Closing Plenary

Colin McLaurin Distinguished Lecture

SPEAKER: Good morning everybody. We are going to get started. Good morning. We are going to go ahead and get started. I hope you are having a good time in New Orleans. It's been a great conference for us. We have had good networking and made a lot of good friends. We are going to get started. Welcome the last session of the conference. I'm going to invite Roger to announce the speaker:

SPEAKER: Thank you. And thank you for attending our final event at this 2017 conference. We have a great last couple of items and I get the honor to introduce the Colin McLaurin Distinguished Lecture. Also, I have been acquainted with the slides. And he is going to provide great historical pieces. I'm not going to describe the background, I'm going to do a couple of personal things. Over the years I've experienced with him and a couple of things you may not know about him.

When the grant that RESNA had that created the definitions and directions that preceded the ATP, he was on the committees that created the directions. What may need to go into such a potential ATP process and example. What is the scope and depth of the feed. I remember having committees about statics and mechanics and physics.

I also remember in the middle of meetings, him dropping to the floor and doing push ups. I'll have to explain that later.

Certainly, we have seen him do things I've put at the top of my list that no one has done before. Naming a school, creating departments. Leading in many ways. I've asked him tough questions. How does he go about doing this? How can you build an empire? He said Klingon. Anyway. I'm going to ask Brubaker to come up and be

SPEAKER: Roger, thank you.

 This is going to be an interesting session. I'm not sure how this is knowing to come together. I'll start with my title: 52 years in higher education. And it's been an improbable journey. I never believed I would be doing what I have done over the past 52 years. Certainly for that long. I've had the good fortune to serve at 3 fine institutions. Thought I would retire at every 1. And I've finally gotten to the 1 that's going to be the case.

I'll make 1 remark.

The building at the righted side of the screen. That's the cathedral of learning at the University of Pittsburgh. It's in downtown Pittsburgh. In a well‑developed area. It was finished in 1935 and it was fun 35 feet tall. At the time, I think still, it was the tallest academic building in the Western Hemisphere. So I've enjoyed the time at the University of Pittsburgh. It's a change from where I've been before. I'll get to that in a few minutes.

Because I worked with Colin McLaurin at the University of Virginia for ‑‑ well, he didn't come until 4 years later so it was 14 years we worked together. He was my mentor. I would like to start this out by saying I hope this comes off well, because Colin McLaurin was an important part of my life and career.

Here we are now at the Colin McLaurin lecture which I understand something that's being resumed and I hope continuing again after a few years of absence.

Also, this is the 36th generation of. I'm going to talk briefly about the founding. You can see here. RESNA was founding and occurred by resolution offered at the 1979 meeting at the counsel on rehabilitation engineering. There was already a model in place what the RESNA conference would look like. Can haves offered by the colleagues listed. As it happens, dug is the only 1 still with us. We have contemporaries so I hope he will continue on for a bit. I think there is a certain amount of wisdom with please tell me where I ought to go from here. The cat says depends where you want to get to. I thought more contemporary versions would be for us to think about it would be to ask what is it we want accomplish? And how would we do it?

Moving on from there, I have a map here. This is my personal journey. I started from my home town in Indiana. Left for the University of Oregon to begin doctoral study. I believed I would spend my entire career everywhere I'd been. Oregon is a beautiful place. From Oregon, I surprised myself by accepting a position to the University of Virginia. I'll get to why I did that a little bit later.

I figured I'd spend my career there. I did manage to finish at Pittsburgh where I'll retire at the end of September officially. It will be 52 years, and that will be longer than again probably should do this.

This picture is of Peter Sigerseth. Referred to as Sig by his colleagues. Not students. He made an impact in my life. This quotation was prominently displayed on his blackboard. No doctoral student got by with less than 8 rewrites of their dissertation. I was very interesting. I don't think Steve is here. I don't see Steve. In any case. I was Steve's doctoral advisor at the University of Virginia.

 At that time, I adopted his content. I took a page and there was more red ink on there than print. Steve put it in a box in his office. That was to remind me I wasn't being generous in reviewing his work. You know he has gone on and done wonderful things. As far as I know he is still in Atlanta and doing good work.

To move on, then, I arrived at Oregon. It was a wonderful place. Great place to live. I went there as a doctoral student. I received a fellowship in the first year and in the second year, offered a faculty position, and I figured I would be there my entire career. I received a tenure as professor toward the end of the spring term of 1973. And as much as I really loved Oregon, I ended up leaving to go to the University of Virginia. You might ask the question, if Oregon is such a great place, why would someone leave? It came down to a matter of economics. Oregon is, like Pitt and the University of Virginia, were all members of the American Association of Universities. The top in the country. So thinking about this, I ended up leaving Oregon for financial reasons. Oregon the hierarchy at the institution also understood it was a great place to live. Oregon would have always at the bottom of the list of all 66 or 67 institutions. And when I had the interview at the University of Virginia, they were willing to pay me more and it seemed like something I had to do as a career move.

To continue, a little bit more about Oregon. If you knew only 1 thing about Oregon, it would be probably aware it's the epicenter of track and field in the U.S. In 1972 we had the Olympic trials. It was a member of the Oregon Track Club and they officiated the meets and in 1972, that included the Olympic trials. I served as a turn judge. I was at the side, watching a lane for the events. And if it was a straight line event, you would see if somebody got out of lane and raise a flag. And if somebody mauled somebody you would raise a flag there too.

At the conclusion, almost every world record resided at that track.

Formerly, that team went to the Munich Olympics and underperformed. 3 or 4 athletes even missed their events. It was not a great year for the United States at the Olympics, but the trials were wonderful.

As I mentioned, compensation at Oregon was about 20 percent scenery and lifestyle and I figured I could do without that. So I moved on. I had the very good fortune to move to the University of Virginia. Known locally as Mr. Jefferson's university. He was the architect and founder of the University of Virginia. And they won't let anyone forget that. You almost expect to walk out and see Thomas Jefferson walk out some place.

This is a picture of the grounds. Much like the photo of Oregon, it's a lovely campus. You could say the same about the University of Virginia. I spent 1973, when I arrived there, until '91 when I moved on again, surprisingly so.

Probably the most important thing from my perspective at the University of Virginia. About that time, I digress to say, the economy was not doing well. There was an oil embargo. You would get in line to fill your car. It was a rough time.

For me, that subsided eventually. In 1976, when Colin arrived to assume the position as REC at the University of Virginia. I need to say more about that because the way it all evolved was an unusual. Now, if you are trying to compete in a research center, you always need to change something to renew or refresh it ‑‑ during this period of time, 1976, prior to that, people in Washington D.C. made a decision where they would have rehabilitation centers. University of Virginia made the cut as an institution. The criteria was to have them as so‑called elite institutions. And another thing was there had to be a star present to be the director. The University of Virginia made the first cut. Someone had written a proposal that has been proposed and quite frankly, it was the worst I'd ever seen. Well, it was revised from a colleague, from I think electrical engineering, and it still wasn't much better. When I think about engineering, what it took, the University of Virginia made the cut on the first criteria. The second, there had to be an experienced, credible person to direct the center. We didn't have that. When I say that there was a changing event, that was the appearance of Colin McLaurin in 1976 to assume the position as director.

It's worth talking a little bit about the effect he had. First, he gave us instant credibility. He had an extensive credibility in what we recognize to be the field of rehabilitation engineering. Second thing he did was we needed to decide what was going to be the focus. We are later in the game than others. The more obvious specializations has been already assumed. So we wondered, a logical things would be prosthetics and orthotics. So he decided to work in the area of wheeled mobility. And we tried to improve technology in wheeled mobility and came up with new design and inspirations.

In trying to improve technology for people with disabilities, we were able to define that further to wheeled mobility and one of the collaborations was with NASA, and also at the space port at Wallops Island, where they launched unmanned satellites.

We had the good fortune to have an interesting mode of transportation. This was a 1975 Piper Archer I bought in 1976. That was our conveyance to make the trip from Charlottesville all the way to the eastern shore.

 Among the several projects we took on, even though we didn't know much about composite materials, we decided to do it and get help. We decided to go ‑‑ I should say a little bit about the slide you are looking at. In the left‑hand corner is a response to a request to the folks at Wallops Island to give disabled deer hunters a way to get to the island. It had a noisy ratchet so they would probably not sneak up on a deer. In the lower right hand corner of the screen is a second iteration we built. It turned out the balloon tires were sufficient to float.

What we always did, we included a report that would be circulated. I think the University of Virginia had dozens, maybe as many as 100 reports that may still be available, related what has been done in the course of research and activities in the center.

Well, I would say probably within 7 or 8 months, looking in consumer magazines, there are multiple companies offering these devices, pretty much knock offs of what is shown in the left hand corner.

This is Langley Air Force Base and in the lower corner is the research center, where they do remarkable things. They agreed to help us. We had to visit from time to time. We had to fly down there in my small airplane. The air force base was also a site for F‑15 fighters and they were there during take off and landings, buzzing around. These are very big planes. The Piper Archer weighed 1,500 pounds and the F‑15s weighed 80,000 pounds. And they move fast. I remember one time, when you are getting ready to land, you tell them where you are. I said Langley tower, 7‑mile final for runway 8. The immediate response was follow three F‑15s.

That's pretty scary. I said where are they? The tower said they are at your 9 o'clock position. And then I saw 3 dots and they started getting bigger. Soon you could see where they were. I said to the tower, should I do a 360? And they said no, continue your approach.

One bent his plane around; one did a tight 360, or should I say a 270; and another did a wider turn and they landed in sequence. And they were turning off right here at the middle, where the ramp is to Langley Air Force Base. I think the research center is up here at the left. That was kind of exciting but also on the frightening side. I don't think I've gotten that close to that kind of a plane again. I'm not flying anymore.

This is the project we had with Langley Research Center. I have a wire frame diagram they provided us, along with a more complete rendition of the chair we were working on. And at the time, maybe you will remember Senator William Proxmeyer, he was in the habit of giving out Golden Fleece awards to institutions in the government he thought were doing frivolous things. The folks at NASA were aware of this. In addition to designing the wheelchair, designing and fabricating it, we tested it in a wind tunnel. Think about this. A manual wheelchair. A wind tunnel. It would not be surprising that it didn't make a lot of sense to use a wind tunnel and test it in a wind tunnel. They did it anyway. The reason for doing it, of course was to get the idea of the effect of wind resistance and before wind became a factor.

Well, the other thing we were doing at this time, this was the work I was mostly responsible for was to analyze wheelchair propulsion to improve efficiency to see how they would be seated in a wheelchair. We build a dynamometer and movement of the upper extremity. It worked well and helped us determine how to think about the configuration of the wheelchair for better efficiency.

As was the case at the University of Oregon, I expected to spend the rest of my career at Virginia. One day I got a letter. I can't remember who the author of that letter was, but it said you have been nominated as a candidate as a dean of the School of Health Sciences at the University of Pittsburgh. A title at the School of Health Sciences was kind of a second class position for me. I wanted to be part of the action. It didn't make a lot of sense.

So I came very close to filing the letter. Instead, I thought somebody took the trouble to write it, so I responded. I said well, I'm pretty happy where I am. I'm involved with this, I'm not sure what you do. You can let me know if the is a commonality.

I didn't hear from them for a month.

I got a call. They said I'd like you to come in for an interview. I didn't think it would do harm but I wasn't taking it very seriously. I got on a plane for Pittsburgh. I learned the only person's opinion that mattered wasn't going to be there. That would be Thomas Detre, I'll be talking about him in a few minutes.

I got there, I gave a presentation, talked about rehabilitation engineering, and they looked at me like I was from a different planet. Though I thought I was giving a decent presentation, I thought I would never hear from them again.

I went back to the University of Virginia, forgot about it and a month later, got another call. Said I'd like you to come back.

At the first one, I gave at presentation that didn't seem to resonate with anything so I was puzzled. This time, I had a meeting with Tom Detre. This is a picture of Tom. This was the beginning of the Pittsburgh era for me. As with Colin McLaurin, he exerted a particularly relevant force in my life. So it was interesting. I saw I had it was going to be interviewed as the dean of a school. And not a very impressive school at that.

I remarked to the guy that picked my up a the airport. I don't think it's long to talk about a job. He said all his meetings are 30 minutes. So I was sitting in his outer office. He was a very distinguished gentleman. He invited my into his office. We sat down and we talked for 30 minutes. It was a nice conversation. And remembering that his meetings only lasted 30 minutes, I said our time is up. He said we have lots of time. And 15 minutes later, he offered me the position. He said I appreciate if you don't say anything to the search committee, because I haven't told them yet. I could talk about him for a long time. He was a very interesting man. The history of his life is remarkable.

I went back to it the University of Virginia. I didn't say yes I would take the job. Of course, I ended up taking it. I remember my second meeting with Tom Detre, to take over the position, and there was a young woman sitting in the office with us. He introduced her as I can't remember the nom. This is a person who is a member of your faculty. We talked for awhile and she left after about 10 minutes. She said you know why I had her meet her? I had no idea. I felt I had to say something. I said is it audible she would be interested in returning to the school? And his response was unnerving. He said no, I said I wanted you to find something who would leave the school to find someone intelligent to talk to.

That was chilling.

So in 1991 I started at the University of Pittsburgh. I was give positions to hire people. Dave Brienza just finished his Ph.D. in electrical engineering. I figured at this time, Colin resigned as director. I was actually directing 2 centers at the time. Everything was going well.

I had arranged for Dave to have a postdoc. I said it would be nice if he would go with me. He had a faculty as a adjunct professor was probably more in his interest than having a postdoc in Virginia. I also had the opportunity to extend opportunities the people listed on the slide. It was the timing that was perfect so I recruited them also. A second person came with me from the University of Virginia, Kao‑Chi Chung. He returned to his native Taiwan and affect passed away shortly after that. I had the good fortune to attract those people that would make all the difference.

Well, the building we occupied was the oldest at the University of Pittsburgh. It was outdated and poorly designed. It was the school of medicine's first home and they immediately declared it as inadequate. That's a status that I don't think changed. The name of the building was Pennsylvania Hall. They later put up a dorm there of the same name.

We had to take lab space 10 miles from the university at the Pittsburgh Supply and Resource Center. Everybody I hired spent their time there.

Other very important event was a competition, again, if the REC. It happened to be the REC he had at the University of Virginia. It was up for renewal and we didn't have much we could put down that would make us look very good. So I met with the people at Westinghouse Technology Center, a facility with extremely bright people and they agreed to collaborate with us. I probably need to move along faster, but I can tell you that was the best proposal I've been associated with. A woman from Westinghouse was skilled at putting things like this together. Everybody had to prepare a project they would be responsible for and it was done in a very consistent way. We would have what Westinghouse referred to as red reviews and green reviews. The red review was done when they would come by and have a red pen and they would write on your proposal, comments. Same with a green review, but it was a second‑tier review.

From that, the first year when I arrived, the amount of externally funded research was $70,000. By the end of that year, I think we got our first NRA‑1 and the funding went from that to 1.83 million.

Moving on, we also competed successfully in the REC. In 1993 we received notice of award for the REC. It was bittersweet because UVA was also a competitor, but we were awarded 3.5 million for the research center.

In 1994, we managed to change the name to the school of Health and Rehabilitation Sciences. It seemed a more dignified name.

We also established a Ph.D which has been fairly widely duplicated at other institutions. In 1995, we established an undergrad program and prepared students for entering into various areas of technology and research that we were tapeable of delivering.

The rehabilitation engineering and R and D program was centered around wheeled mobility, as was the case at UVA. Since we had a wheelchair center, we did the same. These are pictures that reflected what we were doing.

We had devices we designed that, on the right hand side, it was a derivative of the devices we developed at the center we could take the impression cushion and contour that was pretty close to what you were going to have and mill out that contour into foam and it tended to work well. Well enough that they had a fair amount of successes with this particular device.

In continuation of research and development, we were always fighting the battle of performance versus cost. The device on the left is one I designed. I didn't have a lot of time so I did it in stages. I say going to be a power base. Of course, the wheels could be moved through a radius that would allow you it could turn in almost any direction and on its own axis.

I left it and thought I would get back to it. When I did, I found about a fourth of it missing. My colleagues took it for their own projects. There wasn't much we could do about it. So we forgot about it.

I'm going to conclude now with a short history of the growth and performance of the School's Health and Rehabilitation Sciences at the University of Pittsburgh.

These are the methods of how things changed over the 24 years I served as the Dean of the School of Health and Rehabilitation Sciences.

The enrollment increased to 1500. I would add that the criteria for admission was pretty stringent.

The other very important metric is research funding. The university had a strong desire everyone treated it in this manner.

When I arrived there, externally funded research was about $70,000. And in 2015, the amount of externally funded research was slightly over $25 million. Again, that was an interesting progression.

Here is who we got money from. At the top, that's the Department of Defense. That's an interesting story. 1 of the faculty at the post sent a proposal to the Army for the 101st Airborne division, and they funded a proposal for performance enhancement. That was just the beginning. It worked out well. And because of that, the folks at the 101st Airborne talked about it and it got around and it wasn't long until we were working with all four services. Toward the end of that, it ended in 2015, but at one time, you can see it represents very substantial part of our research revenue.

So this will be a summary of the major changes and events over this period from 1991 to 2015.

One very important one is the changing of the name.

Another very critical thing was the establishment of the research culture. And another was the research funding from 70,000 to 25 million. That's and increase of more than 100‑fold.

And this last one made me feel good. Just as I was stepping down in 2015, I think June, an organization that goes by the name of College Factual recognized our School of Health and Rehabilitation Sciences as the best. When somebody says something like that about you, you take it and go with it, don't you? If you haven't heard of College Factual, their reason for being is to find out about how various universities operate and how they admit students and make recommendations to students going to college. They serve, I think, a very useful function. I will always remember them for this thing they did on my watch.

So, as Virgil has noted, time flies.

As Dean as the school of health‑related professions. My first day as Dean was 1991. My last day was in June, 2015. And at the end of September, I will officially retire after 52 years at 3 very fine institutions.

And I would like to close by remembering two others I will refer to as patron saints along with Colin McLaurin.

We presented together on occasion and I guess I would say that that was one of the highlights of working with these people. Thank you for your attention.

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