

During the course of the war, about 750 aircraft mechanics completed the National Youth Administration training program at Virginia Tech Airport. The program ended with the war's end in 1945.

Howard Graninger's interest in aviation never waned and he continued flying actively in private aviation until May 1978. He accumulated 1,241 total flight hours with a commercial license with single and multi engine land and instrument ratings.

And now there is a permanent reminder at the Virginia Tech Airport of the role it played in World War II, aviation in America, and improving the lives of countless young Virginians.



Vikings conquered mysteries of Mars

Thirty years ago, NASA Langley scientists engineered the first landings of spacecraft on the red planet.

by Jim Hodges
Daily Press

June 19 2006

HAMPTON — The call to Jim Martin came from the White House. President Ford was on the line with congratulations.

Looking back across the 30 years since the NASA Langley Research Center staff was trying to find a place for Viking to land on Mars, Joel Levine and Norman Crabill disagree about what happened next.

“Jim wouldn't take the call,” says Crabill, then the mission analysis and design manager for Viking. “He said, ‘Tell the president he can call back.’”

Levine, who is now in charge of Langley's ARES space-plane project, which he hopes will explore the atmosphere above Mars, recalls it this way: “He said, ‘Mr. President, excuse me, because I can't talk to you. I have a spacecraft to land on Mars.’”

Either way, a 200-million-mile, 10-month trip was threatened 30 years ago today when Viking I first entered its orbit around Mars in preparation for sending its lander to ground. Viking II was on its way from Earth. It was a magic moment for NASA Langley, which managed the two-launch, two-orbiter, two-lander mission that was the agency's most complicated, most ambitious undertaking to that point. Langley will celebrate the anniversary with a reunion of Viking veterans this week.

It was also a magic moment for science. “This is a mission that keeps living, that keeps providing data,” says Levine, who has been fixated with Mars since opening a science book in the sixth grade in Brooklyn and seeing a picture of the planet. “We're learning new things about Mars every week from analyzing Viking data.”

The last data came to Earth in 1983.

Getting Viking I's lander onto Mars, then following it with Viking II was a moment that vexed those who sent the mission into space. The problem was faulty data. Or a lack of data.

"We knew very little about Mars," says Israel Taback, who led the effort on the Viking lander. "We had a number of flybys and orbits of Mars (from earlier Mariner missions). We knew the atmosphere was light, about what it is at 100,000 feet on Earth. We had to design the lander to come in that slim atmosphere and land on that surface."

Viking I took off from Cape Canaveral, Fla., on Aug. 20, 1975, followed on Sept. 9 by Viking II. They were the logical next step in line from Apollo, the United States' mission to the moon.

Within hours of Viking I's first orbit 10 months later, both were in trouble.

"It was a classic example of decision-making without complete data," Crabill says.

The available data from Mariners 6 and 7 showed that the Martian surface resembled that of the moon. "We'd already decided that we would base the lander on lunar geology because it was going to be a soft-lander," Crabill says.

Two years later, Mariner 9 orbited Mars.

"Lo and behold, it was not like the moon, which meant we had some problems," Crabill says.

Sites had been selected for Viking I and II to land on, based on how smooth the surface was and how much science the locale offered.

"We had picked out a fairly rough-looking site to begin with," Taback says. "The scientists were all looking for the effect of water on life. It was obvious that rocks had been transported by water. But it was far more than we liked."

Any rocks bigger than 22 centimeters, or about 9 inches, could have punctured the lander, and orbits by Viking I showed that all six landing sites designated as likely for its lander before Viking left Earth were problematic.

Viking I was supposed to land on July 4 at a site that looked from the distance to be a river channel with mud from a flood 3 billion years earlier.

The first soft landing on a planet in outer space came on July 20, 16 days late.

"It was like driving around in a parking lot and you're running out of gas and the store is going to close and you need to go pee and everything is against you," Crabill says. "It's starting to rain and nothing is open at the front of the store."

And they needed two parking places.

After it landed, the first pictures from Viking I showed rocks bigger than anybody imagined.

“We didn’t do it very well, but we did it well enough to land safely,” Crabill says.

But Viking II was still aloft and none of the pre-selected sites for its lander were going to work.

“We couldn’t find an appealing site, so Jim Martin said, ‘We’ve got to land by Sept. 3,’“ Crabill says. “We kept dithering between this and this and this, and finally he said, ‘We’re going to land in B-3.’“

That site included Utopia Planitia.

“Utopian Plains, man that ought to be good just from the name,” Crabill says. “So we looked at the site. I actually had a bet with one of the geologists. He said, ‘That site will be 10 times smoother than the one we landed the first one at.’

“I said, ‘You’re wrong’ - and I won \$2 from him. I should have bet the farm.”

The site was no utopia. It was twice as rocky as the first. Few in science admit to luck, but “all of this was luck,” says Taback of the successful landings. “It was rough.”

Both landers were in place and data began flowing.

The flow was supposed to last 90 days. Viking II’s orbiter sent data for two years, its lander for two more. Viking I’s orbiter sent data for four years, or 1,489 orbits of the planet. Its lander sent data for more than six years.

It was a good-news, bad-news scenario. “We all wanted to see evidence of life on Mars,” Crabill says.

They didn’t.

“We had never said that there was life on Mars,” Crabill says, “but we did know that there was water. The thinking was that if there’s water there, in a half-billion years you’re going to have life.”

The mission was so all encompassing that lives outside of NASA Langley seemed to stand still.

“A bunch of us would go out to dinner, and on the way back you would go by the lab and somebody would say, ‘let’s go in and see what pictures they’ve got,’“ says Crabill. “Here it is midnight, and you’ve got to be back at 6 and you’re going to work. And it’s great.”

Beyond the initial study, Viking gave information on temperature, on storms, on atmospheric pressure and on wind. And the mission provided technology that is still in use, including aeroshell and parachute designs, along with landing gear data.

After Viking indicated that there was no life on Mars, NASA shifted its interest to the space shuttle and International Space Station. That no one yet has walked on Mars doesn’t surprise many of those who sent Viking aloft.

“The momentum was there and we could have designed a mission (for human exploration),” Crabill says. “But the logistics are formidable. It takes a year to get there.

“Think about it. If you get appendicitis, it would be three years before you can see a doctor.”

In 2004, President Bush outlined his “Vision for Space Exploration,” which calls for a visit to Mars by 2028. NASA is on a two-pronged mission to finish its space shuttle mission while changing gears toward returning to the moon for the first time since 1972, then going to Mars for the first time ever.

“We’re going to do it some year,” Crabill, 79, says. “I’m not going to be alive then. George Bush might not be alive then. But we’ll do it.”

It wouldn’t bother Taback, 86, if it never happened.

“I’m not a believer in manned space flight,” he says. “I’m a believer in robotic flight. It’s easier to do, and you don’t have to worry about keeping a man alive. And I think you can learn just as much if you prepare for it.”

Levine just finished a study concerning human exploration of Mars. In a way, it was a back to the future mission.

“What we did was to gather all of the questions we need to answer before humans go,” he says. “And we found that the Viking database provided some of the best answers for the questions we need for human exploration.”

Those answers will be used 20 to 25 years from now, when Viking data will be more than a half-century old.

But as valid as ever, Levine says.

Crabill and Levine and other Viking veterans will gather Thursday at NASA Langley to tell stories of what was and predict what will be about Mars in a 30th anniversary celebration that’s more than a little self-serving. “NASA is embarking on new opportunities and people forget that Langley did the Viking project,” Levine says. “It’s important for us to remind NASA, remind the country, that Langley has this heritage.”

And, he admits, to remind people that this heritage can spill over to his Mars airplane project in 2011. They’ll tell stories of Martin, who died in 2002.

“That’s the kind of people we had running this thing,” Levine says. “He ensured that it worked.”

No matter who was on the telephone.

Copyright © 2006, Daily Press

