Celebrating 50 Years Of America in Space

Fifty years ago, a group of German rocket pioneers led the team that put America into space. Marsha Freeman reports on a celebration held to mark that milestone.

For millions of Americans, the successful launch of the Explorer-1 satellite on the evening of Jan. 31, 1958, three months after the Soviet Union orbited Sputnik, allowed a sigh of relief. For a team of over 100 German space pioneers, it was the culmination of nearly two decades of rocket experiments, and proved that soon, man himself, could explore space.

The German rocket team that came to the United States after World War II, under the leadership of Wernher von Braun, had already carried out many of the tests, and experienced the failures, necessary for the technology of space flight to be born. As teenagers in Germany in the 1930s, some had participated in amateur rocket clubs to begin the small-scale experiments that would eventually take men to the Moon, and to carry out educational campaigns to excite the public about the possibilities of exploring space.

To recognize the half-century anniversary of the historic launch of America into space, the home to the majority of the members of the German rocket team, Huntsville, Alabama, hosted a celebration, from Jan. 31 to Feb. 2. The purpose was not only to pay homage to those early pioneers, but also to create a forum through which to pass their knowledge and experience on to the current generation of young scientists and engineers who will take America back to the Moon, and then to Mars.

The Road to Space

The gala dinner that opened the three-day celebration on Jan. 31 took place underneath a newly restored Saturn V Moon rocket, suspended from the ceiling of the Davidson Center for Space Exploration. The magnificent center, which was dedicated that evening, was built to house and preserve this national treasure.

The Saturn V, which transported the 12 Americans who landed on the Moon, is the world's largest space launch vehicle, a 36-story, 6.5-million-pound rocket. Its remarkable record includes 13 launches without any failures, a testament not only to the meticulous design, rigorous testing, and extraordinary management of this complex project, but also to the decades of dedication of the German space pioneers to the dream of space flight.

That dream was energized in the late 1920s by Hermann Oberth, who himself took the dreams of Johannes Kepler, Jules Verne, and others before him, and created the scientific and engineering basis to make manned space flight a reality.[1]

In 1927, the German Society for Space Travel was organized in Breslau, formed by space enthusiasts, with the afterschool participation of a teenage Wernher von Braun, and guidance from Professor Oberth. In November 1931, the Society for Rocket Research was established in Hanover, and was soon joined by Konrad Dannenberg. Founded in 1937, the Society for the Exploration of Space established chapters in Berlin and Cologne, and had as a member, space visionary Krafft Ehricke. Future Saturn V rocket manager Arthur Rudolph was engaged in rocket engine experiments in 1930 with rocket-car enthusiast Max Valier, near Berlin. The members of these amateur societies, produced the core of what would become the German rocket team.

The rocket research station on the Baltic coast at Peenemünde, established by the German Army in the late 1930s, laid the basis, not only for the hardware development that led to the first successful rocket launches, both in the United States and the Soviet Union, but also the technical organization of teams of specialists, that would make the much more

1. For a comprehensive history of Hermann Oberth and the German rocket team, see Marsha Freeman, *How We Got to the Moon: The Story of the German Space Pioneers* (Washington, D.C.: 21st Century Science Associates, 1993).

U.S. Army

Late in the evening of Jan. 31, 1958, a Jupiter-C rocket, designed, built, and tested by the German-led team in Huntsville, Ala., launched America's first satellite, Explorer-1, into space.

complex American Moon rocket project possible.

When World War II ended, more than 100 members of the German rocket team came to America. Enlisted by the U.S. Army to transfer their knowledge and experience to the American military, their work took on an urgency with the outbreak of the Korean War, in 1950. Transferred to the Redstone Arsenal in Huntsville that year, the Germans became the core of the Army's new intermediate-range missile development program.

By 1954, three years before Sputnik, von Braun proposed that his team use the hardware that was available in the missile program, to launch a "minimum satellite" into orbit. This, and additional requests, were denied. But over the following three years, the engineers quietly kept two "extra" Jupiter-C rockets in storage, and worked with the Jet Propulsion Laboratory in California, which built the Explorer satellite, and Dr. James Van Allen, from the University of Iowa, who designed its scientific payload, to be ready, should they get the go-ahead to launch the satellite into orbit.

Even after being rebuffed by the military, "von Braun had never given up the dream of spaceflight," original team member Dr. Ernst Stuhlinger, who was unfortunately too ill to attend the celebrations, told the *Huntsville Times*. "We had been working on this in private. In our homes and with no official resources. It was done almost invisibly. Nobody really knew, until we had to test the rockets."

The opportunity came after the Sputnik launch on Oct. 4, 1957 made the Soviet Union the first in orbit. Nine months after the January 1958 Explorer-1 launch, a civilian space agency was created. In 1960, the von Braun team was transferred to NASA, and, finally, could devote its energies and complete attention to opening up the space frontier.

The long road to space exploration was recognized at the opening dinner on Jan. 31. In attendance were the mayor of Peenemünde, and the head of the museum of space history that has been created there. Also present was Nataliya Koroleva, the daughter of the Soviet Union's "chief designer," Sergei Korolev.

The First Steps

A two-day symposium followed on Feb. 1-2, upon the initiative of Konrad Dannenberg. His purpose was to bring together the "old timers" from the von Braun team, mostly made up today of Americans who worked with the Germans from the early days in Huntsville, to share their experience in developing the Jupiter-C for Explorer, and then the Saturn V, with those who later designed the Space Shuttle, and those who today are designing the next-generation Ares launch vehicles.

At the age of 95, Dannenberg is one of the few remaining members of the original German rocket team. Dannenberg worked with von Braun in Peenemünde, and then in the U.S. Army missile programs. He joined NASA's Marshall Space Flight Center in 1960, as the deputy manager of the Saturn program, for which work he received the NASA Exceptional Service Medal.

Upon retiring from the space agency in 1973, where he was working on early space station concepts, Dannenberg was a professor at the University of Tennessee Space Institute. He went on to play a leading role in the Space Camp at the Space & Rocket Center in Huntsville, which brings thousands of young people each year into contact with not only the hardware of space flight, but the basics of the science and engineering, and the people who make it possible.

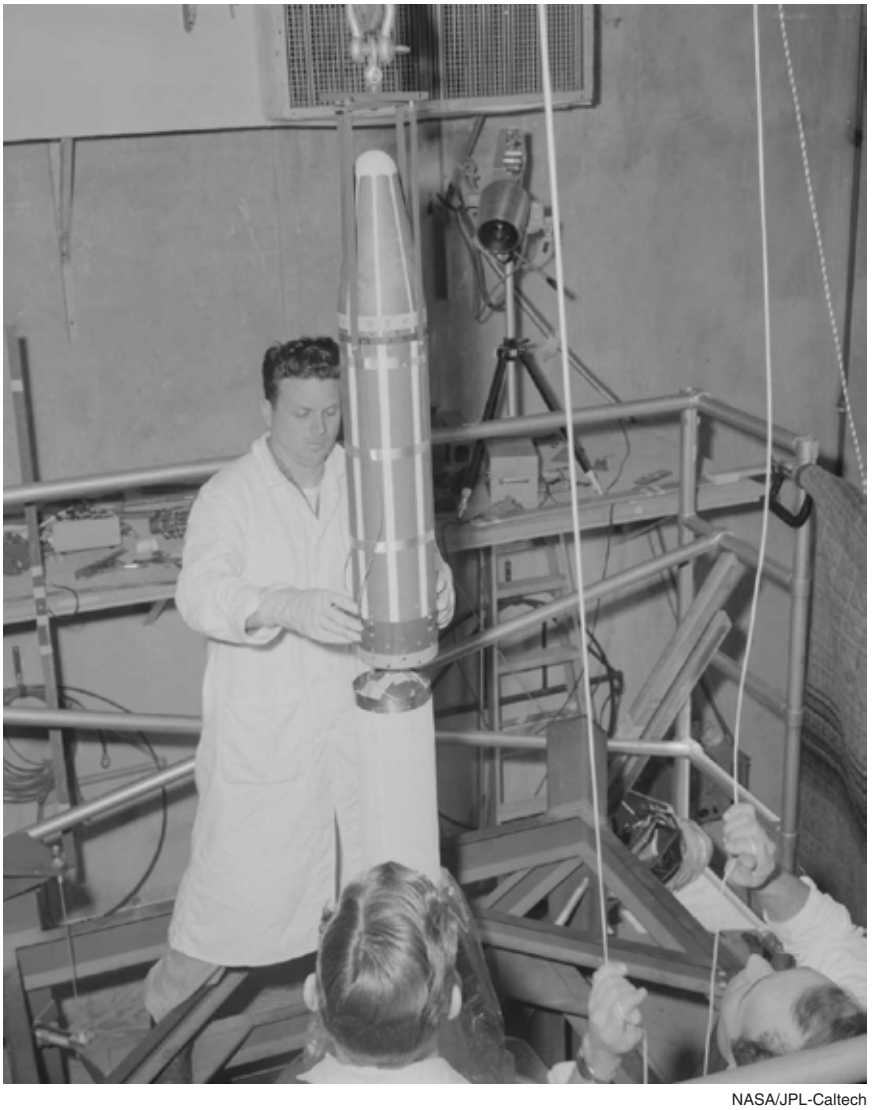
Dannenberg was also on the selection committee for NASA's Teacher in Space program, which was designed to instill in young people an interest in space exploration. Although the first flight of the Teacher in Space program ended tragically with the death of Christa McAuliffe in the *Chal-*

lenger accident in 1986, last year Barbara Morgan, McAuliffe's backup, finally had her opportunity to fly on the Space Shuttle, and teach lessons from orbit.

On the last evening of the symposium, Morgan called in by telephone to those assembled at the dinner, to congratulate Dannenberg on the 50th Explorer anniversary, and to thank him for "all you've done for teachers."

The methods used, and the lessons learned, from the decades of experience of the German team at Peenemünde, and the German/American team in Huntsville, must be passed on to the next generation, Dannenberg stressed.

To afford the launch of America's first satellite into space the highest probability of success, the Huntsville team, under the guidance of Maj. Gen. John Bruce Medaris, prepared an already-tested Redstone rocket derivative—itself an upgrade of the successful German A-4/V-2—for the Explorer-1 launch, because, as Dannenberg stressed, no one "could expect the first launch [of a new rocket] to be a success." The rocket team was not about to take daring chances. But confidence was high. At the symposium, Michael Baker, part of the early Army team, quoted General Medaris, on the occasion 30 years ago of the 20th anniversary of Explorer-1: "I may not always be right, but I am never in doubt!"



NASA/JPL-Caltech

The Explorer-1 satellite, seen here being lowered onto the rocket's fourth stage, in preparation for launch, housed a 30-pound science payload. Dr. James Van Allen's onboard Geiger counter made the first scientific discovery of the Space Age—bands of radiation belts around the Earth.

The purpose of the Explorer-1 mission was not simply to prove that a rocket could send a satellite into orbit, which the Soviets had already done, but to begin to characterize, with *in situ* measurements, the environment that men would face as they ventured into space.

To that end, the Explorer satellite, sitting atop its Jupiter-C rocket, housed a 30.8-pound science payload, which included a Geiger counter that Dr. James Van Allen hoped would provide information on the intensity of cosmic rays in space, and instruments to detect impacts from meteorites.

What Dr. Van Allen discovered were two bands of radiation belts circling the Earth, which were later named in his honor. This was the first scientific discovery of the Space Age, and established the region in Earth orbit within which it was safe for astronauts to visit and live.

With the Explorer success, it was clear that the team that put an American satellite into space, could also put man there.

Lessons from Apollo

There has never been a program that has rivaled the development, testing, pace of schedule, management challenges, complexity, and success of the Saturn V rocket that took men to the Moon. With von Braun at the helm of the multi-thousand-man Marshall Space Flight Center, Arthur Rudolph, part of the original Peenemünde team, was the conductor who orchestrated the Saturn's successful development.

At the anniversary technical symposium, Bill Sneed, who started his rocketry career in 1959 at the Army Ballistic Missile Agency in Huntsville, described Rudolph's management method, which led to the success of the Saturn vehicles. Sneed described it as a "simple yet fundamentally sound management approach," based on hands-on experience, which was learned initially at Peenemünde, in the design, testing, and de-

velopment of space hardware.

To track the progress of the thousands of contractors who were producing the more than a million parts that made up the Saturn V, Rudolph comandeered a conference room at the Marshall Space Flight Center, and filled the walls of his Control Center with charts that provided an instant overview of the project. This management information system could quickly identify problems, Sneed explained, and, through charting the progress, reveal where components were lagging behind schedule, or not meeting the requirements. The top ten problems were displayed at the top of the charts. More than 100,000 events were tracked throughout the program.

People working with Rudolph, Sneed reported, felt that he had "a sixth sense" of where the problems might lie. "But it was experience" that gave him this insight.

In 1965, Sneed reported, NASA Administrator James Webb visited the Marshall Space Flight Center to check on the status of the Saturn program, and saw Rudolph's Control Center. His management technique then became a model, and was put into place at NASA headquarters, at other NASA centers, and at the industrial contractors. Rudolph "was not given due credit for his role in the success of the Apollo program," Sneed observed.

In conversations overheard between the technical sessions, the reaction to Rudolph's Control Center management method by some of the engineers who are working on the next-generation Ares space launch systems, was: "We don't have anything like that!"

One panel of the symposium dealt with the development of the manned space launch vehicle system that followed Apollo—the Space Shuttle. The contrast between the Presidential mandate, and mission orientation, of sending men to the Moon, and the Shuttle program, was pointed out.

While all the speakers, including a panel of astronauts who have flown on the Space Shuttle, acknowledged the challenge of designing and building the world's first reusable spacecraft, and the magnificent flying machine that was the result of the effort, Bob Ryan, who worked at the Redstone Arsenal and the Marshall Space Flight Center for 40 years before he retired in 1996, discussed the "lessons learned." The Shuttle's design, he explained "was driven by politics, cost, and Air Force requirements," which led to a "complex set of trades" in design, to balance these often conflicting requirements.

The need for higher performance due to the military requirements, led to "increased sensitivity and a less robust" vehicle, he explained. The need to control costs led to a compromise that created a partially reusable vehicle, where only the boosters and orbiter are reused, and the external fuel tank is not. Ryan reiterated that "the configuration [that was used] was not what [we] had recommended, but had to be designed within constraints."

The advice from Steve Cash, who worked on the Solid Rocket Booster Redesign Team after the *Challenger* accident in 1986, to the younger engineers in the audience who are developing the Ares vehicles, was, "Always be curious, taking nothing for granted, and test at the boundary."

During the symposium, many of the technical aspects of the development of the series of launch vehicles were explored, moving from the early Redstone to the giant Saturn V. But most impressive were not the details, but the history of the single-mindedness of purpose, and commitment of resources that made the Apollo program a success.

History Rewrite

Anniversaries create an opportunity for historians to look back at seminal events to explain their importance, not just for academic reasons, but because "the past is prologue." At a time today when the U.S. space agency is struggling, without adequate resources, to once again carry out a vision and a plan for the manned exploration of the Solar System, space history is being rewritten to obscure the real reasons for its past successes. Nowhere is this effort to demoralize the public more intense than in the case of the history of the German rocket team.

Last year, another biography was published about Wernher von Braun, in yet another attempt, to "prove" that he was a Nazi.[2] Unfortunately, since the author, Dr. Michael Neufeld, is chair of the Space History Division of the Smithsonian Institution's National Air & Space Museum, the book has attracted more attention than such a subject normally does, and the authenticity of Neufeld's version of history is almost taken for granted, by those who have not seriously investigated the history he is retelling.

This attempt to vilify the German space pioneers did not start with Neufeld.

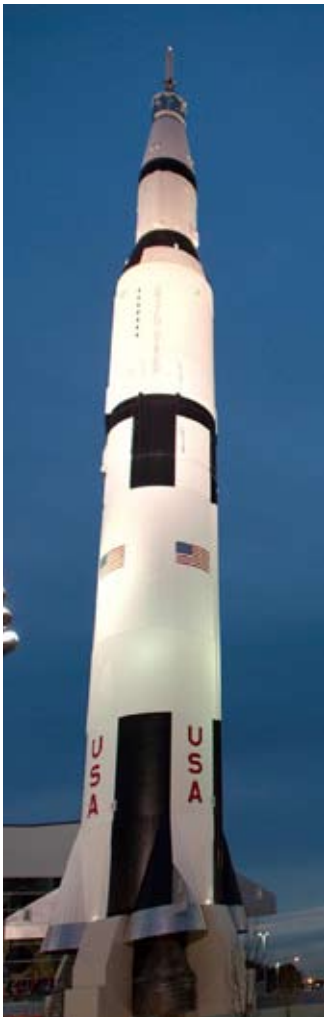
When the cream of the crop of the Peenemünde rocket team surrendered to the Americans at the end of World War II, the Soviet Union was well aware of the advantage that would give the United States in this new strategic field of rocketry.

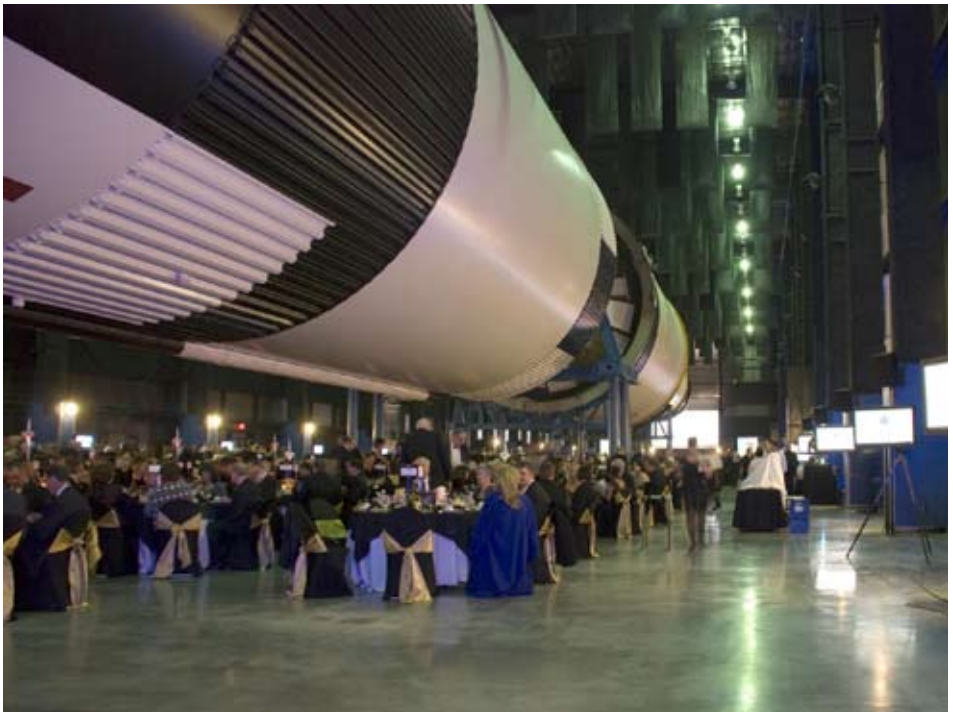
Following President Truman's declaration that President Roosevelt's war-time alliance to defeat fascism would be replaced by a "Cold" War, a competition to deploy the most advanced technologies for a possible next war—rockets carrying nuclear weapons—was under way. After President Kennedy laid out the parameters for the race in space, with landing men on the Moon as the goal, the Soviet disinformation apparatus went into high gear, to disrupt this technological contest it feared the U.S. would win, by attempting to discredit the leadership of the team that was responsible for the rockets to get them there.

In 1963, East German "muckraker" Julius Mader penned an article and book, to "expose" the "secrets" of the German rocket team in Huntsville. Mader, a retainer of the East German Stasi, the secret police, used as arguments for von Braun's "authoritarian" personality, his Prussian ancestry, which is also reviewed extensively by Neufeld in his recent book. The

2. Michael Neufeld, *Von Braun: Dreamer of Space, Engineer of War* (New York: Alfred A. Knopf, 2007).

In this outside view, the sunlit Saturn inside the center is visible through the glass walls, and at the near end, some of the enormous engines that powered the rocket are visible.





U.S. Space & Rocket Center

The opening gala dinner of the Huntsville celebration of 50 years of America in Space took place under an artifact of the crowning achievement of the German-American rocket team—a Saturn V rocket. This test rocket had been outdoors, suffering serious deterioration, for decades. The Davidson Center for Space Exploration now houses this historic treasure, and it was under the suspended Saturn V rocket that many of the activities of the anniversary celebration took place.

Standing erect outside the Davidson Center is a model of a Saturn V, illuminated for the first time on the evening of Jan. 31, 2008, when the new Space Exploration Center was dedicated.

fact that von Braun worked on military programs, both for the German and U.S. armies, "proves" to Mader that this was von Braun's true agenda, which Mader disingenuously contrasts to the parallel "peace-loving" ballistic-missile program on a fast track in the Soviet Union.

Attempts in the 1960s to distract NASA and the German team from their Apollo mission obviously failed. But the attacks resurfaced in the late 1970s, this time under the auspices of the Justice Department's Office of Special Investigations (OSI), *in collaboration with Soviet intelligence*.

In 1978, under pressure from Congress, the OSI was established with a mandate to hunt for "war criminals." A major effort was made to formalize relations with the Soviet procurator general's office, which, together with the East German authorities, would become the prime source of "evidence" and witnesses in U.S. Nazi-hunting legal cases. One set of targets for this early 1980s witchhunt apparatus would be the von Braun team.

Marsha Freeman

Space pioneer Konrad Dannenberg's purpose in organizing a two-day technical symposium as part of the Explorer-1 celebration, was to bring together pioneers from the early days of rocketry and those who helped develop the Saturn V and the Space Shuttle, with those now working on tomorrow's launch vehicles. The U.S. Space & Rocket Center is home to a Shuttle "Pathfinder," made up of full-scale test components. Attending Space Camp, youngsters learn about this technological marvel. Those attending the symposium heard first hand about the lessons that should be learned from the Shuttle era, to future projects.

Why would assembling cases against men who by then were in their 70s, be of importance to the Soviet Union, or anyone else? From a strategic standpoint, the defamation of West German or German-American scientists and engineers was a valuable East German tool, to sow discord within NATO, and cast doubt on the motives of what Moscow claimed were the "imperialist" and "war-mongering" policies of the West.

When President Reagan announced the Strategic Defense Initiative (SDI) on March 23, 1983, this disinformation campaign took on more urgency. If the new defense program (which, in fact, President Reagan proposed be a *joint* program with the Soviet Union), could be smeared with having "Nazi" roots, all the better to discredit it.

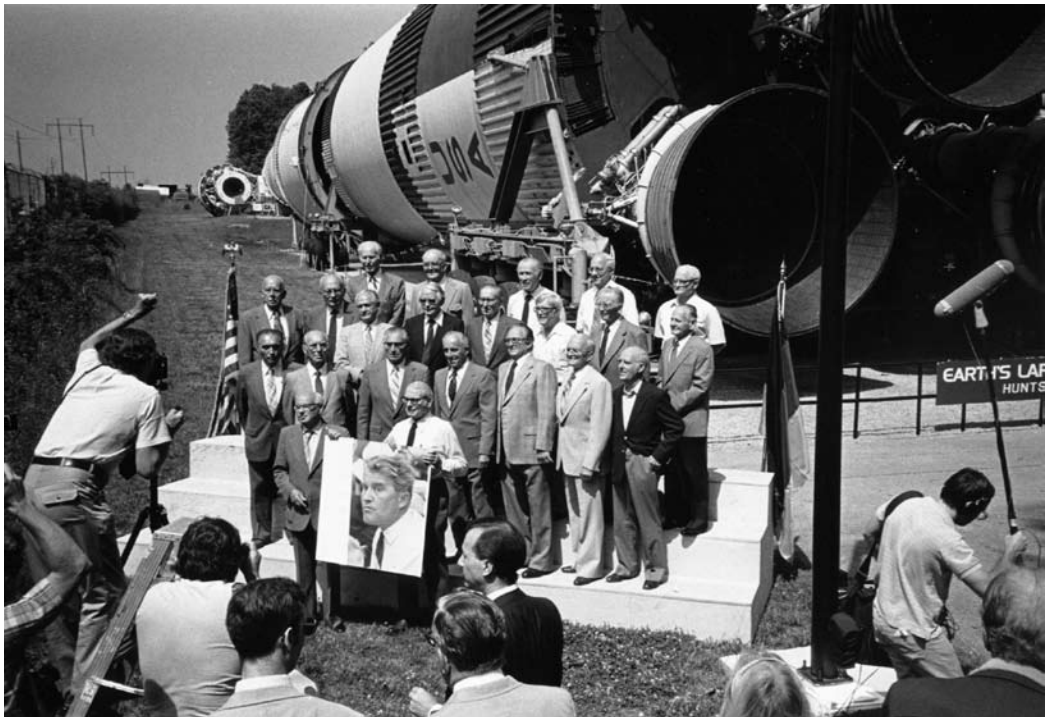
"Peace activist" Jack Manno, for example, who wrote his book *Arming the Heavens*, a year after the SDI announcement, writes that the program had a "Nazi legacy," because the U.S. rocket program found its roots in the research at Peenemünde. And members of the von Braun team had worked for the U.S. Army, building weapons of war, such as Saturn V manager Rudolph, who later worked on the Europe-based Pershing missile.

The German team members were not the only ones subject to direct Soviet attack after the SDI announcement. Lyndon LaRouche, who was the intellectual author of the "beam defense" policy, and was, at the request of the Reagan Administration, involved in back-channel negotiations to try to bring the Soviets on board; and who was also the primary public spokesman for the policy, through the Fusion Energy Foundation's magazine, *Fusion*, and through *EIR*, was vilified in the Soviet press for his role in the SDI.

In November 1983, the left-wing opposition to the stationing of Pershing II missiles in West Germany combined forces with intelligence operatives in the East, to produce a broadcast carried on the Westdeutscher Rundfunk radio station, called "Nazis Without Swastikas." There, German scientists and visionaries who had been contributing to *Fusion* magazine, were labeled as Nazis—not because of what they had done in Germany during the war, but because of their affiliation with economist Lyndon LaRouche, who was scurrilously alleged to be an anti-Semite.

In an affidavit for a legal suit against the radio station, Krafft Ehricke, who had been slandered on the program, stated: "In light of the large Jewish component of the Fusion Energy Foundation membership in Wiesbaden, as well as in New York, the charge of anti-Semitism is taken out of thin air; it possesses no basis in fact. . . . I personally have never, even in Hitler's time, 'hitched my star to the wagon' of any anti-Semitic group. The tragic events that befell my own family under Hitler . . . can be taken as proof. And I can prove that I have never belonged to any Nazi organization. . . . I did, however, belong to the German Army."

For the "Nazi hunters," their most important victory came



Marsha Freeman

In March 1985, members of Wernher von Braun's German rocket team met for an "old timers" reunion in Huntsville, in the midst of the propaganda barrage over the departure from the United States of Saturn V manager Arthur Rudolph. Dr. Rudolph, accused of "war crimes" by the Justice Department, became the lightning rod for the revival of decades-old, and Soviet-inspired "Nazi" charges against von Braun and the team.

In this photograph from the reunion, Konrad Dannenberg is in the front on the right, holding one side of the photograph of von Braun. In the background is the Saturn B rocket that is now housed inside the Davidson Center.

with the decision of Arthur Rudolph to leave the United States at the end of 1984, after having been threatened by the OSI with legal proceedings against him, on charges of crimes against humanity. No evidence was presented against Dr. Rudolph, just threats that such evidence existed. In poor health, and fearing the humiliation, stress, cost of legal proceedings, and loss of his government pension, Rudolph agreed to give up his American citizenship, and move with his wife to West Germany.

A subsequent investigation by the West German government, upon Rudolph's request for West German citizenship, produced no evidence that he had committed any war crimes. Requests to the OSI from the West German government to share the damning documents which the OSI had used to threaten Rudolph, were never complied with. The OSI's case had been essentially a bluff.

Since the Rudolph case, Neufeld claims to have "unearthed" memos and documents that he claims "prove" that Rudolph supported, and solicited, slave labor to work in an underground rocket factory run by the SS. This was disputed by Rudolph himself, and researchers who have studied the documentation. There are questions as to whether such documents may have been forged. Specific sentences that Neufeld uses to make his case, are taken out of context, which discredits his veneer of "scholarly" research, regardless of the hundreds of footnotes included with the lengthy text.

"Historians" like Michael Neufeld, apparently cannot understand the historical context within which action takes place on the stage of history.

When von Braun and his colleagues started their employ with the German Army, Hitler was just in the wings. To von Braun's single-minded purpose, only the Army could provide the resources required to develop rockets.

The leadership for the rocket research center at Peenemünde was made up of von Braun's colleagues, and young men who had been drafted into the Army, and then rescued from the front lines, thanks to their technical expertise. Following the bombing of Peenemünde, by the British in August 1943, it became no longer feasible to continue any large-scale work at that site. When Hitler decided in 1944 to grant the rocket program a high priority, and begin mass production of the rockets, the SS took control of that production.

The well-documented use of prisoners and conscripted and concentration camp labor in underground tunnels built for rocket production, was not under the supervision of the Army, but the SS. The thousands who died in this last-ditch effort to deploy a "wonder weapon" to change the fate of the war, died mainly digging the tunnels, under SS command—not under the supervision of the Army, von Braun, Rudolph, or their team.

These are facts, simply stated. Neufeld tries to make the case that the Peenemünde team sent in to carry out the underground rocket assembly should have tried to secure better living conditions for the laborers. At times, they did. Could they have done more?

Perhaps. But they also knew that, not only was there little possibility that the SS would grant their request, but that all they might accomplish would be to be sent to a concentration camp, themselves. Von Braun was, in fact, arrested by the SS, accused of being more interested in going into space, than winning the war for the Führer.

At a symposium Washington on Oct. 22, 2007, "Remem-

bering the Space Age," sponsored by NASA and the National Air & Space Museum, this question was addressed very poignantly by Dr. Hans Mark, former head of NASA's Ames Research Laboratory, former Secretary of the Air Force, and long-time friend of von Braun. Dr. Mark objected to a presentation, in which Michael Neufeld accused von Braun and collaborators of covering up von Braun's "Nazi" past. "Von Braun and I worked closely together," Dr. Mark began. "I escaped from Europe because I have a Jewish background. I had ancestors in these places [such as the underground factory making rockets]; every place [in Nazi Germany] was run with slave labor."

"Von Braun made a 'Faustian bargain,'" Dr. Mark stated, and in this situation, he "made compromises." He added, "We tend to forget the element of fear" of those living under Nazi rule. "Expecting von Braun to do something else, he would have been a hero.... He was a great man, but not a hero."

To the German rocket pioneers, there was the hope that there would be life after the end of the war. If so, they knew exactly what they intended to do. It is this question of *intention* which somehow escapes Neufeld.

Was it the *intention* of the scientists who worked on the American war-time Manhattan Project, to drop nuclear bombs on civilian populations in Japan, needlessly killing hundreds of thousands of old men, women, and children? Leading scientists had proposed instead that an air burst of this new, terrifying weapon would be sufficient to scare Japan into surrender, without the loss of life. Unlike the German rocket specialists, those Manhattan Project scientists did not have to be concerned that they might be sent to a concentration camp, for making the suggestion. As von Braun stressed, it is a political, not a technical decision, as to how advancements in technology will be used.

The Next 50 Years

Why is it important, 50 years later, to review and remember the history of the first half-century in space?

As the Apollo program was approaching its goal, of landing a man on the Moon and returning him safely to the Earth, layoffs were already under way at the Marshall Space Flight Center in Huntsville. The economic and financial crisis that began in the late 1960s, and the August 1971 Nixon Administration's destruction of the Bretton Woods agreements implemented under President Franklin Roosevelt, left the space program with no funding for visionary goals, following the successful lunar landings. At the same time, the ideology of zero-growth and anti-nuclear environmentalism was being promoted to counter the optimism of the space program.

As recalled by Apollo astronaut James Lovell, in an interview with the *Huntsville Times*, although he is very proud of what they were able to do on Apollo 13—to bring him and rest of the crew back to Earth alive after an on-board explosion—his favorite mission was Apollo 8, which did not land on the Moon, but orbitted it.

Marsha Freeman

In the myriad celebrations taking place of the 50th anniversary of the Space Age, both Soviet and American space accomplishments are being honored. A special guest at the Huntsville celebrations was Nataliya Koroleva, the daughter of the "chief designer" of the Soviet space program, Sergei Korolev. She has been touring Cape Canaveral and other space-related sites in the United States, and is seen here on the last evening in Huntsville, with German space pioneer Konrad Dannenberg.

That mission, in December 1968, took place during a year that saw the assassinations of Martin Luther King, Jr., and Robert Kennedy. There were protests against the war in Vietnam, and violence in the streets, Lovell said.

But the spirits of many were uplifted, Lovell recalled, when men made the very first trip to the Moon, "which a lot of people thought we could not do." In orbit around the Moon, on Christmas Eve, the three astronauts read from the Book of Genesis, in a live television broadcast, viewed by millions around the world. For the first time in human history, mankind watched the Earth appear to rise above the surface of the Moon.

Lovell said that he was disappointed that the United States abandoned space exploration after the Apollo program, but was pleased to see that the country was turning again toward the Moon and space exploration, as the 50-year anniversary is being observed.

But this will not be successful without the cultural optimism that sustained the German space pioneers and their American colleagues throughout the first five decades of the Space Age.

At the dinner on the last day of the Huntsville symposium, Konrad Dannenberg's wife, Jackie, summarized her husband's life-long commitment to space exploration. In the early 1930s, she said, "Max Valier," the flamboyant and enthusiastic experimenter, "came to Hanover with his rocket car, and was talking about going to the Moon and to Mars." At the age of 95, she reported, "Konrad says he's still here, because we haven't gone there yet."