"I Vonder Vere Guenter Vent" - An interview with KSC's first Pad Leader

In the earliest days of manned space flight, from Mercury through Gemini, Apollo, Apollo-Soyuz, and Skylab, Pad Leader Guenter Wendt was the last face the astronauts saw before liftoff. He was the man in whom they entrusted their lives, and without hesitation because they all knew he was the best man for the job. Largely responsible for building launch pad safety out of nothing, his relentless and uncompromising dedication to safety earned him the lighthearted nick name "Pad Fuhrer" among the astronauts, which he accepted in his typical grace and good humor. This nation owes him a tremendous debt of gratitude, for without his relentless efforts and high standards, our space history might have been quite different.

Even now, some 15 years after retiring, he is still sought by many for his expert advice on space flight. When he's not out on his boat somewhere on the Space Coast, he's making public appearances, giving lectures and interviews. We caught up with him this past May at the U.S. Space Walk of Fame Museum in Titusville, Florida where he was signing his autobiography titled The Unbroken Chain, which we can whole-heartedly recommend. In this truly candid and engaging book co-authored by Russell Still and published by Apogee Books, Guenter relates some hilarious anecdotes and tells of what it took to open up a new frontier.

We were very fortunate to spend a few minutes talking with this fascinating and charming man. A true pioneer, here's what he had to say.

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Communicator: How early in life did you take an interest in flight, and did your parents or other family members encourage you to pursue it?

Mr. Wendt: I actually picked up the interest in flight in grade school when we were into model building. You designed your own airplanes, and you built them - mostly they were sailplanes; we couldn't afford the engines at that time. And that's when we got started. Then, later on, I became an apprentice in aircraft manufacturing. And at that time, living in Germany, Hitler had taken over. They had one unique program: that if you built, with a group, your own sailplanes or gliders, after 200 hours of building, you were guaranteed flight training. I spent the first couple of years just helping to build the gliders until I had enough time to qualify for flight training. I think I was only about 15 or 16 years old - just before I went to college. I made my first flight in a glider. That was unique because I was such a skinny guy and so light that the balance system... you know, they balanced the glider with weights, but it wasn't enough. They had to put a 50-pound sand bag in there for me to sit on.

The first gliders we had were the SG-38 and a Gronau-9, which we used to call the "Head Splitter." The reason it was called the Head Splitter was because it was just a seat, and in front of you was a two-by-four. If you made a bum landing, you had met that two-by-four. So that's where the term "Head Splitter" came in. Then, needless to say, I finished that raining, and at the same time, I went to engineering school while I was still an apprentice. Now, night school in Germany is a little different than you might have it here because it was from 6:00 to 10:00 every night and four hours on Saturday. So, sleep was a commodity I didn't have because I had to be at the factory for training as an apprentice at 7:00 in the morning. That meant that I had to get up at 5:00. At 4:00 we quit, and I had to hurry back home to change clothes; go to the school - 6:00 to 10:00 was school. Then I had about an hour and a half of homework. My mother would frequently find me at 1:00 or 1:30 sleeping at the table, doing homework.

Then we ran into World War II, and I had an invitation from the air force. If I would sign up for twelve years as a career officer, I would be a lieutenant right away and could join the air force. Now, I had no intentions of being in the military for that long, so I happily declined. They said if you decline, we're going to draft you as a buck private and you can try that. So I went through basic training, and then they found out I had a background in aircraft, so they sent me to the Versuchsanstalt Fur Luftfahrt: Werneuchen (Aircraft Test Facility at Werneuchen), which is the equivalent of Wright Patterson. There we were very deep into modifying Junkers 88s into night fighters.

They found out that I was very much interested in flying, and I had made a statement that nobody could make me throw up. So there was a fellow who was, at that time, a first lieutenant. He said, "I'm looking for a flight engineer in my right-hand seat and a radar operator, and I thought maybe you want to join me, but you don't believe I can make you throw up." I said, "No you can't." He said, "Fine. Ten o'clock tomorrow morning I have a test flight, and let's see how well you do." We went up, and I did very well. We did flips and inside loops, and things like that didn't bother me a bit. So I kinda looked at him and said, "Is that the best you can do?" So he climbed up to about 26 k, and the next thing I know, he dropped the nose, and did an outside loop. Now, I'm not sure if you ever have flown an outside loop. What is normally sitting here (motioning to his stomach), it all comes up very high, and if you just say "ah" it just falls out of you. He had bet me a case of beer, you know. So, needless to say, he won. But that's how I became a flight engineer, flying Junkers 88 night fighters. That went on until the end of the war when we pretty much ran out of gas. First, three planes could fly, and then eventually only one plane could fly. Well, then they offered us a choice to either join the Waffen SS - which was a Hitler-type organization that didn't have a good name - or a parachute division. So I signed up with the 5th Parachute Division. Then I found myself in the Battle of the Bulge on the opposite side of the American army.

At the end of the war, everything went into chaos. Luckily, we had a man who said, "What I'm telling you right now - anybody could shoot me because we lost the war, and my job is to keep as many of you guys alive as I can. So find a way to disappear. I'll sign any kind of papers you'll [need]." So we disbanded. It took me several months before I got officially discharged by the British. I wound up in Hamburg. And needless to say, there was no airline business - nothing in the future in Germany [for me] in my field. But since my parents were divorced during the war and my father was in the United States - he was an American citizen - I thought I'd write to him at his last known address. And lucky for me, he hadn't changed it. So he wrote back and sent me a care package.

In the meantime, I had a job working in Hamburg for Standard Oil, which had an affiliate in Germany. In our office building, at the first floor, was the American Consulate. I found out who the ambassador was. He told me they had an immigration quota for the United States. So I wrote my dad and asked him if he would sponsor me. At that time, you needed a sponsor who would guarantee the United States that you didn't become a social problem. All of a sudden, they said next week you can apply for an immigration visa. Since I had access to the office building, my application was one of the first ones in the door. And it was a funny thing. The consul said, "I'm not going to give you number one because that would look too funny. I'll give you number 9." I got my papers and managed to go ahead. In the meantime, I had married in Germany.

Then I went over to the States - to St. Louis. At that time a funny thing happened. At an open house, my dad had spoken to Mr. Mack who owned McDonnell Aircraft, and he said, "We'd love to have a guy who has knowledge of aircraft." So I went out there and tried to get a job. They said my qualifications were great and they'd like to have me. But then it turned out that since they were making aircraft for the Navy, I could not get a clearance because in '45 the Unites States was legally still at war with Germany. By the way, they didn't sign a peace treaty, actually, until somewhat into the sixties. Anyhow, then I had to look for a job because I had to try and get my wife and first daughter over. At that time, it was pretty bad, here in the States, to get a job. I applied for 140 jobs. Finally, I said [to myself] I need to get a job, and every day I went job hunting. I found an outfit with concrete mixers that needed a mechanic. Well, since I had passed an apprenticeship, I thought hey, I can handle a mechanic's job. Well, the guy said, "but you don't have any references." I said, "I'll make you a deal." It was a Wednesday. "I'll get my tools and work for you until Friday. If I cut the mustard, you pay me and hire me. If not, just tell me goodbye, and you don't owe me a thing." The guy said, "That's not a bad deal. Ok. Come on, and bring your tools." Well, then I became a truck mechanic.

I finally found a congressman who was willing to sponsor me with the FAA to make licenses for A&E and instructors. Then I switched over to Ozark Airlines, who was just a newly-formed airline with 5 beaten up DC-3s. I became their airline mechanic. They had a union that lined me up on third shift, but it was pretty good.

Five years after I entered the United States I could become a citizen. By that time, I had my wife and oldest daughter over, and we had become citizens. And once I had my citizenship, I went back to McDonnell. The next thing, I was hired.

I did some military work. It became rather interesting. I designed the lifting mechanism to have decoy missiles in the B-52, which was called the GAM-72 Quail. They were actually little airplanes with folded up wings. The B-52 could carry six of them in the bomb bay. They would release and fly around the B-52s to attract enemy fire and divert it away. The funny thing was, I designed the mechanism to lift and stow them into the bomb bay, but when I went to make the presentation to the Air Force, they wouldn't let me in the conference room because by that time, the Air Force had decided it was now a secret project, and I only had confidential clearance. So even though I designed the whole thing, I was not allowed to make the presentation.

After a while, I found out that old man Mac was interested in the Mercury Program. He was a very dedicated American citizen, and he was very patriotic. One time he said, "If I have to bid one dollar, I want that Mercury Program." For 26 million dollars, he got it. But before we got going, we had another program where MacDonnell agreed to demonstrate a boost glide vehicle to the Air Force. Now, this will really get you about the price tag. MacDonnell agreed to design, to build, to launch and deliver the data for three boost glide vehicles for 5 million dollars. It was actually a 42-foot missile - solid propellant, two-stage, which would rotate in the earth's atmosphere and get a tremendous range to prove the concept. And so they asked me to be the guy in charge of the launcher.

We had bought an old Honest John launcher, cut the rail in half, and put 10 more feet in it, and used that as our launcher. On the second trip down to the Cape, we launched the first one. It was a top secret missile, and the funny thing was that the Martin Company was in competition, and they had written a paper that said a boost glide vehicle cannot work. We proved them wrong.

The second trip down, we were allowed to bring the family with us. We were in Cocoa Beach on the ocean, and they said, "That beats St. Louis by a mile. Why don't you see if you can get on the program permanently?" So then I convinced top management that I needed to get that job, being on the launch pad for MacDonnell for Mercury. We were the first ones coming down in '59 - five people from MacDonnell, and we were the core of the MacDonnell/Mercury launch team. I stayed down there all through the Mercury program. Then we changed over to Gemini, and I convinced [John] Yardley that he needed me for that. His question was, "Why do I need you?" I said, "Because I've done a great job, and we didn't have a failure, or anything like that, that delayed a launch. You need me." He said, "Ok. You're on." So I stayed with Gemini, and did all the launches. On the last launch, Jim Lovell and Buz Aldrin gave me a three-foot-long check for one million Deutsch Marks unemployment compensation.

It was really funny. You see, after every launch, I always arranged for a dinner where the astronauts, after the flight, would come back and tell the launch crew, but no reporters and no other people, what really happened on the flight. We had a dinner at a skating rink in Merritt Island, and after the dinner, two deputies walked up and arrested the two astronauts. Dead silence in the room. What the heck happened there? So they asked, "What are the charges?" The

deputies said that at the back of the room is a gentleman who said you passed a worthless check. He'd like to have it cashed. And there I was with my check.

MacDonnell had not gotten the Apollo contract. North American got it, which was more a political situation because North American had never made manned spacecraft, while MacDonnell had done Mercury and Gemini. So [Deke] Slayton asked me to change over to North American. I talked to them and told them the way I operate... the authority I need. Complete personnel control. They couldn't agree to let me have that. They said a new hire can't have that authority. I said, "Fine. I can't help you." So I stayed with MacDonnell. At that time, MacDonnell had opened a test range for an anti-tank weapon here in Titusville. But then there was the Apollo 1 fire. Shortly thereafter, I got a call from Slayton. He said, "We'd like you to run our pad operations." I said, "I can't do that unless I have the authority I need." He said, "I have a guy here who says you can have whatever you need." "Ok. Put him on the phone", I said. The guy introduced himself as Mr. Bergen - I didn't know who the hell "Bergen" was - He said that Slayton had explained how I do business - on more of a dictatorial basis - and they were pleased to provide whatever I needed. So I said ok. Here is the way I operate. Here is what I need. Here is the way I will do things. If you agree to that, I'll come over and work for you. They explained again that they had been instructed to hire me.

I said, "By the way. Who the hell is that guy, Bergen?" They said, "You see that organizational chart over there? The guy at the top of the pyramid is Bergen, President of North American Aviation." Then I knew how I got that job.

I changed jobs in '68 over to North American, who later on became Rockwell. I spent 22 years with them. I went to Apollo, to ASTP, and the Skylab program. After Apollo was finished there was a big layoff, and I had to find a location where I could keep on going because the base manager at that time was a fellow by the name of Tom O'Malley. He and I, we didn't see eye to eye. We had a different philosophy about management. And so I was laid off. That same night, I saw Jules Bergman who was a reporter with ABC. He asked, "What are you going to do now that Apollo is finished?" I told him that I had been laid off. "I can't believe it. With your experience, they shouldn't lay you off." I said, "Would you like to see my pink slip?" He said, "Give me half an hour. And tell your wife that this afternoon there will be a crew from ABC flying in to your home, and we're going to shoot a sequence which will be on the Evening News about how you're being laid off."

There were seven people and two station wagons when I got home. They shot 400 feet of film. Howard K. Smith was the anchorman at that time, and he put it on but only about 30 seconds or a minute and explained that I was laid off - the most experienced guy, and so on. Less than a half hour later, the phone rang. "We have a job for you in California." At that time, my wife had cancer and I couldn't leave the area. So I talked it over with the family, and I said, "I accepted the job in California building the Shuttle. They said it would be a one-year job." I was to organize of the safety department.

I went out and we built the first orbiter, the Enterprise. There were some challenges for me out there. The way they would do things... for instance, if the wings didn't arrive until 3 months later, they would lay half of the work force off and hire them back 3 months later. Morale was a big problem, so I suggested that we have an open house on the last Friday of each month and get an astronaut to sign autographs, and the workers can bring their families. That became an institution and a great morale booster.

After we built the Enterprise, we went over to Edwards, and by that time one of my favorite astronauts and friend, Tom Stafford, was commanding general. Well, that made it very, very nice for me if I needed to get something done in a hurry. I'll tell you, it's very nice when the people knew, oh yeah, he talks to the general every day. It was great.

We finished the test flights, and by that time, my previous base manager, O'Malley, had vowed that I would only get back to KSC over his dead body. And it had been a tough 2 years away from my family. The kids were in high school, and my wife had what was supposed to be terminal cancer. The vice president there in California told me, "I can't get you back because Tom O'Malley is at the same management level as I am, and he said he would not take you back. Can you do something for yourself?" So I called Tom [Stafford] out at Edwards, and said, "Tom, I need a little help. I need to go back to Florida." He asked, "Who do you want me to call? The Chairman of International Corporation or just the Chairman of Rockwell?" I said Mr. Jeff would be alright. The story has it that Jeff called O'Malley, and his conversation was very short. He said, "I'm only going to tell you this one time. As of this afternoon you will offer Mr. Wendt a comparable position at KSC. You will pay his moving expenses, and that's the last I want to hear about it. Bye." They said you could hear O'Malley raving three offices down. "That son of a bitch did it to me again!" He always said that I didn't work for Rockwell. I worked for NASA; I only got paid by Rockwell. But the badge didn't mean a damn thing to me. I worked for the program. But, you see, I had very strong backing from the astronauts, so it was very touchy for them to contradict me.

I made it back to KSC.

Rockwell was in charge of the first 10 shuttle launches. I gave up the pad leader position and supervised Rockwell's safety activities. I stayed there until I retired.

I was involved with the [Challenger] accident investigation. By that time, another contractor had taken over. And they used to fix the symptoms, but they were very reluctant to fix the problems. That's one of my biggest gripes, that people only react to accidents. They don't "pre-act" and play the "what if" game to eliminate the problems that they see.

After the Columbia incident, I wrote a paper for the Gehman committee, and I managed to talk to Admiral Gehman and outlined my concerns as to what went wrong. I also wrote a paper for Tom Stafford as to what I see, and as of today, we are not very happy with the changes NASA has made. They are very, very slow or reluctant to change their

management situation. About 1600 launch regulation exceptions that were written prior to the accident are still not eliminated, so I asked Tom [Stafford] to check how many had been eliminated. If the launch exceptions are acceptable for flight, then let's delete them. If they are not acceptable for flight, then let's correct the problem." But NASA has not done a damn thing to work these items. As a matter of fact, the stories I hear now are that there is much more paperwork open where the engineers don't have time to correct what is still left open. That's the situation up to now.

Communicator: What was your most frightening moment flying?

Mr. Wendt: We bailed out twice. Once, we got shot down by a Mosquito, and once by anti-aircraft guns. We had violated one of our rules that anything below 8000 belonged to the ground, but we were following a B- 24. But what is more interesting from a technical sense was the battle we were fighting. When we started out with the night fighter, we originally had a radar system called the Lichtenstein. That worked pretty good. It had a range of about 40 km. Then the British started to drop chaff, which wiped out our radar. So we went to the SN-2 system, which had a longer wavelength. The counter action from the British was again to drop chaff but that was about 3 feet long and about 6 inches wide. Well, then the next things we encountered were little balloons that had transmitters on them using the same wavelength as our radar. Then we had to make another change, and by that time we had captured a B-24 with a ground-based radar system in it. Somebody had landed it in what they thought was Switzerland, but they had missed it by 40 km; they were in Germany. We now had the radar that the pathfinders used to determine the target area. Once they turned it on, we had them.

Communicator: In your autobiography titled The Unbroken Chain, you tell of times when your duties demanded long hours, leaving little time for sleep. Even now, operations crews contend with rotating shifts of twelve hours and sustain this for years at a time. Is there some method you may have found to deal with sleep deprivation and a work schedule that can shift between days and nights?

Mr. Wendt: On that, I was very fortunate. Whenever I could get off, I could just hit the sack and go to sleep, including daylight or whenever it was. The family was very accommodating. There was not much noise. In the early days, during Project Mercury, 12- and 14-hour days were the norm. As a matter of fact, there were folding cots in the annex next to Block House 56. If we didn't have enough time to go back home, like if you had to shut down, it always took 3 hours to power back up, then you just stayed out there. Speaking of time, I once went 7 weeks without a day off. Those were some tough days, but everybody was program-oriented. A system engineer wouldn't go home until a problem he had was resolved. There were a lot of dedicated people.

Communicator: President Bush has set new goals for our space program: to go back to the Moon and to go on to Mars. If you were in charge, how would you go about meeting those goals?

Mr. Wendt: I'll give you some easy steps. First thing, I would hire or create a core of personnel of about 50 of the best scientists and managers. They would become the new Moon landing management team. This would be the core of people who have to commit no less than 5 years, preferably 10, to stay with the program. The first job of that team would be to establish what it is we want to do when we go back to the Moon. Once we have those parameters of what we want to do up there, then they should go out and say, "Ok. This is the hardware we need: We need rockets to ferry people up and back; we need unmanned, remotely controlled, freight-carrying rockets with a 20 to 30 ton capacity that can bring building materials, and later on, supplies up to the Moon. Then we need a new rover. But one of the first things we'll most likely need is an atomic power supply, because one of the things everything and everybody on the Moon will need is electrical power. We need power in rather large amounts that solar power can't supply. The ideal thing would be maybe a fusion process using mined Helium 3, which could deliver tremendous power. All we need to develop now is a means of transporting electrical energy without wires. Then we could run the rovers for miles without the need of a battery.

Communicator: Do you believe that the media is doing a good job of reporting on space activities?

Mr. Wendt: The media tries to do a decent job. However, NASA public relations does not do too great a job of informing the average public what the benefits are from the space program. They issue the so-called "spin- off" books, but if you go to a church group and talk to them or you go to a civic group or to business people, they don't have any idea what the benefits are from the space program. If you ask a guy with a pace maker if he knew NASA designed it, he'll say, "Oh? I didn't know that." As a matter of fact, what I'd like to see - and it's an idea from the ex-NASA Launch Director, Robert Sieck - is for any item that contains a design from NASA should carry a sticker on it: "Patent from NASA." Or something like that. That way, people would know how many things depend on NASA designs and investigations. NASA is lousy at publicizing its accomplishments. I once addressed a group from the Bank of America. After I got done, the host said, "You know, that's the first time we've had somebody who could tell us about the space program in a way we could understand. They're sending us experts who talk about hypergolics and cryogentics; we don't even know what the hell that is." You see, they're not very well versed in getting the public to see the benefits to them.

Communicator: On the 13th of this month, Burt Rutan and his Scaled Composites group reached another milestone. In its 14th powered flight, and piloted by Mike Melvill, SpaceShipOne attained 211,400 feet. It looks like they're well on their way to winning the X-Prize. How important is private enterprise to space travel and exploration? What do you think should be its next step after the X-Prize?

Mr. Wendt: To begin with, Burt Rutan is a brilliant engineer who has done some very, very advanced designs and built advanced aircraft. What he is doing is great, and I think that maybe one step of getting people into space. However, at the present time, it is still too expensive for the average person to take a ride in space. What we need to do also - and it's a job for NASA - is to find new engines besides the chemical engines that we're using now. I think they have

reached the end of their capability. We need to go with nuclear power or some other propulsion system to get a pound-for-pound ratio that is much greater than what we get today. I think we have not yet exceeded 500 pounds per pound - what we call the Isp.

Communicator: Once we go back to the Moon and further, what role should private enterprise play in that venture?

Mr. Wendt: The role of private enterprise would be to take sections of the work, may it be power generation, may it be propulsion, may it be computers. But it's still too expensive for a private company to commit billions of dollars.

Communicator: The government is very good at being the pathfinder. Once they establish an infrastructure on the Moon, private enterprise could follow and build upon it in a sustained, even profitable effort.

Mr. Wendt: One of the roles for NASA could be to make sure that every piece of equipment that is designed for permanent or semi-permanent use in space can be serviced by robots. We could look to Japan to develop those robots. We could look to Russia to develop the atomic power; they've been working on it. I think we need to go more international. But the first thing is, we need to establish what it is we require and what we plan to do with it. Then we can get into the detailed work.

Communicator: Throughout your career in manned space flight, you bore tremendous responsibilities and pressure. A single, missed detail could have meant disaster. Add to that the life-threatening health problems that your wife endured. That's a great deal for anyone to bear. Yet you stayed focused and you maintained. There never was a disaster on your watch. In reading of all the comical mischief that you describe in your book that went on around the pad, one can't help but see it as a kind of pressure valve for you and your team. How important is humor in keeping pressure at manageable levels?

Mr. Wendt: This is what the doctors told me, and as a matter of fact, what we used to do on the pad with all the "gotchas"... it relieved the high tension. But it was always tricky. It had to be something that was funny but not insulting.

One of the other things I wanted to mention that was of great help to me whenever I had some rare, spare time - I had my boat and lived on the canal. I would go out at night and sit on the river, and just play the "what if" game; see how many things I could identify, which could bite us... which could go wrong. And then see how we could eliminate these things. The most classic one was when we designed the slide wire system on Pad 19. When we went out there, we had one, rickety elevator. But we had to be out there with 42 people after the flight vehicle, which was completely loaded with hypergolics, was flight pressurized. See, this is where you play the "what if" game. And right now, that's what I'm missing in the makeup of NASA safety. There are not enough people available to play the "what if" game, to ask what if this happened. If a piece malfunctions... ok, you need to do a failure analysis. What failed? But there are very few people who would track how many times that piece of equipment failed. Can you project when it will fail next? See, there are no people who are assigned the job and who are free to look at problem areas we call "credible incidents" - you can't just grab things out of the air. That's how we developed our escape system on the pad and how we trained on it. We played "what if" this and asked, "What can you do then?" And you know the answers. Certain things you had to accept. Certain things you could not change. And you said, "Alright. There are always volunteers." But we couldn't direct somebody to go out there with that thing loaded and able to blow up with tremendous force.

We don't have enough people right now, especially in the safety area, who are free to go and look at a test and say, "Hey. Wait a minute. That test did not cover that credible portion. Why not?" And when you have an unexplained anomaly, and something went wrong, but you can't make it repeat, you can't just say, "Ok. I looked for 3 hours. I didn't find anything. Therefore, nothing is wrong." But you can't explain [what] went wrong. You see, this is where I have problems. This is where you need thinking-type people who should only be responsible to the Center Director, not to 15 other levels of managers and directors. Plus they need to be completely free to talk to the other centers. Sometimes, between centers, hardware is being transferred with open safety items, and they are not really tracked. You need people to track them. I have a whole list of things. It's in the records, and they haven't done anything with it.

Communicator: Mr. Wendt, thank you so much for taking the time to talk to us today. Your life and your career are an inspiration, and we hope everyone reads your book The Unbroken Chain.

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Between the time of this interview and its publish date, SpaceShipOne flew into space as the world's first commercial spacecraft. Naturally, we wanted to get Guenter's reaction, so we called him at home and got this follow up.

Communicator: What are your thoughts about Burt Rutan's SpaceShipOne making it to 100 km?

Mr. Wendt: I think that he is a guy who, within the next 5 years, will have paying passengers at more or less than a hundred thousand bucks, and I bet you there are lots of people standing in line to do that. He's a brilliant guy, and he has all the financial backing he needs. I admire him. He's doing things that other people would like to do but can't.