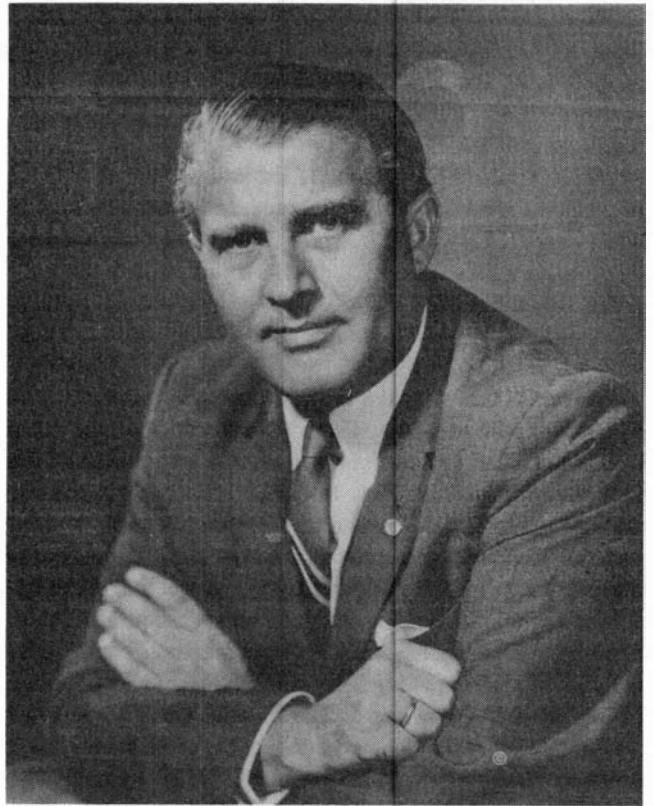
That question is often asked: If the Germans had never come here, would we have been able to go to the Moon? I think you could make a case that we would have been able to go, but I don't think we would have been able to go within the decade of the 1960s—which is what President Kennedy had asked the scientists to do. The Wernher von Braun team who came here brought with them 20 years of experience, the accomplishment of having built, designed, and tested a rocket—a missile—variously called the A-4 or the V-2 in Germany.

They had had a lot of failures, which led them to have a few successes. And they brought all of that experience, plus hardware, with them. Therefore, when President Kennedy was looking for a positive goal for the nation in early 1961, Wernher von Braun was able to say to the President, "I am confident that this country could beat the Soviet Union with a manned mission to the Moon," because he knew what the U.S. team could accomplish; how long it would take to build the rocket that could take men to the Moon. And he felt that we probably had a more than 50-50 chance of beating the Soviet Union to that goal. Von Braun was able to suggest what became the Apollo program to President Kennedy, and then to do it within eight years because of the experience that the Germans had brought here.

Russia, United States, and Germany compared

From that period in the 1920s, both the United States and the Soviet Union had been doing a lot of work in space research or in rocketry. Why is it that it was developed to a tremendous degree within Germany and not in these other two nations?

That's a very important question. People look at the book title, *How We Got to the Moon*, and they say, "Well, why the German space pioneers? Robert Goddard in the United States was doing a very important experiment. You had Konstantin Tsiolkovsky who, 20 years before the Germans, had worked out all of the details of a space program. So why say



German-American space pioneer Wernher von Braun.

the 'German space pioneers'?"

In Germany by the early 1920s, there was a wealth of scientific accomplishment in physics and mathematics, in chemistry, in geometry, in many fields that was not have equalled in any other country. Germany produced more Nobel laureates in the natural sciences in the first 20 years of the Nobel Prize awards than any other single nation. In the last half of the 19th century, you had a tremendous flowering of German science, and there were breakthroughs and scientific people at universities.

Young people, therefore, in college and at universities in Germany at the turn of the century or in the teens or twenties, had people to study under such as Werner Heisenberg, Albert Einstein, Prandtl in aerodynamics, Hans Geiger (after whom the Geiger counter is named), the people who discovered and developed fission energy, such as Otto Hahn. The biggest, most impressive, and important names in science were at German universities, so that a young man such as Hermann Oberth, born almost 100 years ago, could go to a German university and learn from the people who had made the major contributions.

Hermann Oberth was the theoretician who laid the basis for space flight already in the early 1920s. By 1923, he published his first work, which was less than 100 pages, but laid out all of the basic concepts necessary for space flight.

Konstantin Tsiolkovsky in Russia had done the same thing in 1903. But this was just not seen in Russia at that time as something realistic or important or challenging for the future. And, of course, Russia had its political problems, its revolutions of 1905 and 1917.

In the United States, Robert Goddard worked almost entirely alone. He did some experiments, and wrote very important material. However, he was criticized and ridiculed by the *New York Times*; he immediately withdrew, became very defensive, and said, "If I am going to be attacked in the press, I am going to work in secret, and no one is going to know what I am doing."

Hermann Oberth had a very different viewpoint. He had trouble with the scientists. There were plenty of people in the 1920s who said space flight was simply impossible, these rockets would never work. Instead of becoming defensive and just going back home and teaching high school, he went on a public campaign to educate common people about rockets and space flight. He took his arguments out into the scientific community, where he debated people, but he also set up exhibits in department stores, spoke at meetings of all kinds, and recruited around him a group of young students—young people such as Wernher von Braun, who was a teenager—and decided that they should conduct experiments and start building public support. So Hermann Oberth is really the person known as the father of space flight.

Then during the war, there was also an attempt to bring together all these forces in order to do something with the rocket program—this was the Peenemünde group that came out of these many amateurs. The German Army and the German military had very, very serious constraints on their activity after the end of World War I and the agreements that were made in the Versailles Treaty. There were a lot of amateur rocket experiments going on in Germany with Professor Oberth, Wernher von Braun, other amateur societies and clubs that were set up in different parts of Germany, and the German Army. General Dornberger, in particular, became aware that this kind of activity was going on. Nobody who drafted the Versailles Treaty had thought about rockets, so, of course, there were no limitations on rocketry in the treaty.

By 1930, the German Army had become interested in this new technology. In 1932, Dornberger and von Braun had set up a small experimental rocket program in the German Army, and had gathered together people like Arthur Rudolph and others and started this research program.

There was a lot of effort on the part of von Braun and others to publicize their ideas among the Germany people. In 1929, Hermann Oberth was a technical adviser on a wonderful film called "The Woman in the Moon." As soon as Wernher von Braun came to the United States—and the whole team was reassembled by 1946—they were thinking about a civilian space program, even though they were working for the Army. How could they organize popular support?

They knew that going to the Moon would be an expensive endeavor, and they felt that the government would never put up the money unless there were popular support.

This support was organized by von Braun and another gentleman who is not so well known, Willy Ley [see *EIR*, Jan. 1, 1994]. He was a young fellow who was largely a science writer. He and von Braun and others wrote a series of articles for newspapers and magazines in the 1950s. These articles caught the attention of some of the people on Walt Disney's staff. And when Disney was putting together his weekly television series, they felt that space travel would be the most exciting theme that they could develop for their "Tomorrowland" series. Von Braun and others were brought in as technical advisers and appeared on the show. Here were the top scientists in the country working on these ideas, appearing on television, explaining to children—and adults—how a rocket ship would work, how you would get to the Moon, how you would get to Mars, and they captured the imagination of millions and millions of people who saw them on TV.

The manned Moon-landing project

What were the steps taken to put a man on the Moon?

If you look at just what it took to build the Saturn V rocket, that aspect gives you a very good idea of the size of the task involved. I mentioned earlier the establishment of the Research Institute at Peenemünde, the German Army rocket research experimental facility up in northern Germany during the war. At that time, the von Braun team was developing the A-4 rocket, which was then renamed the V-2, that developed 25 tons of thrust and had to deliver, or bring up almost into space, a 1-ton payload.

By comparison, the Saturn V rocket had to be able to take men and their supplies, the lunar rover, and all their equipment to the Moon. It had to be able to take 100 tons of payload—not 1 ton. So you're really talking about a revolution—not just a small scale-up, but a hundredfold increase in capability. The Saturn V rocket stood taller than the Statue of Liberty, and had over a million and a half components in it. It was a massive, masterful piece of work—not only to coordinate all of the technical systems but, as some people used to joke, a more difficult job to coordinate all of the contractors.

Arthur Rudolph was the project manager for the Saturn V, and people have always marvelled—even people who are in business—how that program was managed to obtain the results where there had never been a failure of a Saturn V rocket. In addition, of course, to getting the astronauts into space, one had to keep them alive and in good health. The entire field of space biology and ability to do things like EVAs, extra-vehicular activities, or space walks—all of this technology had to be developed. I would point out that some of the technology had already been thought about in detail. Hermann Oberth in 1929 described what he called the "space



Author Marsha Freeman
visiting with Arthur
Rudolph in Germany in
1992.

diver,” or a man on a space walk outfitted with a little suit and a backpack with oxygen.

The truth about Peenemünde

What argument do you give when you hear the V-2 project described as only the attempt to create tremendous weapons of destruction?

It is important to distinguish among three separate groups: The first consists of the scientists, engineers, and technologists, many of whom started working on this technology in the 1920s, when they were young men, and had tremendous enthusiasm that this would be the technology of the future. They found themselves in the middle of a war. Many of them had been drafted into the German Army, but, because they had a technical background—an engineering degree, perhaps patents that they had been awarded before the war—were taken off the front lines and brought to Peenemünde and put into the rocket program. Their thinking really was very much along the lines: “This technology will have to be developed to go into space. There’s a war going on, there’s nothing I can do about it, I’ll do what I’m told, work on the rocket technology and when the war ends I’m going to be able to go back to working on my dream of using this technology for space exploration.”

Second, there was the German Army. They were developing—before Hitler came into power and certainly before there were thoughts of another world war—a technology which they felt would be an increased capability for artillery: rockets that would be used and deployed by field troops.

And third, you had Adolf Hitler and the rest of the Nazi

apparatus. In the case of the rocket program, the SS and Himmler felt that the rocket program could be a “wonder weapon,” a *Wunderwaffe*. Hitler had taken no interest in this effort for 10 years. In 1942, when the tide of war started to turn, and it looked like Germany might be having trouble militarily, Hitler seized on the idea that, maybe, this would be a terror weapon. Not really a weapon of mass destruction, because, with 1 ton of TNT and hardly any guidance system, this weapon hardly did very much destruction. He felt it would be a retaliation and terror weapon; that because there was no defense against it people would be terrified. So this was really the Nazis’ conception—and not the Army’s conception and surely not the scientists’ conception.

The charge has been made against Arthur Rudolph and other people that slave labor was used in the mass production of V-2 rockets. This is true. However, this was neither the idea nor the responsibility of either the scientists and engineers or the Army. This was a program implemented entirely by the SS, who ran the concentration camps and the slave-labor camps, and when the SS gained control over the production program in 1943, they were able to use their slave labor in these horrible underground tunnels for mass production of the V-2. Not at Peenemünde, where the research and development was going on, but in the mass production program. I think it’s very well documented that it wouldn’t have mattered how much the scientists and engineers complained, they were not in any position to get rid of Himmler and the SS. And I think that issue is very important to have clear in one’s mind in terms of who would have had responsibility for this during the war.

Witchhunt against U.S. science

Why, then, do accusations that they were Nazis keep recurring in the political debates in this country?

The history of the occurrence of this allegation is very interesting in itself. There were accusations made when the Germans first came here in 1945-46, and the peak of this activity was in 1947. And if you look at it, you will see that the people who were objecting to the German scientists coming here after the war were largely people affiliated with the U.S. Communist Party or were, at least, sympathetic to the Soviet Union.

It is often said that the United States captured the von Braun team. This is not at all the case. The von Braun team decided to surrender to the Americans before the war was over: One hundred eighteen of the cream of the crop of the Peenemünde rocket group came to the United States. They made very clear they had no interest in going to the Soviet Union. This was Operation Paperclip.

Since virtually nobody was volunteering to go to Moscow, the Russians just showed up in the middle of the night in the Soviet-occupied zone of Germany, kidnapped 2,000–3,000 people who had worked at Peenemünde, put them on trains and took them to the Soviet Union. But they were not the top people. The Soviets were furious that the Germans who went to the United States were the ones who had really built the German program.

So, the Soviets were very anxious to paint the Germans who came here as Nazis to try to discredit whatever they would do in the United States. This died down and remained very quiet until about the mid-1960s. All of a sudden, Julius Mader, who had connections to the Stasi (the East German version of the KGB), started writing from East Germany about alleged Nazi connections of the U.S. German rocket team. All of a sudden you had books coming out saying Wernher von Braun was a Nazi. Somehow this “fact” was mysteriously discovered early in the mid-1960s.

Why would it happen at that time? I believe it happened, because after Kennedy made the commitment in 1961 for the United States to go to the Moon, the Soviets were faced with a very serious challenge. By 1965, it was very clear to the Soviets that they had lost that race because the booster, the Saturn V-sized vehicle that they would have needed, had had three serious explosions and failures. The Soviets knew that without that rocket they were not going to be sending people anywhere, and they had, essentially, lost the race to the Moon. What better way to try to regain some ground, at least propagandistically, than to say that the U.S. space program was being run by Nazis? Later again, everything quieted down.

In 1977, Wernher von Braun died. At that time there was a gear-up of activity—not just because of that, because it had been building for some time anyway—but certainly once Wernher von Braun was no longer on the scene the Soviets, such people as Julius Mader and others connected to East

German intelligence, including the Anti-Defamation League and others in this country who have worked very closely with the East Germans and Soviets on these kinds of intelligence questions—were able to gear up their activity and go after Arthur Rudolph and others, because the protection afforded them by the fact that Wernher von Braun was such a popular public figure, was gone after he died.

In 1972, you had an interesting turn of events internationally, with a series of accords signed by President Nixon and Leonid Brezhnev. They signed a joint space agreement, which resulted in 1975 in a U.S.-Soviet flight, the Apollo-Soyuz mission. That was very well publicized.

What was not well publicized was the fact that Henry Kissinger, in the Nixon administration, very quietly made some agreements for the Soviet Union to work with the Justice Department on juridical joint operations. Agreements were signed with the Soviet procurator general—akin to our attorney general—saying that there would be cooperation between our legal systems ostensibly to “hunt Nazis.” And beginning at that time, there were unbelievable kinds of cooperation: For example, it was decided that Soviet witnesses and evidence could be used in U.S. courts, without question. And this was part of what later became, with Gorbachov, Bush, and Margaret Thatcher, the idea of a U.S.-Soviet condominium: that we will work together in certain ways to divide up spheres of influence and have various kinds of things that we will share, including certain kinds of intelligence operations. The United States decided to cooperate with the Soviet justice system. So the Justice Department worked to go after, to accuse, and to deport to the Soviet Union or the East bloc, people whom the Soviets had targeted as being detrimental to Soviet interests.

This was the Office of Special Investigations within the Department of Justice, which had been the group primarily responsible for this activity in collaboration with the Soviets. The OSI has certainly taken it on the chin recently. People are probably familiar with the case of John Demjanjuk, an auto worker who lived in Cleveland, Ohio, who was accused by the Justice Department of having been a guard at the Treblinka concentration camp. He was deported to Israel based on phony evidence provided by the Soviets, and, after being convicted of Nazi war crimes, he was sentenced to death. The Israeli Supreme Court reversed the conviction last year.

The fact that the Justice Department refused to allow evidence to be given to Demjanjuk and his lawyers that would have proved his innocence at the beginning of the case, has been investigated by the Sixth Circuit Court of Appeals in Ohio. The court has accused the Justice Department and the OSI of withholding exculpatory evidence, and the court said that the Justice Department perpetrated a fraud on the court.

The fact that Arthur Rudolph was exonerated after a two-year investigation by the German government should also be investigated, and the OSI should be disbanded.

Cultural pessimism versus cultural optimism

In the last 25 years, there seems to have been something of a malaise in the space program. The Apollo program, which excited everybody, has slipped into the shadows.

I felt it was important to address this question of cultural pessimism in some detail in my book, because Americans are very often told that the malaise in the space program is because the American public has lost interest in space. There have been numerous proposals, including one by the 1988 presidential campaign of Lyndon LaRouche to launch a manned exploration of Mars or a Moon-Mars program that would use the Moon as a base for getting to Mars.

Furthermore, the National Air and Space Museum here in Washington is the most heavily visited museum in the United States. Ten million people a year go through that museum. Most of them, if you ask them why they visit it, say that it makes them proud. I don't believe that the American people ever lost interest in space.

What actually happened was that, about the same time that the Soviets realized they would be losing the race for space, the same fact became apparent to other people—the anti-science mob in the United States and elsewhere—who became alarmed that the United States might win the race to go to the Moon. This included organizations such as the Brookings Institution, the London Tavistock Institute—which represented the zero growth ideology, and the lies that we have too many people, that science and technology are dangerous, or that nuclear energy will hurt you.

These pessimistic, anti-technology, anti-growth groups began to worry that the space program was making Americans too optimistic; that every child would want to be an astronaut. They began to crank out newspaper stories, very erudite-sounding studies showing that the space program was terrible, that it was using too many resources, it was using too many scientists. They put out the line that we weren't spending enough money on social programs, because we were wasting all of this money on space. And the space program came under attack. President Kennedy was gone, and President Johnson became convinced, or maybe threatened, into accepting this argument. And instead of asking after the Apollo success, "where are we going after the Moon?" we ended up with the Great Society. And this was not the same kind of optimism for young people as looking forward to a manned mission to Mars.

People like Wernher von Braun and Krafft Ehrlicke, another very important German space pioneer, recognized by the mid-1960s that there were winds of change, that the culture of the United States was shifting, that people were starting to repeat this idea that we were spending too much money on space and on science. They did a great deal to counter these arguments, arguing that there are no limits to growth, because there are no limits to human creativity.

People like von Braun were putting together programs even before Neil Armstrong took that "giant leap for man-

kind," asking: "We're going to land on the Moon; what do we do for the next 10 years? And the next 20?" Develop the Moon and then go on to Mars. In 1969, von Braun gave a presentation for NASA outlining this program. But this was almost a rearguard action, because, already, the whole cultural outlook was changing. That's what has really hurt the space program, and that's what needs to be changed to get back to where we were.

If you could sit down with President Clinton and give him a few words of advice about what he has to do to get the space program back into motion, what would you say?

I would say, "President Clinton, another young President a long time ago, whom you met and seem to admire, made a decision in 1961 that the United States would send men to the Moon. And he told Congress that either they would fund the program and carry it through, or it shouldn't be done at all. He put the full force of the office of the presidency behind this program and was willing to mobilize the nation and the public's support to carry it through. And, hopefully, it won't take a Bay of Pigs foreign policy kind of disaster and embarrassment, as I think it did in the Kennedy administration, for a President to take up this kind of grand project."

Perhaps President Clinton could use the 25th anniversary of the Apollo Moon landing in 1969 to put this program forward. I think that's what a real legacy for the nation could be from this presidency.

I recently had the really delightful opportunity to give slide shows and presentations about missions to the Moon and then manned missions to Mars to some three-year-olds. It was quite an experience. There is no question that a long-range program that is a very exciting challenge—something to be accomplished that cannot be done today—is what will get young people excited about staying in school, about studying science, mathematics, chemistry, the natural sciences, and will reinvigorate the educational system.

I was a youngster in school when Sputnik went up, and being a girl, I was really not very much encouraged to study science and math in 1957. But, after Sputnik went up, virtual panic broke out in this country that we were behind the Soviets in science and math. The curriculum in the New York City schools, where I was, was revamped and special science and math classes were made a priority in education. So, for all the money that's put into improving education per se, I don't think you will ever get an effect that is as dramatic as having a nation mobilized to accomplish a great task in science.

It is something that we have to do quickly. People are probably generally aware that in the last three years alone we have lost over a quarter of a million people from our science, technology, and engineering capabilities in the aerospace and defense sector in this country. We have people now who are physicists, computer scientists and engineers, who are driving taxicabs or who are unemployed. So we have to move quickly if we are going to do it.