Twenty Year Anniversary Speech to the Ohio Aerospace Institute

It's been some time since I've been in Cleveland, and it's a pleasure to be here. I visited a few years ago when my oldest son was a Fellow in Spine Surgery at the Cleveland Clinic. It was just before Christmas and everything looked beautiful with all that white stuff on the ground. We don't get much snow where I live in California.

I'm originally from New York, but I moved to California right after I finished college and continued my graduate studies there at Caltech, in the Los Angeles area. I began my NASA career at the Ames Research Center, near San Francisco, and transferred to NASA Hq. in Washington, DC about five years later.

While I was at NASA in DC, I was part of a special task force that put together a very large program in Aeronautics, called the Aircraft Energy Efficiency Program. This was in response to the high fuel prices for air transport created by the first OPEC oil embargo of 1974. It's all pretty reminiscent of recent events and the airlines' current financial troubles.

Three of the major program activities were located here at what was then called the Lewis Research Center: the Engine Component Improvement program, to increase the efficiency of then-current jet engines, the Energy Efficient Engine program, to develop the technology for an all-new fuel-efficient turbofan engine, and the Advanced Turboprop, or Prop-Fan, program, to take a new look at an older but inherently more efficient aircraft propulsion system.

Some year later we and our industry partners received the Collier trophy, the most prestigious award in the field of aeronautics, for our work on the Prop-Fan engine.

In many ways the environment was quite different back then. When I came to Lewis in 1979, 30 years ago, there were the usual threats about closing the Center, the Cuyahoga River had just caught fire, and the City was facing some very real economic problems. George Voinovich was mayor then, and he certainly had his hands full.

But here at the Center we had a very healthy in-house program in Aeronautics, and we were soon to be assigned the major responsibility for the solar arrays and electric power system for the Space Station, NASA's flagship program.

We knew we had a lot of work to do, but there was a very positive attitude here and in the community and it touched all of us.

As you all know, both the City and Lewis survived the challenges of the early 1980's. Folks like Pat Parker, of Parker-Hannifin, began to take charge and say that all of us had to do something to get Cleveland moving again. Cleveland's leaders agreed with him.

I became involved with various groups associated with solving the City's problems. For example, I was one of the founding members of CAMP, the Cleveland Advanced

Manufacturing Program, I was a member of Leadership Cleveland, and I was on the board of the Greater Cleveland Growth Association and a variety of other boards. I discovered how to interact with the local politicians and I learned to give any elected official who so desired credit for having saved the Center.

I think there were really three important ingredients that led to the successful founding of the Ohio Aerospace Institute:

(1) This was a time where there was real enthusiasm to try new approaches for solving the problems that we faced, both at the Center and in the City;
(2) We were careful that the State of Ohio, its Universities and our industrial partners accepted the responsibility for the OAI, not only NASA or the Federal Government;
(3) We enlisted the support of some very talented and forward-thinking individuals.

To return to the chronology, right after the Challenger disaster of January, 1986, much of the leadership of NASA was replaced and my boss, Center Director Andy Stofan, left for DC to become head of the Space Station program.

The NASA Administrator, Jim Fletcher, promised him he could have his old job back if the Space Station program was ever canceled. That's when I began a fairly lengthy tenure as Acting Director. Finally reason prevailed, Andy decided he wasn't coming back after all, and I became Center Director in May of 1987, about 15 months after I had been in the job.

The impetus to create the Ohio Aerospace Institute crystallized immediately after I became Center Director when we had to re-compete the on-site Masters and PhD Program. A periodic re-competition is, unfortunately, a requirement of all federal procurements.

Cleveland State won the follow-on; Toledo lost the contract after having had it for quite some time. The students who were enrolled in the program were quite upset about having to change the curriculum they had been following right in the middle of their degree programs – credits did not transfer neatly and it was really quite a mess.

That's when I realized that even though Cleveland State and Toledo were part of Ohio's state university system and were located close to each other geographically, their programs still had many incompatibilities. This was a problem for us because we very much needed to find a way to provide first class on-site education for our employees. We were hiring lots of young people, and the demand for graduate education was high.

Remember that all this was during a period of virtually unparalleled growth in the Country's Aeronautics and Space programs. In fact, in the 5 years following the Challenger accident, NASA's annual budget grew from just over $7 billion to more than $14 billion, doubling in just five years. It has grown about 30% in the 20 years since then.

The second major element leading to the OAI was the development, then just beginning, of the Aerospace Park near here. When we were assigned a major role in the Space Station, even though it turned out to be temporary, we decided to reorganize to prepare for space hardware development. We created an engineering directorate and elevated the R&QA office as part of that responsibility. We needed to hire support service contractors to help with the work and we needed facilities to house them close to the Center. The Aerospace Park was the solution.

As regards the university community, one of my first tasks was to initiate discussions with the nine Ohio universities that had graduate programs in aeronautics and space technologies to explore whether there was a common ground for cooperation.

We also prepared a sales brochure, mostly describing Lewis, but also proposing the Ohio Aerospace Institute as a world class institution devoted to research, graduate and continuing education, and industrial assistance and technology utilization. In that brochure we pointed out that Lewis spent $8 million a year in Ohio universities, of which $5 million went to Cleveland institutions. In other words, proximity was important.

I think I may have the last remaining copies of several of the sales brochures from that period. It’s remarkable that I still have them, and it probably indicates what a pack-rat I really am. So, in keeping with this event today, it’s now my pleasure to present these documents to Mike Heil for the OAI archives.

As I started to work on this project, I met a young man, Chris Coburn, who was then head of the Ohio Department of Development (ODOD). He was a tremendous help - he knew the State government intimately, and he was familiar with NASA, having previously worked for a period of time at NASA Hq. in DC.

He set up meeting for me with Dick Celeste, the then Governor of Ohio. Celeste was a local product, a graduate of Lakewood High School, a Magna Cum Laude graduate of Yale University and a Rhodes Scholar at Oxford. He was the ideal person to work with.

A small group of us left the Center early one morning in mid-October 1987 and flew down to the governor’s mansion in time for our breakfast appointment. The governor and I immediately hit it off - we were about the same age and had both gone to Ivy League schools. I don’t remember what I had to eat at breakfast that morning, but I went through my presentation and the governor listened attentively. It was a tremendous meeting. He was genuinely excited about the OAI and thought it was a great idea.

But, Governor Celeste also told me then and there that I didn’t have a chance in the world of getting it to happen. Yet he wished me good luck and offered to help any way he could. I immediately took him up on that, and the first thing he did was set up a meeting for us with the Ohio Board of Regents (OBR), the people who ran the State’s university system.

We went over there to talk to them in downtown Columbus that same morning and met with Elaine Hairston, at that time the vice chancellor for academic and special programs. She later became head of the Board of Regents. She was intrigued with the idea of getting Ohio’s universities to work more closely together. She visited us at the Center a week later and soon became an important supporter.

We were off and running. One of the things I had learned from my work with the City was that to really get someone's attention, you had to ask them for something. We decided that NASA would provide the land through a long term lease, give access to our facilities and laboratories, assign our scientists and engineers as adjunct professors and student mentors, as well as provide some limited core funding, selected maintenance and operational services, and general support for obtaining future funding from the government and industry.

In return, the State was asked to fund a facility large enough to house a full-time staff, visiting faculty and researchers, graduate students, administrative and support personnel, and industrial assistance specialists. We eventually ended up asking the State for $22 million to fund the building. I'm not sure what it actually cost.

Down in Columbus, we agreed that the Board of Regents would form a Policy and Planning committee made up of the university presidents or the provosts, as well as certain political officials and others, including me, to oversee the next steps.

I learned a lot about state politics in this process, including the fact that it wasn't possible to ever have private meetings. To assist the Board of Regents in their assignment, we formed a subcommittee of the engineering deans from the nine Ohio universities with graduate programs in aerospace sciences or engineering to work out the details of the proposal.

The deans in turn set up four subcommittees to address the important issues: management and structure; academic credits; research programs; and technology utilization and industrial assistance. There were many informal discussions, followed by the first formal meeting in December 1987 and a second in February 1988.

I continued to make presentations to state and local officials whenever I could because Ohio was preparing its construction budget at this time. The highlight of that period was a visit by Governor Celeste to Lewis on March 4 where he announced that he had committed $500,000 in planning money toward the creation of the Ohio Aerospace Institute.

We never used that money, or used very little of it, because we had already bootlegged the funds for planning from the Center's C of F budget. But it was a very good sign.

The deans continued to meet and the Board of Regents Policy and Planning committee finally got together in June 1988. There was substantial resistance from the elected officials in the southern part of the state to spending any of Ohio's construction money in this region. It suddenly became a political issue as to where the facility would be located.

In fact, it started to look as if the infighting between the Cleveland and Dayton area politicians would kill the whole idea. The State representative from Dayton had insisted on a seat on the Policy and Planning committee. He explained that he liked the idea of the Institute but wanted it to be located in Dayton at Wright Patterson Air Force Base.

In a thoughtful strategy move, we proposed that as soon as the OAI was up and running near Lewis, we would establish a satellite institute near Wright Patterson. This compromise was eventually successful, even though there unfortunately remained much discussion as to which of us should go first. I personally felt that the Air Force and NASA had very different needs, since the Air Force already had close relations with the two local Dayton universities and had their own institute (AFIT) on the base.

Many other things were happening at this time. Senator John Glenn and Congresswoman Mary Rose Oakar were part of the process, and they each introduced special legislation in the Senate and House that authorized NASA to provide land and services to a non-profit institute. The legislation was passed by Congress in November, 1988.

By this time, the Regents' Policy and Planning committee had completed their deliberations and decided to form an ad hoc action committee to continue the work of the deans in order to take the next steps in implementing their recommendations.

In an inspired moment, we asked Taki Papadakis, dean of engineering at the University of Cincinnati, to chair the action committee, even though we knew he could not be available full time. I was a member of his advisory committee for the college of engineering at Cincinnati, and I persuaded him that now was the time for him to reciprocate.

Taki was the driving force behind that important effort, and he took over what the deans had started and brought it to completion. We had representatives from Dayton, Case Western, Ohio State, Cincinnati and Cleveland Tomorrow, among others, on that committee, and they were difficult to manage. The action committee also arranged for pro-bono help from several consultants, including the executive search firm, Lamalie Associates, to look for a full-time director; Squire Sanders and Dempsey for legal advice on incorporation and regulations; Richard L. Bowen and Associates to begin planning the facility; and others.

I'd like to take just a moment here, if you don't mind. Some years ago Taki left his position as dean of engineering at the University of Cincinnati to become president of Drexel University in Philadelphia. He and I managed to stay in touch over the years.

The Philadelphia Inquirer had a picture of Taki smiling on the front page of its Tuesday, April 7 edition, along with an article entitled "Drexel loses a true visionary." A front-page article in the Philadelphia Daily News for that day also reported as follows:

> "In 14 years as president of Drexel University, he took a small engineering school whose campus was literally falling apart and wrenched it into the modern world, adding a law school, medical school and online program; spreading the campus to many new or reconstructed buildings; and increasing enrollment, endowments and, most importantly, prestige."

Taki died suddenly on Sunday, April 5, of complications from lung cancer. He was 63 years old. As my classmate and friend Bill McMillan wrote me: "Taki was much loved and respected here in Philadelphia. He really put his mark on Drexel."

And he really put his mark on the OAI as its first director. It's no accident we got it right.

Many of the important details were worked out under Taki's leadership. For example, the decision to create a 501 (C) (3) not-for profit corporation, the articles of incorporation, the initial members, the by-laws and regulations, the scope of activities, the research focus, and so on. A lot of thought went into exactly how the institute would operate, what its projected size would be in terms of faculty and students, how others would be able to participate, including industry investigators and non-degree students, and especially, how the required operating funds would be assured.

One of the main considerations was that we did not want to compromise the traditional independence of Ohio's universities. They had little experience with collaborative activities and were fearful of the OAI as a new competitor. In addition, there was a fairly wide range of reputations in the various graduate programs. Ohio State and Case Western Reserve were the key players – and in fact, some on the committee began to refer to the two of them together, and to the other Ohio universities collectively, as Snow White and the seven dwarfs.

But the idea that the OAI could in fact help increase the total funding available to member universities, as well as serve as a recruiting aid for talented students, finally won out. Case Western for some time remained somewhat skeptical since they accurately realized that they had the most to lose. But by then things had really started to solidify, and it was very difficult for them, or for any of the other universities, to object to the concept.

Taki's committee made its final report to the Policy and Planning committee in early March, 1989. Their recommendations were adopted unanimously, presented to the entire Board of Regents and supported by them in the middle of the month.

Exactly 1 1/2 years had passed since our breakfast visit to Dick Celeste in the governor's mansion. Funding for the building was requested from the State in the FY90-91 biennium.

Somewhat prematurely, we declared the Ohio Aerospace Institute operational and released a fellowship announcement for 1989. We had a glossy brochure and hoped to attract many of the top students in the country. Requirements were for a BS in engineering or science, admission into the graduate degree program of any one of the nine participating universities, and U.S. citizenship. The fellowship was for $1,250 per month plus tuition and fees. The brochure proudly stated that the program was supported by NASA Lewis, the State of Ohio, the Ohio Board of Regents, and the nine participating Ohio universities.

The key thing at this time was to hire the right person to lead the institute when Taki returned to Cincinnati. Lamalie came up with over 60 candidates who were screened by Taki and his committee. Interviews began in May, and Michael Salkind was the early committee choice.

Taki and I spent some time convincing Michael to take the job, as did the President of Cleveland State, but the clincher came in a private dinner meeting with Dick Celeste in the Governor's mansion. The Governor was very charming and extremely persuasive.

By the fall of 1989 a temporary facility was made available in the Aerospace Park, the legal structure was finalized and the articles of incorporation filed. Funding was included in NASA's FY1980 budget request for 24 three-year fellowships and a proposal for a NASA Space Grant was submitted to NASA Hq.

This was our first, although temporary, setback. That proposal, for a Space Grant Consortium, was initially turned down by NASA. Mary Rose Oakar called NASA Hq. officials into her office on the Hill and convinced them that they had made the wrong decision. She made certain that the Space Grant Program was soon up and running in Ohio. It turned out that she was not the only congressperson to become involved, and NASA eventually ended up with fifty Space Grants in fifty states

The other, again temporary, setback was when the Ohio House voted out the State budget with no money in it for the building. We went into high gear and set up a series of meetings in the State Senate. The Board of Regents then called for special hearings. I had a private discussion with the speaker of the House, Vernon Rife, in the Vernon Rife building in Columbus, which remains one of the highlights of my efforts during that period. Fortunately, Speaker Rife thought the OAI was a good idea and he completely supported us. The budget was re-instituted in conference and the rest, as they say, is history.

To close, in the spring of 1990 Mike Salkind asked me how long I planned to stay at Lewis, and I said "forever." And at that time I certainly had no intention of leaving.

That was before the NASA Administrator, Dick Truly, told me that he very much wanted me to transfer to the Goddard Space Flight Center in Maryland. When I finally agreed, I carefully made plans to make a graceful transition and leave Cleveland at the end of the summer, just before school started for my kids. But the well-known problems with the mirror on the Hubble Space Telescope hastened my departure. I was responsible for that first servicing mission to Hubble, and I'm certainly proud to see what has been accomplished during this last mission.

So I never got to see the final result of the Fleischman Architect firm's design or to watch the building being built or to see up close how the OAI was growing. I would have liked to be here to help celebrate the contributions the OAI was making to both Ohio and the country.

Today I still have the view that our nation's future depends on vigorous funding for science and engineering, just as it did when we established the Ohio Aerospace Institute twenty years ago. I am still extremely positive about institutes like the OAI that can provide very effective mechanisms for combining the research programs of the Federal, State and private sectors.

Mike Heil, twenty years is just the beginning. We're all proud of the Ohio Aerospace Institute and what it has become. Keep up the good work.

Thank you.