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Leading Through Transitions and Turbulence: An Oral History with Executive Vice Chancellor R. Michael Tanner

Permalink
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Publication Date
2019-12-01

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Leading Through Transitions and Turbulence:

An Oral History with

Executive Vice Chancellor R. Michael Tanner

Interviewed and Edited by Irene Reti

Santa Cruz

University of California, Santa Cruz

University Library

2019

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Interview History

In 1971, Robert Michael Tanner [R. Michael Tanner] arrived at the University of California, Santa Cruz as a young assistant professor, joining what was then a fledgling computer and information sciences board [department]. Attracted to UCSC by its focus on undergraduate education and interdisciplinary study, and by the beauty of the campus's natural landscape, Tanner was hired by the legendary provost of Cowell College, Jasper Rose. "Santa Cruz when it first opened, and into the early '70s, was the place to go," Tanner recollected in this oral history conducted in July of 2019. "I mean, first if all, it's gorgeous. It's one of the blessed spots on God's earth. You look out over the bay and you feel the wind going through the redwood trees and the fog coming in. Why wouldn't you just love the place?"

Michael Tanner grew up hiking in the beautiful California hills, spending part of his childhood in the rural Portola Valley, close to what was to become the Silicon Valley, capital of the burgeoning computer revolution. His father was an electrical engineer who graduated from Stanford University and specialized in communications. Tanner followed in his father's footsteps, attending Stanford, where he earned his B.S, M.S. and PhD in electrical engineering (with a specialization in information theory). After graduation, he taught engineering for a year at the historically black Tennessee State University. "It was a fascinating and mind-altering experience to be in the South. This is 1970, Martin Luther King having been assassinated in Memphis in 1968," Tanner recollected in this interview, reflecting on how this experience shaped his lifelong commitment to diversity and equity.

Tanner remained at UC Santa Cruz until 2002; in his more than thirty years on the campus he served in a myriad of leadership roles. His first administrative position was as chair of the Committee on Admissions, Financial Aid, and Relations with Schools, working with Dean of Admissions Richard Moll during UCSC's enrollment crisis of the 1970s and early 1980s. He later chaired the Computer and Information Sciences (1981-1988) board and the Academic Senate Committee on Educational Policy (1985-1987), where he focused on reviewing UCSC's Narrative Evaluation System and the campus's general education requirements. It was then that this interviewer first met Professor Tanner, as he came to review the course approval forms filed at the academic editors division of the Office of the Registrar, where I was working as an editor at the time (1986). Little did I know that I would have the honor of conducting Professor Tanner's oral history more than thirty years later.

This oral history, conducted as part of the Regional History Project's University History Series, provides Tanner's unique perspective on thirty years of UCSC's history from the vantage point of these diverse administrative positions, as well as a member of the computer and information science faculty and of Cowell College, where he served as a residential preceptor in the 1970s.

After many years of dedicated teaching, in 1988-89 Tanner entered UCSC's senior administration, serving first as acting dean of natural sciences from 1988-19, and then as academic vice chancellor from 1989-1992 and executive vice chancellor (a position which he was the first to occupy) from 1992-1998. In the early 1990s, Tanner played a key role in helping UCSC cope with a major budget crisis. During those years he worked with three chancellors: Chancellor Robert Stevens, Chancellor Karl Pister, and finally Chancellor M.R.C.

Greenwood. In this oral history, he offers his firsthand impressions of these three very different campus leaders.

One of the most substantial contributions of this oral history is Tanner's incisive thoughts on UC Santa Cruz as an experimental and unique institution of higher education. He shares insightful reflections on how Dean McHenry's centralized decision making structure during the early years of the campus impacted the campus as it began to grow; on UCSC's innovative college system; and on the campus's Narrative Evaluation System.

Another valuable contribution of this narrative is Tanner's on-the-ground perspectives on the development of Silicon Valley and UC Santa Cruz's relationship with the technology industry. Cultural and geographic barriers separate UC Santa Cruz from the Silicon Valley. Tanner shares his thoughts on how these barriers challenged the developing computer and information sciences department at UCSC and explains why he wore a suit and tie to work in an era where UCSC faculty rarely made such a choice.

This oral history also covers some of Tanner's research accomplishments, which he explains in a highly accessible way. His focus has been on information and communication theory and the theory of algorithms and computational complexity. He is best known as the founder of the subfield "codes on graphs" and the originator of the code representations now known as "Tanner graphs."

Tanner's final position at UC Santa Cruz was as Interim Director of the Silicon Valley Center from 2000-2002. At that point, ready for a major shift in his career, he accepted a position as provost and vice chancellor for academic affairs at the University of Illinois at Chicago (UIC),

where he remained until 2011. Since 2011, he has been working in several different positions with the Association of Public and Land-grant Universities, where he remains a consultant as of this writing.

I interviewed Michael Tanner in a conference room in McHenry Library for three sessions on July 9 and 10th, 2019, while he was in California visiting family. The interviews were transcribed by Teresa Bergen verbatim and I thank her for her excellent and timely work on this endeavor. I edited the transcript for clarity, creating chapter headings in the process. I returned the transcript to Tanner for his editing and he went over it line-by-line, providing written clarifications that have been incorporated.

Copies of this oral history are on deposit in Special Collections and the stacks at McHenry Library at the University of California, Santa Cruz; and on the University of Calfornia's e-scholarship platform. The Project is supported administratively by Teresa Mora, head of Special Collections and Archives, and University Librarian Elizabeth Cowell.

—*Irene Reti, Director*

Regional History Project, University Library

December 2019

Early Life and Education

Reti: Today is Tuesday, July 9, 2019. This is Irene Reti with the Regional History Project. I am here with Executive Vice Chancellor Michael Tanner, who is here in Santa Cruz, visiting from Washington, D.C. to do an oral history with us, which I'm very excited about. So Michael, let's start by briefly revisiting your earlier life, like where you grew up, and your early life and education, before we jump into talking about UCSC.

Tanner: Okay. Well, I was born in Utah near Provo, but moved with my family as an infant up to Seattle, where my father taught at the University of Washington for a while. And then in 1949, we moved down to Menlo Park and not long after bought a house in South Palo Alto. In the mid-50s, my father completed his PhD at Stanford. He was working at SRI.[1] He bought some property out in Portola Valley, because it was so far out of Palo Alto that land was cheap and built a house out there, right next to a branch of the San Andreas Fault, in fact, one of the secondary faults. So I grew up sort of in the country. There were very few people around and a lot of nature. I grew up liking to hike out in those California hills.

Reti: Oh, beautiful.

Tanner: I went to Portola Valley School. I had a slightly unusual circumstance in that I was skipped two grades because I was doing well academically and my parents thought, well, they want Michael to be academically challenged. I don't think people do it as much now. But

[1] "SRI International (SRI) is an American nonprofit scientific research institute and organization headquartered in Menlo Park, California. The trustees of Stanford University established SRI in 1946 as a center of innovation to support economic development in the region. The organization was founded as the Stanford Research Institute. SRI formally separated from Stanford University in 1970 and became known as SRI International in 1977.": https://en.wikipedia.org/wiki/SRI_International

skipping posed a certain kind of social challenge instead of an academic challenge. I didn't have any trouble with the academics, but I was always the smallest or second to smallest person in my class, because I was two years younger than everybody. I went to Woodside High. I was part of the first graduating class of Woodside High in 1962, where we had some great experiences. They had funding from Lenkurt Labs to do a special physics lab for students who were good at science. So I was bussed down to Redwood City regularly to be part of physics class, which was really a wonderful experience. You got to play with the real instruments and things that would otherwise be considered too dangerous for regular classes. You got to do more advanced experiments, and get deeper into the subject. Naively—I don't know how many places I applied to—I applied to Stanford primarily because that's where my father had gone to the university.

Reti: And what did your father study?

Tanner: He was an electrical engineer. He was a communications person, an expert on radio signals. In fact, he invented those little pencils you see off the rear trailing edge of the wings of jet airplanes to improve radio communications.

Reti: Oh my gosh. I've looked at those.

Tanner: Those black pencils—he invented those in the '50s. They get rid of charge that builds up on the plane that damages the radio communications when it discharges as tiny lightning bolts. Those pencil-dischargers were very successful, and I grew up with the notion of engineering being a creative enterprise, that you could come up with something and people would say, "Well, this really improves our world." That was my inherited orientation,

to say, well, okay, I'll be a creative engineer and try to do something that will improve the world.

I applied to Stanford and I got into Stanford. I enjoyed being a student. As a freshman, I hadn't told them what my major was, so I ended up with a sociology professor as my advisor, which wasn't really in the center of my interests. If I'd picked a major and told them, say, physics or math, that probably would have been closer to what I ultimately did.

But in any event, one of the things I wanted to do was to take advantage of Stanford's then fairly new foreign campus program. I applied to go to the Stanford in France program that was in Tours at that time. My engineering counselors—by the time that I'd got connected up with them—advised me against doing it. I was going to go as a sophomore. Most people went as juniors. But if you were in an engineering curriculum, you have so many requirements, largely, I think at the time–even then–driven by the accreditation requirements of the Accreditation Board for Engineering and Technology. I was warned, "You're going to have to take a lot of units to graduate in four years." But I didn't regret it. I went over and studied French language and culture. I speak French because I've kept that up after all these years.

Reti: Fabulous.

Tanner: And we have wonderful friends in France, and even professional colleagues, as a result of that undergraduate program. When I came back, I did have to take twenty-two or twenty-three units, (laughter) which at the time was pretty hard-driving. There wasn't a whole lot of flexibility for engineers and what a unit meant— I mean, there were potentially slightly easier classes, slightly less demanding classes, but twenty-three units was a lot. So

the advisors were right that it was going to be hard work when I got back, but I never regretted it.

When I graduated from Stanford, I ultimately was in electrical engineering. I asked myself, where should I go for graduate school? But in the area that I was in, Stanford was also really good. So I applied to Stanford and I think applied to MIT. And finally I said, you know, Stanford's really nice. (laughs) I wouldn't have to move. You couldn't complain about Stanford as a place to study engineering. People might say you should have gone back and gotten an experience in the East. But at that point, Stanford covered my likely interests. Somehow, I had noticed that there was a comparatively new field called information theory, which was a mathematical aspect of engineering having to do with communication of information—how you measure information, how you can talk about the rate at which information can be transmitted reliably—the field founded by Claude Shannon. I thought, that's intriguing, so I started taking graduate courses that would go that way. I ended up getting a PhD in electrical engineering with a specialization in information theory.

Reti: How long had information theory been around? Was it just starting then?

Tanner: Well, it was really starting. I mean, there were people working on aspects of it in the 20th century, and going back to Marconi and Morse. But as a field, it was really Claude Elwood Shannon who wrote a paper that appeared in '48—the original title was, "A Theory of Information," and then by the time the book came out, it had been changed to *The Theory of Information.* (Reti laughs) He became more confident that he was really onto something. And he was. He opened up a huge range of inquiry into investigations having to do with how to represent information; how can you compress it; how can you protect it. He made

contributions to cryptology, but I would myself say they weren't as significant as they were in the other areas of compression and error correction and data transmission. So I that's where I was drawn.

And this was the time of the Vietnam War. I had ended up in the Draft lottery getting a number that was very high. And not only that, I'd gotten married before the magic date. So the Draft going to have to take all of the people who were unmarried at that critical age before they'd get to me. I didn't have to think about actually much likelihood that I'd ever be drafted to go to the Vietnam War. But I was really troubled by that point by the Vietnam War and what it said about America's foreign policy and how we characterized our relationships with other peoples on the planet. I think that skepticism about that war has been proven out, if you get deeper into how it got started and the false premises that were used to persuade the public that we had to get into that war.

But in any event, that made me ask: what is technology being used for? What is all this creativity in engineering being used for? And it made me pause a little bit. I said, I'm not going to go to work for a big military industrial complex company. I'd like to do something else.

Teaching at Tennessee State University

There was somebody who was recruiting for the historically black colleges of the South, a guy who had connections there. He was actually on the Stanford faculty, a guy named Lou Padulo. He got me involved in being recruited to Tennessee State University, a historically black university in Nashville, Tennessee. So I decided I would try that and that was where I took my first academic job, teaching electrical engineering. It was in the Engineering School.

They were hoping to get accreditation, and the president at the time, Andrew Torrence, was himself actively involved and willing to put some of his time in as the president of that university to attract some new faculty. A couple of us PhDs from Stanford went there.

It was a fascinating and mind-altering experience to be in the South. This is 1970, Martin Luther King having been assassinated in Memphis in 1968. I could go on at great length about what it meant to be a white guy working at an institution where the public thought everybody who worked there was black, to use that language. I faced discrimination in housing because landlords would ask me, "Where do you work?" I'd say, "Tennessee State." I think they'd probably say to themselves, "He may sound a bit different, but if he's working at Tennessee State, he's got to be black." So then all of a sudden, I'd be told, "Oh, that apartment. My husband was just showing that to someone this morning. Give me your number and I'll get back to you if it's still available." You got a real dose of what it was like. I was living on the boundary between the white society and the black society. There was some embrace from the African-American community, but also some wariness and some understandable, even resentment, that I might be there to rock their boat, and the power relationships of that moment in Nashville.

And then I'd have experiences that would just rock me back, where people would learn that I was teaching at Tennessee State—members of the white community—they'd been interacting with me one way, and suddenly there was this sense of prickliness. What was I doing there and what did I think about these things? I was living in the zone of tension, which was very educational. It really opened my eyes. I didn't understand the South. I mean, I grew up in California, out in the hills. (laughs) And when you saw the civil rights movement, I was

thinking, gee, is this the same country I live in? Birmingham, Alabama and the fire hoses and the dogs and police.

But it wasn't easy being there. And if I had stayed there, it probably would have meant a hard-to-reverse career choice. I wasn't quite ready for that and my wife was really not ready for that, because she was living distant from everybody that she knew. We arrived in Nashville with a six-week-old baby. She moved from being a graduate student at Stanford to being a new mother in Nashville, Tennessee.

Coming to UC Santa Cruz

My thesis supervisor and the person who was hired here to form the information and computer science department, David Huffman, knew each other. David had gotten my name, and he invited me to apply at UCSC. I said, well now, I know that's a beautiful place out there. I don't know much about UCSC, but it's a University of California campus and it's in a place that's gorgeous. I certainly have to look into that more.

So I looked into it and was very intrigued and came out and was interviewed and offered the job. I said, okay, this should be a fascinating new experience. The emphasis on undergraduate education, I thought was really important, very valuable. The move toward a focus on graduate education came significantly, in my view, post-World War II. Graduate education, particularly in the sciences, led to military prowess and there was a big investment in it. Leaders felt we have to understand our world better if we're going to be prepared for some potential adversary, which led to the creation of NSF and then NASA and a new emphasis on science and engineering.

So in any event, how did I get off on that?

Reti: Well, you were talking about what drew you to UCSC?

Tanner: Yeah. But in that, I got to focusing on what for me seemed like very intense and highly focused parts of our world. We were creating sharp, deep knowledge in some areas. But we were losing the ability to integrate it, losing the ability to speak across divisions. C.P. Snow speaks of *The Two Cultures,* but it's more complicated than just two cultures. Every area has its own paradigm of knowledge.

So in any event, I was really intrigued by the interest at UCSC in the interdisciplinary, and getting people to be able to engage with people who worked in other fields, which necessarily means you're not going to be spending quite as much time just focusing on the particular thrust, the spheres of knowledge that are being pursued in your own field. I found that quite attractive, because I had other interests and I felt, maybe I'll have an opportunity to talk with people about other subjects.

Reti: Such as?

Tanner: Well, I've always felt that philosophy was important and I still do think it's important in our current world. Where are the ethics for our century that can allow the human race to exist on this planet and keep it viable for ourselves and all the other species that we hope to see living here in a few hundred years? We haven't really resolved that issue.

Reti: No, certainly not. (laughs)

Tanner: Right this moment, we're in a crisis of epistemology—how do you know that you know what you know? Where does your confidence in your knowledge come from? We've seen so much manipulation. Propaganda in times of war—I used to think well, come on, people, recognize propaganda. But there are times with communications–mass communications–instantaneous communications–I've been once again reminded just how powerful propaganda can be. When a falsehood is spread widely, pretty soon people start believing a falsehood, simply because it was spread so widely via the communications networks. Anyway, philosophy was one of those topics that interested me. Music's another topic that I was interested in. I'm an amateur musician. There are ways that music and the arts can bridge over into engineering and science. I find that enjoyable, to be able to potentially be part of some of those bridges. So I thought that was very attractive aspect of UCSC.

And UCSC had a college system where the campus would try to remain small while growing large, and you can hope to have more human relationships with some of the students. And simultaneously you'd have your disciplinary focus, and you could pursue your engineering, or whatever topic you're in. I said—wow, they're going to try to make it really work in a new way. The center of gravity; the emphasis of saying—"We're going to spend more time on undergraduates, and we're going to spend more time on interdisciplinary activities than your average university, and we're willing to be exploratory"—those are all things that attracted me to the campus. So when I got the offer, I said, yeah, let's go.

Reti: So you arrived in nineteen-seventy—

Tanner: 1971.

Reti: 1971. So you spent a year in Tennessee.

Tanner: Spent a year in Tennessee.

Reti: And then you arrived here in 1971. That's an interesting time here. It's still under Chancellor Dean McHenry.

Tanner: Right. He retired in '74, as I recall.

Reti: What were your impressions when you actually got here, as opposed to the ideas that you were drawn by before you got here?

Tanner: Well, I knew I was in a very different place even in the interview. I was interviewed in the provost's office at Cowell by Jasper Rose, who was wearing his academic robes. I mean, this is the provost (Reti laughs) and there's this shock of gray hair and everything. He sat down at his roll-top desk and he said, "Well, tell me what's interesting about you, my dear." (laughter)

Reti: Oh, I can so picture this. (laughter)

Tanner: I said, okay, this is not the engineering school, that's for sure. (laughs)

Reti: Do you remember what you said?

Tanner: I said, "Well, would you like to know what I think is interesting about me, or what I think *you* might think is interesting about me? What sort of interests are you interested in?" I told him a little bit about myself and things that I was interested in. And somehow in that process at the time, Cowell said, "Okay, well Tanner would be an interesting person to have

at our college, good to interact with our Cowell colleagues." "The pursuit of truth in the company of friends," was the motto of Cowell. I thought that was a wonderful motto. Very moving.

Then I was over in the board of studies—at the time, information and computer science—and interviewed there. It was a little unusual, because it turns out I got food poisoning, so I wasn't able to give the standard talk. Something I ate caused me to be very sick—it doesn't happen often, maybe three times or four times in my life.

Reti: Unfortunate timing.

Tanner: Yeah, it was terrible. But they ended up making me the offer. And even there, it was eclectic. I think the information and computer science group, among those in the natural sciences, probably had one of the rockiest dynamics. It's in part because of its ambition. David Huffman was hired to be the leader. He'd come from MIT, significantly. Though he was a brilliant guy in his own way, he was not really an institution builder, just by his own psychology. If people had been able to see that, he wouldn't have necessarily been the first person that they would have brought in in to develop that field for UCSC. But he was the lead person, and he had a certain psychological profile about how he thought about information science that made it tricky. He had a very broad view of what it should be. He hoped we would be able to have brain science, because brains are processing information. And a wide range of cybernetics, and operations research. He hoped that we could have this very broad umbrella. It's a wonderful thing about Santa Cruz. It's full of ambitions to do almost everything that anybody could think of: wouldn't that be great? But the real challenge is to figure out how you focus yourself to be successful with what you're doing.

So that's what we had to go through with many different people, with many different senses of what the topic was that we should be pursuing. We couldn't possibly do justice to all of those topics. We gradually migrated down and eventually, even "information" fell out of the title. David didn't see himself as a computer scientist, not at all. Computers were just the machines that processed information. He was interested in the spirit of Shannon: what is the information and how do you think about that information abstractly, theoretically? That was where he was. But then you have all these people building these computing systems. There was a tension between David and those folks, because David was about the mathematical heritage, and the line that had produced computer science coming out of mathematics. These other people came out of the pragmatics, and the engineering, and building systems that actually work and do things, right? And sometimes they're really messy. (laughs)

Reti: And to what extent did the vast changes that were starting to sweep Silicon Valley—there was no Silicon Valley yet—but the rise of that technology shape UCSC's department at that time, push it in that more technical direction?

Tanner: Harry Huskey and David Huffman and Bill McKeeman were the senior people in the early years. Bill McKeeman very much came out of the Silicon Valley area. He'd been at Stanford and had worked with people over there. Harry, who had a lot of early experience in computer science, was doing computing in the very early days, a very gentle fellow trying to make sure that all the pieces fit all together. But there weren't the kinds of ties with Silicon Valley that really would have been good for that field. We'll probably get into it later in the interview. We missed an opportunity in that we did not concentrate and have stronger ties than we did with what was happening over in Silicon Valley.

Reti: We can double back to that.

Tanner: I occasionally would, with a smile, say, "I'm a child of Silicon Valley. I grew up in that area. My father was in the field." I worked for a company called Fairchild Semiconductor, which is the company that preceded Intel. Pioneers who split off from Fairchild formed Intel. I was working there as a summer intern in 1962. So I was watching this field coming along, particularly what was happening with Stanford. That was exciting, because you had these very bright people at Stanford who were pushing the understanding of what was possible with semiconductors. But they were also, very often, moving out as consultants to the budding industries over there, or, in some instances, forming the companies. That vision was in my head. Over in Santa Cruz, across the Santa Cruz Mountains, it was a little too easy for us not to be connected to Silicon Valley.

Reti: Okay. So you're at UCSC and you're in this department that has this divide, and is becoming more engineering-oriented, rather than information-oriented.

Tanner: Well, you have a tension there—

Reti: A tension there.

Tanner: —of particularly David Huffman wanting to see it develop and maintain its strong theoretical basis. But then, computers are happening. (laughs) And over the course of the time, it's not just the computers out of the big labs, it's the microprocessor. And pretty soon it's personal computers and so forth and so on. The computing wave became a huge wave, and in a sense, became so powerful that it was almost hard for us to exist. It almost overwhelmed us. But I'll go into that later on.

So I was in a new curriculum. I was asked to teach for the college. That was one of things you asked in your topic outline, Irene: how did you relate to the college?

Reti: Yes.

Tanner: Coming out of engineering—they're very organized. Engineers are problem solvers who try to organize things and figure out how you can make something work. I look for some form of order. I'm not really great in complete chaos. I was asked by the college to teach something. I said, "Well, where would I fit in with what's going on with the college?" When I asked that question, there wasn't really a strong vision for where they would like me to fit in there.

Reti: I can imagine that at Cowell with Jasper Rose, right?

Tanner: Jasper was wonderful, a wonderful fellow. But it's not like the college had a sense of what they wanted to accomplish for the Cowell students that was tight, and they really needed to have some opportunity to be exposed to this budding new area and this different way of thinking about it. I mean, that had not really, in my view, been worked through. So one of the senior people said, "Well, teach a course."

I said, "Well, what would you like? What do you think would be good to teach them?"

"Well, whatever you think it might be good for you to do."

I said, "Well, okay. I'll teach a course on human information processing, and how brains work versus how computers work, and the pitfalls and the limitations of our thinking about thought. I think that will be interesting."

He said, "Well, sounds good to me." (laughter)

Reti: Wow.

Tanner: I mean, it was that kind of thing. I taught a course with two economists and an anthropologist for the freshman core course. It was a really memorable experience because we were having to figure out, with all these different views of the world and what was important to tell the people, what are we going to cover in our course? We gave it this title that allowed us to pursue very widespread ideas. I hope that the students found it interesting. I thought it had some memorable moments. But how do you get economists' and anthropologists' and an engineer's mentality to come together and create a course? It created a ferment that was fascinating and hopefully good for the students.

But the big framework was very fuzzy. Exactly how your teaching in the college would work out was not clear. So rapidly I began to say, I'm not sure what career path UCSC is intending young faculty members to go on. That's another set of issues. I mean, if you thought you were going to devote yourself to undergraduate education and that was really going to be your focus, you're not likely to survive the review process and get tenure at the University of California.

Reti: I know. This is the great paradox of this campus, which I have wrestled with in my thirty-year career here, truly. You talked about the DNA of the larger UC. I mean, you didn't arrive with tenure, did you?

Tanner: No, no. I wasn't tenured.

Reti: So you were in that position.

Tanner: I felt vulnerable. I didn't know what even a successful career path here at UCSC looked like, for sure. It's fine if you are one of the distinguished people—Kenneth Thimann or other distinguished people—and you've already got tenure, you're tenured here, and it's an opportunity for you to do whatever your heart has always said you'd like to do, okay? But assistant professors don't have that luxury. And at a certain point I said, this is really worrisome. If I actually throw myself into contributing to the undergraduate and the college experience, I'm not sure what that will mean when I come up for tenure. And if I don't get tenure, what will my credentials look like as I look for another position? At the time, that was the source of quite a bit of angst for me.

At a certain point I said, I have to move and really concentrate on just being in my discipline, and getting some disciplinary work done. The value system was characterized by the dean of science when he brought in a few of us assistant faculty members. He said to me in front of some other people, "Well, you've done too much teaching and too much advising." I said, "Okay. I think I get the message." He didn't talk about the quality of my teaching, or the character of my teaching, or the contribution of my teaching. It's just that I'd done too much of it. And the fact that he doesn't know whether I'm a good teacher or not tells me a lot, okay? Am I a good teacher? I think some students would say, this guy's kind of hard to grapple with. (laughs) Okay, you're not successful with all students. But you do do some things that you say, I hope I've changed students' minds and have enlarged the way they think about the world. You try to put some creative energy into that transformation. But there was nothing in the statement from the dean of natural sciences that suggested they would even detect it.

They had no mechanism for knowing if that was true of me. So I said, okay, his assessment of my teaching and service is equivalent to someone who's not putting much creative energy in it, and spending a whole lot of time on research.

Reti: So there was no actual data being gathered on the quality of your teaching?

Tanner: They had the student evaluations, which are—you know, they have their virtues. But they also have their great shortcomings. That's about the only thing they had. In our department, we did not have any visitation or systematic analysis. We didn't have discussions of pedagogy, per se. It was, in that sense, individualistic. But in any event, the way the dean phrased it—I said, I don't think I've done too much. I think what you're telling me is I've done too little of pursuing the research track, so it's time for me to really concentrate on that.

Early Research Pursuits

So I worked on taking advantage of an aspect of Santa Cruz. My degree was electrical engineering. My board wasn't an electrical engineering department. It was a computer and information science, or information and computer science department. I was with all these computer scientists and I'd only taken one course in computer science per se. And I was being asked to teach some courses in computer science, which means you have to learn it, right? You have to learn some things you wouldn't have necessarily learned on your own. And I really was struck by the intellectual content of something called analysis of algorithms, and thinking about how you design computational processes, in a way to make them efficient and ultimately be able to solve large problems, in a way that makes large problems feasible.

I won't try to go off on technically what it means. But problems as they scale, they can get harder and harder. The simplest scaling is when the amount of work is proportional to the size of the problem. Okay, but many problems don't scale that way. They scale more than that. The bigger the problem gets, the much harder it is. So if I throw down a thousand-piece puzzle in front of you, that's not the same as solving ten, hundred-piece puzzles, right?

Reti: Yes. Okay.

Tanner: It suddenly became a lot harder.

Reti: Right.

Tanner: So you'd have that kind of problem. Computer science tries to think: how do we solve some of these problems? Is there a fundamental limit to how efficiently you can solve the problems to make the computer run well?

So I took that mentality, from having seen the analysis of algorithms, and absorbed it. I brought it back into my electrical engineering field, and one particular branch that had intrigued me, which is called error correcting coding, codes that protect digital messages against errors in transmission. This device that we're recording on is using them, I'm sure.

Reti: I hope. (laughs)

Tanner: We hope.

Every CD that you play has lots of redundancy because it's got error correcting coding. Every Wi-Fi message you send; every cell phone call that you make now has error correcting coding on it. But they had a certain way of thinking about error correcting coding in engineering

that did not think about it in terms of analysis of algorithms. I took a mentality that had come out of my rubbing shoulders with the computer science people and brought it back into the field, and I came up with an approach for that, which is graph-based algorithms. And that is, at this point, the dominant way that it's done.

Reti: Wow, fabulous.

Tanner: Your Wi-Fi and your cellphone use the ideas that I was pioneering in the '70s.

Reti: Yes. Oh, my gosh. That's great, Michael.

Tanner: That happened, in part, because I was here at UCSC. I had support. In terms of getting grants, well, actually I wasn't as good. I would have loved to have had a little better mentoring on it because I had to kind of forge out on my own. I didn't know really how the grant process worked, so I didn't get a lot of grants. And UC Santa Cruz wasn't sending the message that that was the most important thing anyway at the time. But that allowed me, because I nonetheless had the support, to go out in this area. When I tried to get grants, at first I got some rejections because the reviewers out there from the field of coding didn't understand what I was doing. I've saved a few of the reviews: "Well, we don't know what he's doing here, but it's certainly not error correcting coding." (laughter) This is when you're pushing against the boundaries of conventional thought. You can't necessarily get funding for something that really does radically change thinking. Galileo didn't get a lot of funding, I don't think. (laughter)

In any event, that was one of the things I wanted to say. I'm indebted to Santa Cruz, and to the support in those early years that allowed me to pursue an unusual line of research, and it has had a lasting impact. So I'm pleased with that.

Impressions of the UCSC College System

Reti: Okay. I want to make sure that we talk about your life as a Cowell preceptor, because that was during this period as well.

Tanner: Sure. We can talk about it. My wife, Eileen, and I lived in what at the time was called Married Student Housing. That's where we were able to rent a place my first year here. And then I was connected with Cowell and they had these preceptor positions. I talked to Eileen and said, well, that could be kind of interesting. They've got these little apartments and you interact with the students. So we became preceptors in Parrington House. And that was a wonderful experience because you have these bright young people around. We put together activities that would make life a little more interesting for them, like going and picking apples in the hills up above Watsonville. We used to help organize some of the dances and teach the students how to dance the waltz.

Reti: Oh, what very Cowell thing to do. (laughter)

Tanner: So that was enjoyable. It was actually quite intense. There was this sense that students should interact with faculty as humans and real people, and not some abstract thing where you have to go knock on the door and get an appointment and everything. And being preceptors was really that in spades because sometimes I would be getting breakfast up at the Cowell dining hall. We had our two kids, and the students were babysitting for us. But in

some instances it got probably too intense because the students who were in my class—a lot of them were in my dorm; they were in Parrington—and it was like: do they get a chance to escape? (laughs) You know, this faculty member's around all the time. It's not that I was barking at them or anything. We had good interactions and I was able to point out phenomena of their lives that illustrated a point, like the tragedy of the commons: we had the grass out there, and I could talk about people who would cut across the grass, even when it was wet, but ultimately that damages the grass, doesn't it, right?

Reti: Yes.

Tanner: And it was very real, because we were all living that experience together. In that sense, I thought it was good. But occasionally I said, for both of us, that we probably could use a little more room sometimes. (laughs)

Reti: Not very much separation at all.

Tanner: (laughs) We were preceptors for three years. It was another interesting illustration of experimentation at UCSC. A lot of UC Santa Cruz, I think, took its inspiration from Oxford/Cambridge and it attracted people who had that notion of what the place might be, not always understanding that the student audience and the funding for Oxford/Cambridge is very different from the state of California taxpayer-based funding.

And a different mission. The top 12 and a half percent. I don't know what they would say about the students who get into Oxford/Cambridge, but I'm betting they're in the top 1 percent of the population of England. Somebody may know that better than I do, but I

suspect. They're very elite, and highly selective. We could be selective, but this is California. It's a much more populist notion of what the university's supposed to be doing.

So those too occasionally would lead to some tensions, people trying to make UCSC into Oxford when there wasn't much chance that that model could actually be made workable here. Oxford has tutors. I didn't go to Oxford, so I don't know all of how the faculty time goes there—but if you thought you were one of the Oxford faculty members here at Santa Cruz, you had far too many students you're supposed to be educating to ever really be in that high level of interaction with everybody, and get all those other things done you're supposed to do because you're a member of the University of California faculty. In many instances, Santa Cruz hoped to have it both ways. And the truth of the matter is, you can't have it both ways unless you get some brilliant insight as to how to get two different ways to mesh in a way to become compatible, at least in some measure. How can you pull that off? That theme will come back for me. Were Santa Cruz's ambitions just too much, so they, in fact, didn't recognize when their ambitions were overwhelming their capacity?

The Enrollment Crisis at UCSC in the 1970s

Reti: Well, that seems like a good place to start to talk about this building crisis of the early to mid '70s that ends up in the enrollment crisis. And then, of course, McHenry retires and Chancellor Christiansen arrives, and there's a whole chapter there of Santa Cruz wrestling with: how can we keep this semi-utopian campus from being closed down? I'm interested in

your perspectives on that period. I know you worked later with Dick Moll on the admissions system.[2]

Tanner: Santa Cruz when it first opened, and into the early '70s, was the place to go. I mean, first if all, it's gorgeous. It's one of the blessed spots on God's earth. You look out over the bay and you feel the wind going through the redwood trees and the fog coming in. Why wouldn't you just love the place? And it was trying to be this personalized and very special experience for the undergraduates. In the early years, the UCSC students, if you took the numerical indicators of how they did on their tests and their grades, they were right up there pretty close to Stanford.

But then that moment faded when there was an economic downturn. There was an oil embargo and tougher times started hitting. Suddenly the students started saying, "Well, I've got to be sure I'm going to college to improve my career prospects, not just to find myself, or to learn more about the process of thought and the history of civilization." They turned very practical, and Santa Cruz was not projecting: this is a practical campus. A great deal of what it was about was more self-exploration, and personal experience, and all sorts of things that felt good in the '60s. But suddenly in the '70s, I think UCSC lost that luster. Students were saying, "Where do I go to learn how to be *this type of professional*?"

We put our finger on it later. At a later point, we understood that Santa Cruz had been projecting itself as this wonderful first-year experience because you're going into a place

[2] Richard Moll worked as an admissions officer at Yale University, and as the director of admissions at UCSC, Bowdoin College, and Vassar College.

where you'll get more personal attention. And that led to students saying, "Well, in my first year I'll go to Santa Cruz and then when I figure out what I want to do in college, I'll transfer to someplace else." That came out in one of our surveys. We'd been so good at talking about the beauty of the place—well, you've got to go there. About the personal welcome, the transition to college, that you were going to have this personalized experience—but we were not saying, and you're going to get a career; you're going to get life skills; you're going to get a degree that will compete out in the marketplace—whichever one it is, graduate work or being hired into the private sector—and employers will look at that UCSC degree and say, we've got to hire you. That was not what we at UCSC were projecting.

As the environment turned toward more practical concerns having to do with "What kind of a job am I going to get," Santa Cruz lost its luster. We were no longer attracting the same number of students. Chancellor Sinsheimer was having to grapple with that. The fact that we didn't have grades—for large segments of the population who thought grades are the indicator that you have succeeded, they asked: "How will my offspring show that they've succeeded when they go to Santa Cruz? Well, I don't see it, so I'm going to send them someplace where they can prove that they're good." So we were caught in changing currents that made it hard for us at that point.

I'd prematurely been recruited to the Committee of Admissions and Financial Aid, and gotten introduced to this challenge. Bob Sinsheimer hired a very energetic guy, Richard Moll, to be our new admissions director. He came in and analyzed the situation and said, "Well, we're going to have to have some way of, on the student's record, communicating that this is one of our better students, without having to read thirty-six or forty written prose statements

that are often quite hard to interpret." And so, he campaigned to have a grade option at the time. That got a lot of people saying, "No, that will be the beginning of the end." In a certain sense, they were right. I mean, it is the beginning of the end. But it's not as though the narrative evaluation system was meeting the needs of the graduates. They were not. Certainly in my field, they were not, and I think in a lot of others. That's another important element. I'll come back to that.

So Dick Moll started campaigning and trying to get the faculty to see that we needed to have a grade option to make us more desirable. I don't remember how he and I met, but he and I started talking about why the admissions process for the whole UC system had some quirks. In other words, if you sat and used decision theory—(I happen to be burdened by having studied decision theory. (laughter) It's a field, decision making under uncertainty and so forth—how you can think through the process of making decisions.) If you thought, who were the students that we would want to admit and you were doing it entirely holistically, there were students who were being rejected under the UC criteria that you would have admitted, and some others that you would say, well no, I wouldn't necessarily admit them; they're not my highest choice. There were misfits. It always happens. I mean, they were using some criteria, A to F requirements at the time. (I don't know how they've changed them.) And then the student's grade point average and SAT scores. The way UC was using them was flawed.

I was talking to people in admissions. I said, "It's pretty clear if I were sitting in an admissions office, these students here would be very promising, even though they didn't fit on the UC curves. For the GPA and the SAT, the curves UC is using are not really well constructed." I

think it was through those interactions and Dick Moll saying, "We can get people to understand that Santa Cruz is a rigorous institution if we actually campaign to change the admissions criteria for the whole UC system." He had connections with the press, in particular with the *LA Times.* He knew if we wrote some stories about how the UC criteria needed to be changed, that that would get some attention. I was his resident theorist in the background. He wrote some pieces and got us in the press, and it brought attention to Santa Cruz as being a place that was interested in getting the right students in while being selective. That was, I think, helpful.

Now in that process, it ended up that the UC system changed its criteria, but it didn't change in quite the way that we had hoped. They ended up with some aftereffects that were inevitable if elements of the proposal were skipped. Dick and I didn't want a student in high school to shy away from taking an advanced placement test because he or she was not going to get graded as well, as a result of being in a class with other very hardworking students. So UC should give them some extra credit for having taken the tougher AP course. Well, that was an okay concept as far as I'm concerned, and still is, except no control was implemented over what got to be called AP by the high school and how instructors graded. It led to inflation of the AP designation and of the grading of the courses.

Reti: Oh, yeah. That skews that whole thing.

Tanner: It wasn't clear that the extra point was always going to work. Every time you do something, you've got to figure out how do you make sure it can't be gamed. I had in mind some feedback mechanisms that would keep AP points from being gamed. Those ideas didn't get incorporated into the thinking. One of those was, many graduate schools know what a

student coming from this place with that kind of grade average and these kind of recommendations, what that means, versus someone coming from another place, because they've got the experience with former students. They learn that one institution offers a more rigorous educational experience than another. The fact that one student got B's—I may be dated now—but B's in this institution, well, they're probably actually a sharper student than the one who got an A at this other institution. And Admissions should be able take that into their assessment, right?

Reti: Right.

Tanner: But to actually say, "We can learn which high school sends students who are ultimately successful in the UC system," that was a step too far because of the politics. If you said, "Actually, your students don't do well at all at UC and we're going to have to downgrade in terms of the weighting that we're giving to your students on their GPAs, because we think you've got grade inflation," for example, many districts would be very upset. That was just politically impossible, so we couldn't actually put in place some of the feedback that might have kept some of the inflationary forces in check, and kept extra AP credit from being gamed.

The criteria did get changed some. And whether or not now, in retrospect, because the reform only changed a few things, would you say it really help things a lot? I don't know. I'd have to study that question to know.

Reti: So just backtracking a little bit—we got into Sinsheimer and Moll, which is great, but before that, there was this enrollment crisis. Do you have any recollections of that? Was the campus really going to close?

Tanner: Well, I think the incident that you might be mentioning was a statement by UC President David Saxon. When David Saxon was president, in terms of the political impact—I'm not sure that he fully appreciated what he was doing at one point. As I recall, he said in a public setting, to the press, when faced with a large budget cut that was going to be handed to UC at that time, "Well, if UC were to take a cut of that magnitude, it would be effectively equivalent to closing Santa Cruz and Riverside." He made that statement, I think, for dramatic impact, to give a sense that the cuts on the table were not little tiny cuts. In his mind, the proposed cuts would be like closing our, at the time, two smallest campuses.

Reti: So this was not like he was actually planning to close these campuses.

Tanner: Not that he was actually planning to close them. But these can become self-fulfilling prophecies, right? "Didn't I read in the press about the possibility of Santa Cruz being closed this morning? Well, I can't be having my child apply to Santa Cruz." I think that was really it. I don't think anybody seriously thought UC was going to walk away from the huge investment in starting either the Riverside campus or this campus. I think that he used a rhetorical flourish to try to dramatize the magnitude of the cut that was being proposed for UC. And unfortunately, the way he put it (laughs) made Santa Cruz and Riverside look like they might be on the chopping block. That was never close to happening, as near as I can tell. Now maybe some people who were up in the upper halls of UC could say, "Well, actually we were thinking

that way," and I'm wrong about that. But I think that's where the notion the campus would closed started.

And we were having declining popularity. The enrollments were down. And something that a lot of people on the Santa Cruz campus did not appreciate is the way the state of California provides principally its funding for the University of California, and I don't think it's changed, is on the basis of enrollments. Simple as that. On the basis of enrollments. And then allocations would get refracted through some processes at the Office of the President, determining how funding would get passed down. But in terms of state funding, an underlying driver was really the enrollment. So when we started having weak enrollments, you could say, well, gee, at a certain point are you going to have a hard time just filling the seats?

But the investment is just too large. I have a hard time believing that they would say, given the almost certain population growth, the almost certain need for more education, that they would seriously say, oh, we're going to have to walk away from the investment. What were you going to do with the campus if you closed it?

Reti: I was a student here from '78 to '82. I recall some rumor about how they're going to sell it to the Mormons.

Tanner: Well, who knows? There could have been some testing of the market. Nowadays some for-profit computer boot camp would say, "We can use your facilities and we know where the money will come from to keep it going." Maybe there was something like that back

at that time. I do remember a rumor from that period. Maybe they actually dabbled with the possibility of what selling would look like.

Reti: I know you were not in leadership in the mid-'70s. But do you have any recollections of Chancellor Christiansen and his administration?

Tanner: Well, he was the person who came from Berkeley who had good credentials and was a very decent person. Well-regarded. My sense was—I was that still not quite tenured, as I recall—he just didn't know how to read the subtleties and complexities of UCSC. This campus, because it *was* an experiment, had dynamics and politics that were different from the standard UCLA or Berkeley, not that they don't have their own special politics. But this campus—with the colleges and no grading, and so on––the way the faculty would align here, the way they would think about things—was very, very different. I don't think he was ready to hop onto a different sense of mission.

A Tradition of Questioning Authority

I wasn't close enough to know how he worked. I know some of the stories about the places where he made a faux pas; he put his foot in the wrong place. But Santa Cruz, in its character, was "question authority." I don't know what the standing of that phrase is now. At a certain point, Santa Cruz was even highlighting itself as the place where you question authority.

Reti: Oh, it still is because "the original authority on questioning authority" was the campaign slogan for the fiftieth anniversary fundraising campaign.[3]

Tanner: Yeah? Okay.

Reti: So it's very much alive.

Tanner: That's right. So it was question authority. Authority sometimes very much deserves to be questioned. There are many times when authority deserves to be questioned. But if there's *no* authority, exactly how is it going to work?

Reti: (laughs) Right.

Tanner: In my view, ambiguity was created by having the boards and the divisions not really having well-defined budgetary resource control. UC does have faculty position control. I bet they still do.

Reti: Of FTEs.

Tanner: Yeah, they control faculty FTEs. I understand why it's the coin of the realm because effectively, under UC policies, a faculty position can be a very long-term commitment. They try to make sure you can't make excessive long-term commitments that would force UC to have to cut someplace else to meet the faculty commitments you made. So UC has been very

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[3] See https://www.ucsc.edu/features/original/index.html. Also see the oral history with Chancellor George Blumenthal (forthcoming 2020) and Irene Reti, Interviewer and Editor, *Telling UC Santa Cruz's Story: An Oral History with Public Affairs Director Jim Burns* (1984-2014), (Regional History Project, UCSC Library, 2016). Available in full text at: https://library.ucsc.edu/burns.

tight about their FTE control, in addition to controlling the overall operating budget and the capital budget.

And so at the time, if you wanted to get something done––exactly how do the resources flow, and where is the decision made? Do I go to the provost of my college and try to get him or her to support an idea? I mean, if you don't know, you might suspect that they have some resources. They *are* provosts. Maybe they've got some significant resources. But the magnitude of the resources that they actually had control over at the colleges was comparatively modest. It's hard for this oral history to go into the whole FTE control and how that worked in the allocation of positions—but you really couldn't get a definitive answer on something that was important up until the point that you brought those two paths together—the college and the divisions. And where do they come together? They come together at the chancellor's office. If you need to have agreement somehow, and there's disagreement, where do they come together? At the chancellor's office.

That bedeviled the hiring process, because the colleges might not be comfortable with somebody, while the board would say, "This person is great." But the colleges might say, "This person wouldn't fit into our environment." Well, trying to meet the criteria of these two systems was delicate and difficult. And then when you went to get a decision made, where is the decision definitively made? It was never clear that the decision was definitively made anyplace short of the chancellor. From my point of view, that is dysfunctional. It showed up in the '70s and it's part of why we ended up with this rap of: "Santa Cruz is ungovernable." We also had large numbers of people around who were skilled at showing their discontent. We even had a board at that time of people who were political activists, and they taught

political activism—community studies was the group, right? I know there were good people in community studies. I knew a fair number of community studies people. But their whole point was, protests from the '60s had a huge impact. Protests against the Vietnam War had an impact. And *you* can practice protests right here, (laughter) right here on your campus. You know? And so, if anything wasn't quite the way you wanted, you don't just take it lying down. You get up and you organize a protest. We had people teaching the students how to do protests. I don't object to that. In fact, in a certain sense, I'd rather have the students ready to be activists. But they've also got to understand that at some point to bring a matter to resolution. If there's no authority, a complete absence of authority, it's anarchy. And you're not going to have anyplace that's going to get supported by the state of California that's nothing but anarchy.

Reti: And UC is an incredibly hierarchical system.

Tanner: It's very hierarchical, and it's got its decision-making agents and processes. And the leaders are not interested in providing lots of funding to anarchy. You had so many protests because people learned that they were effective. At this point I couldn't go through and cite them all, but when I was still untenured, or when I was an early associate professor, I could say, "Well, they said they were going to take this action, but then there was a big protest and they backed off." Everybody learned that if you protest, if you make enough noise and cause enough trouble, you probably can get the decision reversed because the place the decision ultimately is going to be made is the chancellor.

Now that is not an effective way to run an organization. And that's one of the things that I said to myself. If I'm going to be in administration, we have to solve this problem of having

respected processes for how you make decisions, processes for airing all the different views, and people taking responsibility for making the decision, clarity as to who's making the decision and what the grounds for making a decision are. Once that happens, well, it's like our court system. You can say, I'm going to protest a decision of my local court. I'm going to go to a district court; I'm going to go to appellate court; I'm going to go to the Supreme Court. But every time you go to the next level you have to argue the decision made by people who should have been able to make a good decision was fundamentally wrong. So the probability of you getting a decision overturned is not that high. And if you've tried to have decision reversed at one level, the chances of having it reversed are much smaller at each level, all the way up. So yeah, you've got to have avenues within your processes for arguing that a local decision was flawed. But you can't have a presumption that practically any decision that's made at a local level is going to be wrong, and it can be overturned by concentrated protest at the center. And that's a lot of what would happen here on the Santa Cruz campus in the '70s, as I saw it. You raise enough of a ruckus and you get a large number of students to come down and protest something, somebody will back off––as a way of making sure that we keep peace and harmony. Well, that doesn't work. It's not a way of making decisions.

Reti: No. That's not an academic plan. (laughs)

Tanner: It's not an academic plan.

Reti:, Chancellor Sinsheimer tried to address the issue of the structural weaknesses on the campus through the reorganization plan. Were you involved in that at all? Or how did that affect you as a faculty member?

Tanner: Yeah, the reaggregation?

Reti: Well, first it was reaggregation, and then reorganization.

Tanner: Yeah, I can't remember now quite how it was phrased.

Reti: First, in reaggregation, they tried to cluster more faculty from the same board and the same college and move people around. And people had a rebellion about that. I think that might have been during the transition between Christiansen and Sinsheimer. And then Sinsheimer went into a full-on reorganize the colleges plan in 1979.

Tanner: I think he finally said, "To think that the colleges are going to have a major academic role and be able to command lots of resources is not aligned with where the academic world is in America at this point." I saw one of the original plans for this campus when it was opened. And here's the Cowell Ranch, two thousand acres. The idea was that we'd have little colleges dotted all over, I mean, kind of like the measles or something. We're going to have twenty-four colleges, each of which would have a thousand students as a way to end up with 27,500 students. What makes people think that that would be really attractive to both faculty and students? You can see it on one level. It's because of the personal connections. And the reason there was so much objection, I think, to reorganizing was the disruption of personal connections and already formed communities. If you came into me and said, "Well, you've been spending time getting to know your colleagues and interacting with colleagues in Cowell, but now we're going to put you in Crown, or we're going to put you in some other college, Kresge." Okay," I'd say, "I just got to know these Cowell people, and now I've got to start over?" The campus had deliberately created a social environment already.

The dream of remaining "small" while growing large was a false hope. For a lot of students and a lot of faculty, small is not good enough. You actually want to go big-time. You want to be part of a big enterprise. Most recognized that in the sciences you can't have a state-of-the-art MRI machine in every one of twenty-four colleges. You're going to have to have some central facilities just because of the investment required.

The same thing is also true about the character of the colleges as envisioned. What was going to be required of a student, in terms of his or her shuttling among sites across this campus to get at the key resources? Is the distinguished historian going to be teaching in the college that's up Empire Grade and you happen to be a college that's out there on the Great Meadow? How do you get students from here to there––to take advantage of that resource over there?

It's one of the fundamental things about this campus: how do you get movement to occur on a campus that has ravines, and big trees, and steep grades, because people do want to be able to get access to resources critical to a major. I mean, it's nice that you can interact with people on that smaller scale, but there are many different forces pushing me to be connected with the big action. I want to be able to see how the disciplinary experts do their work. When they are concentrating on their discipline, that's what they're all about.

Reti: Well in a sense, what comes into my head, this is a university. You want the unification of a large university, not little colleges. So the university has to be part of that.

Tanner: At this moment in 2019, many little colleges are having to consolidate or close because students are not electing to go to small, labor-intensive, and expensive places. That topic's a longer conversation. But there are many colleges that served a region well when it

wasn't possible for people to move outside that region. They really did serve a region. But as transportation improved, people started going on the internet and thinking more about the larger world. "Well, why don't I go to New York? I'm going to go someplace. I'm not bound to my region in the same way." Transportation and communication have changed the sense of place and opportunities. So the regional college that that thinks of itself serving the region, it's losing its clientele and it's not necessarily attracting new clients from other places, unless it's got something really special going on. You know, "Come here to this place in Montana because you're going to get this unique experience that you can only get here." That will attract some people from other regions. Anyway, small is beautiful, but it's also limiting.

Reti: And that's a very '70s phrase. E.F. Schumacher, right?[4]

Tanner: That's right. So I think in fact, a lot of students and certainly a lot of faculty were not going to be happy with small. It was a romantic notion that really didn't adapt to where people's mentality was as we went on.

So what we've seen here, and I think more successfully, is that we've tried to consolidate. Hopefully the students have still a personal experience where they are, and they get kinds of interactions. But the colleges are too small to be fully professional. That's a possibility in certain environments. But we're the University of California. If you have a student who's potentially a substance abuser, or suicidal, the student affairs officer in that college may not

[4] E.F. Schumacher, *Small is Beautiful: A Study of Economics as if People Mattered* (1973).

know how to handle those issues properly. The expectations of our world are that we should have a fully qualified professional available, right?

Reti: Yes, of course.

Tanner: And if we don't have a system of referring—just to pick a troubled student as one example—to get the student to someone who's highly trained as a professional in that area, at a certain point people are going to say, "You're not doing what you should be doing." Well we had a lot of people in the colleges who were good people in that small community, but the colleges didn't offer career paths for them, necessarily, that were going to lead them to being able to take on a bigger portfolio if they were capable and ambitious and hardworking. Where do you go after you've been the bursar at College X, for example? What's your next career step? Or you've been a student affairs person in this college. How do you present your credentials if you're going to try to get a job someplace else? It's not clear, right?

So I think that trying to think about how we have the whole place as part of a larger organization and everybody can see a career path within that organization, was actually very important. We needed to up the professionalism. The colleges were wonderful and personal, but they couldn't always be professional. We had to rethink how they could be organized to achieve an expected degree of professionalism.

It's the same story for the faculty, in a way. We reorganized ourselves so that we could achieve an expected level of professionalism. Now, Page Smith would probably say that's not what we were trying to do. (laughs)

The Development of the Board of Computer and Information Science, 1981-1988

Reti: So we're continuing now by talking about your role as chair of the Board of Information and Computer Science, from 1981 to 1988, and the ways in which the board was developing during that period. This now is after reorganization and under Sinsheimer.

Tanner: Right. The boards were beginning to function more like departments, in the sense that it was quite clear that the boards were the principal hiring agent. It wasn't going to be divided between the colleges and the boards. In our field, it was a fascinating time full of opportunity and also full of paradox. Computer science was the most popular new field, because the computer revolution was just dawning. The minicomputer, then the personal computer, and then laptop computer were coming along. Silicon Valley was becoming known as Silicon Valley. I can't remember when the journalist first coined that term.[5] This is where the information revolution is really taking place globally; this is the global center that was becoming known.

Our department was the representative of that revolution on this campus. We were the visible tip. Now we had lots of other people, like the astronomers, I know, who were working with research labs across the hill on charge-coupled devices, and physicists—everybody was using computation and so we had lots of people who were involved in computing. It wasn't as though the Board of Computer and Information Science was the only place. Everybody was being impacted by what you could do with computation, and new computation

[5] According to Wikipedia: "The popularization of the name is credited to Don Hoefler, who first used it in the article "Silicon Valley USA", appearing in the January 11, 1971 issue of the weekly trade newspaper *Electronic News.* The term gained widespread use in the early 1980s." https://en.wikipedia.org/wiki/Silicon_Valley

methodologies in science, for sure. Even ultimately in the humanities—initially trying to talk to people about what computers might mean in the humanities was hard: "Well, what do you mean, computing? I work on the humanities." But then along came some things like the Thesaurus Linguae Greacae, where they cataloged all of the known ancient Greek texts, and scholars in Greek texts could rapidly find text passages to bolster an argument, or challenge whatever thought.

Computing was beginning to have broader and broader impact. That was a mixed blessing for us. I was appointed chair of CIS in 1981. And within our department we had these continued tensions between the systems people, the computer systems, building systems that will serve others, and the theoreticians. We had those two wings.

But Silicon Valley was booming and anybody who had a PhD, who was hot in computer science had some nice career prospects, if you wanted to be in academia. The UC system had struggled how to deal with a field that was very popular and tied to economic impact. It's an important value for faculty that they're being treated equitably vis-à-vis other faculty. We spend a lot of time in the UC system on making sure that there is a sense of equity and fairness about who's getting what kind of advancement and what kind of pay. At one point when I was chair, I think my first or second year, I was contacted by a former fellow Stanford graduate student who'd been working over in a government environment, about possibly coming to join our faculty. I said well, okay, let's talk. So we went through the recruitment process and everything. At the end, I offered him what we could offer within our system. And he kind of (laughs) you know, at the other end of the phone, he says, "Are you serious?"

Reti: I see what you're saying.

Tanner: I said, "That's what our system is able to offer."

And he said, "Well, I couldn't begin to think about taking a job at that salary." He was going to be an assistant professor step three. And he was earning 50 percent, if not 100 percent, more than that already.

Reti: Over the hill.

Tanner: Over the hill.

Reti: In private industry.

Tanner: In his case, it was in a government setting. I just use that to show you what we were up against. We were going to have a hard time holding onto faculty. That was our great challenge. At one point, we had 500 majors and I think eight permanent faculty. The chair of the department was having to find people qualified to teach these classes. Well, from educational policy and educational quality, that is not a good position to be in.

Reti: So in 1981, there were roughly about six thousand students here? Something like that. So you're talking about almost 10 percent of the students were taking computer science classes.

Tanner: Right.

Reti: Or were majors, actually.

Tanner: Yeah. They were majors.

Reti: There were more people taking classes—

Tanner: There were even more people taking classes. But I'm talking about the majors.

Reti: Oh my God, that's huge!

Tanner: I mean, biology was always a big major, but they also had thirty-five faculty or something like that. We weren't as big a major, but we only had seven or eight permanent faculty and were not able to hire, because we had to go in and argue that we need to offer assistant professor three just to hope that we can get an early-stage person, where other UCSC faculty would say, "Well, where they are in their career, that CV's not really more than assistant professor two. And I'd say, "Well yeah, but the salary—"

So we went through this and ultimately UC made an adjustment by creating a separate scale. I've been close to universities. I was recruited as a possible administrator at a private in the 80s, and I've worked at the University of Illinois. I saw instances when there was inadequate attention paid to the question of equity, and currying favor with the right administrator might get you a raise. My sense of fairness says that's not a good way for things to go. But UC tended to be at the other extreme, which is that the pay scales were established and the recruitment and advancement processes were tightly controlled. But when you came into a dynamic market, you had no way of figuring out what to do. Can you offer one-time incentives? Well, we don't have the ability to really do that. Our start-up packages can be something like that. But this campus was not adept at knowing how to put start-up packages together. So we had a moment where we were really vulnerable. Someone who came in who had a huge amount of power in the UC system might have said, "We need to make a major investment in this area here and now and we're going to have to be able to fight against the market forces that are making it hard for us to hire faculty. And if we don't fight those forces,

and we don't succeed in hiring really great people, then we won't get great people in the future, either."

So that's where we were. One of the things I had to do as chair was to—I kept going up to my dean, who was a very good person, saying, "We need to have more positions." I think at the time it was Bill Doyle. "And we've got to have more support because otherwise, some of us who are still hanging in here are just going to say, it's time to quit." "Let me hop on that train over the hill. It seems to be moving a little faster."

Reti: Why would you stay?

Tanner: So we've got to do something here. I went in politely and deferentially: "Let me give you the arguments." Finally, I wrote a long letter explaining the danger point we were at, and the history that we had had, and how I thought we were going to be important to the future of this campus. I had to blast it out to the Committee on Planning and Budget, copying the chancellor, as I recall, and the vice chancellor, as well as the dean. And finally—here is a place where shared governance, I think was significant. Because of the Committee on Planning and Budget, my letter got some attention. They finally said, "Oh, oh. Yeah, we see." I said, "You're having an enrollment problem on this campus and we are your solution. But you're treating us like we were just some standard discipline, chugging away doing its regular business." We were not in a period of regular business. I had to take the initiative to change campus's mindset.

Reti: So what did that translate into, more allocations?

Tanner: We got a couple of additional faculty positions. And we did get some more latitude in terms of being able to make some more generous offers to faculty than we had in the past. UC as a whole was dealing with this challenge, and UC came up with an economics and computer engineering pay scale, or something like that. Once there was a different scale, it turned out that lots of mathematicians thought of themselves as computer scientists.

Reti: (laughter) Of course.

Tanner: There were many people who operated on the boundary between the two.

So we got some more, and we were able to do some hiring. But I have to say, it was a very, very tough period to keep things going and to try to maintain the momentum that we really needed to get. We were able to attract some people who saw Santa Cruz as the kind of place that they would like to be because of what they like, their values in life, and being in this environment was something worthwhile. They were devoted to education, and so they came here. Undergraduate teaching was important to them.

So we got those people. I can't remember exactly year it was, but we were able to hire David Haussler, who's still on our faculty and a member of the National Academy and has done wonderful things in bioinformatics and has been a huge asset. David really liked this campus and liked what we were trying to accomplish. It gave him opportunities and he took advantage of them. I'm sure he had many other attractive offers that he could have pursued. I haven't talked to him, but I just can say inevitably he would have had those. But he stayed, and has been a tremendous contributor. He was one of the hires that occurred in that difficult

spot. But I think it was because he was a good person for this campus. You have to hope that you can do that.

As you know, probably, there was a computer program that was planned for Santa Cruz. The dean, Francis Clauser, was hired before I came.[6] There was an engineering school that was going to start, but at that moment, Lockheed and the aerospace industry had experienced this big aerospace boom. And then it had collapsed. So there were unemployed engineers around. Well, retrospectively with hindsight, it was the perfect moment for UCSC to be investing in information, computers and all the things around that field. But because aeronautic engineering was taking a nosedive, the UC system pulled away from actually implementing the full engineering school at UCSC. If they'd been able to peer out in the future and see this wave coming, they could have said, "Let us position an engineering school for Silicon Valley, to really be able to interact with Silicon Valley."

So we were having real difficulties. I went in to see Bob Sinsheimer. The work that I was doing in coding attracted interest from some researchers at IBM Research. At the time, IBM was still in its heyday. It was at one of those moments when IBM was flourishing and they had lots of resources and top-notch people. I knew some of those IBM-connected people because of my own research connections. Some of them worked over in what was at the time called the Research Triangle in San Jose. They invited me over in 1984 to be a visiting

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[6] Francis H. Clauser was an aeronautical engineer who served as vice chancellor for academic affairs and was later named vice chancellor for science and engineering. Chancellor Dean McHenry chose him to spearhead the development of an engineering program at UCSC. Clauser also worked closely with Lick Observatory and was involved in the development of the marine sciences program. After the UC Office of the President decided to postpone the establishment of an engineering program at UCSC, Clauser left the campus in 1969 to become chair of the Division of Engineering and Applied Science at the California Institute of Technology. He died in 2013 at age 99.

research scientist for the summer. So that was great to have that connection. And I kind of went: boing, gee, the lightbulb went off. I said, "You know, here are people who are working for IBM, but they wish they had graduate students, and they wish they were academics in a certain way. And here we are at UCSC, the closest campus for them. What I need to do is to see if I can't get them to be adjunct faculty so we can put their names onto our letterhead and they can become supervisors for some of our graduate students. And then we can get over the hump that we really are struggling to cross to get our graduate program going. We have hard time attracting graduate students here when we don't have enough faculty to really develop solid programs.

I don't know. That's something, a still unresolved tension whether or not I could have done something better. I mean, earlier. I didn't have as many graduate students myself. We only had a handful of graduate students in the whole department. We had a hard time saying it would be good to attract more graduate students if we can't get more faculty. So we were in this chicken and the egg quandary. I said, okay, if I can get these people at IBM interested in linking up with us, the ones that I know, and lending their name, it will give us a huge boost. And it's something they want, anyway.

Not long after that lightbulb went off, I was invited down to some event at University House. And there was Bob Sinsheimer, who's a really bright guy, but he's not an effervescent soul. (Reti laughs) He came in and I said, "Oh, Chancellor Sinsheimer! I just had this thought that we could invite people from IBM Research, who are really top-notch people who have the credentials and would well deserve to be on the faculty here, to be adjuncts. You know, this could really give our department a boost."

He looked at me and he kind of thought for a while. Then I had to go in to the gathering. This was in the reception line. I thought, hmm. I'm quite excited about this idea, but I'm not sure that he is—(laughter)

Reti: You're not getting a lot of feedback there.

Tanner: I'm not sure that it's clicking for him. I couldn't tell. But I still thought it was a good idea. By the end of the gathering—I can't remember, it was like a luncheon for faculty or something like that—Karen Sinsheimer came over. Karen Sinsheimer, she was such a wonderful counterpoint to Bob Sinsheimer. She came by and she said, "Well, I don't know if you know it, but Bob's really excited about your idea." (laughter) I said, "Well, thank you for saying so, because I couldn't detect that he had any interest in this idea." So in any event, we did get that adjunct program going and we got more graduate students and that got us over a hump. At least in terms of graduate education, that got us going.

It was a lot of hard work to recruit people because the housing market here was already tight even then. I'm sure it's no better now. Attracting people with the UC salaries and the cost of living was kind of—you always felt like you're having to swim upstream a little bit to get it done.

But we kept the place going and I finally got it down. And somewhere in that period, I think Bill Doyle—and bless him, he was right—he said, "How about if we started computer engineering? Would you computer science people be open to our starting computer engineering?"

And I'll confess. Bill's instinct was right. It was something we needed to do. But having been chair for, at that point maybe two or three years already, and grappling with this issue and having to write letters to him and go to the Committee on Planning and Budget before anything seemed to happen, I said, "Well, Bill, so far we haven't been successful in getting the resources that we think would be reasonable for us, given our field and given its growth and given its future importance. And now you're suggesting that this faculty of eight or nine permanent faculty are going to take on another activity, which is opening computer engineering as well?" I said, "So tell me about the resources that are going to be committed to that, and how they're going to work?"

And I'll defend that question right at this moment. I mean, I can't remember how I phrased it to Bill, but if you want to build a new program, you have to show people that you are committed and you've got resources in the background for them to actually grow an exciting program. You're going to have to say, "We've got six positions in mind and this is how we're going to have those six positions, and this is the way it's going to be able to run, and you'll be able to get six, and our vision for this is twenty." Then you can get someone to come and say, okay, I'm ready, as I think Dean McHenry must have done when he was first opening the campus. He had to do that with lots of people: "We've got a vision for what's going to happen here. Here's where the resources will come."

So I pressed Bill on resources and commitments. I wasn't terribly satisfied, so I said, "Okay, I don't see that we're going to be enthusiastic about taking on another activity. We're strapped as we are."

In any event, by the time it got through, I was certainly trying very hard to help recruit the engineering, but pushed them to say, "You budget this computer engineering program independently of us. Don't try to just factor it into our current activity, because we're not content with how that approach has worked out to this point. So now you budget and secure commitments, and I'll try to make computer engineering happen." Pat Mantey came out of that recruitment. He was someone of the type I just described. He could have been on that list, someone who was in the industrial environment of IBM who had an aspiration or desire to be in a teaching institution as well. So he was a good person in terms of wanting to be in academia at some level, while being in IBM. And he had lots of connections that were heavily IBM.

I'd say they laughed at me when I brought my Mac in.

Reti: (laughs) You were a Mac guy.

Tanner: I was a Mac guy.

Reti: At that time, especially, that was very unusual, I would think.

Tanner: Yeah, it was. And one of my wonderful IBM-based colleagues said, "Why would you spend all your computing cycles drawing these pictures?" I said, "You know, in the future, the computing cycles are going to be drawing a lot of pictures. This is a way people can understand what they're doing more easily." So I said, "I'm pushing that we need to have this graphical interface, even if it does waste a lot of computing cycles." For someone of the old field, who came out of the old school, who came out of scientific computing, where you tried to figure out how to make a computer solve a big, huge set of equations very effectively— A

job I had in the mid-'60s was knowing the machine language for the Control Data Corporation 1604A computer, and my job, at four dollars an hour, was to shave microseconds off the inner loop of a big program that was running hundreds of thousands, millions of times on an inner loop. It was cheap to buy me to figure out how I could reduce by like 30 percent the time of the inner loop, because the inner loop was most of the computation. The computer was four dollars a minute, and I was four dollars an hour. (Reti laughs) So with that mentality, I understand when someone says, "Well, why are you wasting computing cycles drawing all these pictures?" (laughter)

I said, "Well, I think this is going to be really important, so I keep telling people they have to understand the graphic interface and that it's worthwhile."

Anyway, computing got a lot more momentum. Pat Mantey was hired, and hiring people into computer engineering was a statement that this campus has got bigger intentions in this arena. That certainly helped CIS. Maybe we could have been even more successful if we had seen how to make the symbiosis between CIS and computer engineering work from the very beginning. But we got computer engineering going and it's, I think, worked out well.

Reti: Were you part of the research park proposal that Chancellor Sinsheimer was putting forth toward the end of his tenure?

Tanner: Yeah, I was invited to a gathering when they had some people coming in, notably from 3M. He had in mind that we have a land resource and if we could get people to want to be in a research park here, that that would bolster the campus. It worked well for Stanford. But when you looked out across the country, you could find lots of places where they built a

research park and people didn't come. Many regions made a large investment, saying, "Okay, we'll provide the infrastructure and so forth and so on. Won't you come and locate here?" But they didn't have the full chemistry for where the follow-on investment would come from and why the industry would want to locate at a new research park. Post-hoc––you don't get to go down both paths of history––UCSC chose one path. You can't say what would have happened on the other one. But Santa Cruz, with Highway 17, has no major airport nearby, and we have not the easiest infrastructure issues in terms of water and electrical power. And, of course, anytime that you tried to develop the land, you would have had those who'd say we've got to protect the environment. It would have been quite an uphill battle, and it's not clear that it would have succeeded. But it was certainly worth thinking about at the time.

Reflections on the Narrative Evaluation System

Reti: Okay. So we are now on segment two of Michael Tanner's oral history. Today is July 9, 2019. And we're going to pick up by talking about your time as chair of the Committee on Educational Policy, and particularly the focus on NES, the Narrative Evaluation System.

Tanner: Well I became—I don't remember the succession. I'd been on the Committee on Educational Policy before, but I'd somehow been asked to be the chair of CEP, even though at the time I was chair of computer science, I guess. I have to look at my own CV to remember how that went. (laughs)

Reti: Okay.

Tanner: But that was an opportunity to exercise some of the key powers that the faculty have under shared governance. Namely, the faculty have central responsibility for the

curriculum and what gets approved as curriculum, which is I think, on the whole, a good way of characterizing that relationship. I mean, the administration should not be able to say, "Oh, you are going to teach a course on X."

Reti: Because it's part of academic freedom.

Tanner: Right. And you could see one administrator deciding to give a particular cast to a subject. So having it as a faculty responsibility, where the faculty are the ones who should be able to say, "Well, in this sphere, this is, in fact, the best way of looking at this subject now, and the best way of teaching it now."

So anyway, I got in there. And one of the issues, and I don't remember how it got raised— I may have been the person who raised it—was about the Narrative Evaluation System. It came up in a variety of ways. One is that the narrative evaluations, which required a faculty member to write a paragraph or so about every one of the students in every one of the courses, had been a "mixed success," I guess you would call it. They were a burden on the campus in terms of just maintaining the records and maintaining the privacy of those records, because they are so voluminous. When we were first doing them, they were on carbon copy, NCR forms. At one point, we had one of the structures down at the bottom of the campus loaded high with these forms. And if you needed to find one—we hadn't digitized them at that point. So we had to figure out how we would even manage this volume of evaluations.

But more important, from my point of view, was that the Narrative Evaluation System was not actually satisfying the needs of the external audiences, and I don't think the needs of the

internal audiences all that well, either. It's nice that you have an opportunity for a faculty to write something at greater length about a student. If that's something that is entirely laudatory, the student can celebrate that and enjoy the fact that he's got a faculty speaking about him or her in detail. The student doesn't like it quite so much if it's in fact critical of the student, depending on how the criticism is written.

And when I was first encountering it, you had this question of: well who are you writing an evaluation for? Theoretically, you're writing it for the student to be able to understand what your assessment was and what your reactions were to that student's work. But it's actually being used by another audience. So are you also writing this for this external audience that might be a graduate school, or a medical school, or an employer, a government employer or private employer?

Reti: Like a letter of reference.

Tanner: Yeah. Right. As opposed to a letter of reference that you might write for someone who asks you to write a letter of reference, and where you know you're expected to write something that is honest, but nonetheless will put the student in a good light because the student asked you to do that, right? So you try to be fair and equitable and balanced in how you say what you say and whatever you write for the student.

There were times in my early going where I wrote something fairly candid about a student who wasn't doing all that well. And the student came in to see me afterwards, and said, "Well, why did you write this about me," and I thought well, maybe I shouldn't have been quite so candid about that issue for the student. How do you do that? I think sometimes the students

themselves had a hard time knowing what was being said to them. So is this a professor who is constantly writing in dulcet tones, and therefore the fact that they're praising me, you know, means little— Or is this a grump, you know, and therefore the fact that he's criticizing me—how do I interpret this? You wouldn't really be able to know how to read that evaluation without some context. But people who were reading it didn't necessarily have the context of how the faculty tended to write, or overall what the class looked like.

Now, the standard grade system digests that down into this overly restrictive little A, B, C, or D, right? Or what number system you're using for grading. You're losing all sorts of richness in the characterization of what was going on in the class. But outside people very often—this is where standard grading gains its power—can say, "Well, I want to see only the students who've gotten 3.5 or better, because we're a highly selective institution." Or an employer who has the pick of the future employees. "Everybody wants to work for us." At this moment, I think Google would probably be able to be very selective as they're trying to hire people, because Google's a good place to work. So they'd say, "Oh, we only want to see your very best students." But then it raises this question of what do you mean by best?

Anyway, the Narrative Evaluation System, in my experience in computer science, I think was double-edged. If you went to an employer who would take the time to read thirty, not all thirty-six, but thirty of these things, and try to figure out what they were saying, by the time they'd finished reading, they'd gotten a feeling for the student, because there'd be some remarks that were recurrent.

Reti: Patterns.

Tanner: They would get to know the student better, and in fact, they'd feel more comfortable making an offer of admission, or an offer of employment to that student because they did feel they knew the student. But many employers in my field that were highly sought after—IBM, Hewlett-Packard, some of the successful companies of that era—I had some of them privately contact me and say, "You know, it's too bad. We know you've got some good students. We wouldn't even look at them if we didn't know that we'd gotten some good students from UCSC in the past. And that's why we take the time. But otherwise, we don't have the time to look at all this stuff. We've got students from all these top-notch universities who want to come and work for us. Why should we devote some staff time to try to decipher what you're doing here at UCSC?"

So that's what caused me to say, you know, this isn't working in my field. Maybe it works better in some other fields. But in those places where they're being passed through a great funnel, and there's a large volume coming in, and they want to winnow down to those they really want, the NES isn't working. With that in mind, I started saying, "If we don't reform this system, I think it's going to crumble." By that time, we already had optional grades. I went around saying to people, "If we don't reform this system, we're going to end up with conventional grading. And so, we really ought to take a close look at it and think about this issue of how we are serving the multiple audiences: Serving the student—can they interpret them? Can the other people interpret them? Let's see if we can't do something better before we give up." In my view, we would end up with standard grading if we did not reform the NES.

So we had many people writing about the history of grading. I think it might have been Barbara Rogoff who wrote a piece about where standard grading came from in the 19th century and what it meant. But in standard grading when you get an A student, does that mean a student who is terribly hard working? Does it mean the student is able to master a whole bunch of content and give you the correct answer to the true or false kind of questions? Is it someone who's highly creative, but may in fact be slightly flaky when it comes to getting the homework in? What kind of student are you talking about when you say, "A" student?

That all gets lumped into what is, for a faculty member, making very difficult distinctions. Which student am I calling an A student versus a B student versus a C student? Then you, of course, have got this issue of what is the standard and how do you maintain the standard. And there is grade inflation, which clearly, since I was an undergraduate, is rampant.

So the grading system doesn't really work all that well. And it does cause grade grubbing. Here I was sympathetic to some of what Page Smith would harp about. He would preach; he wrote this book, *Killing the Spirit,* with his views on it and say, "We don't want to get student thinking this way."[7] I could say, "Yeah, Page, I agree with you." I remember students coming in arguing that they want to get one extra point here because if they could get one extra point that would change this other total, and if that changed this total, then they would move from a B plus to an A minus, or a C plus to—and that's not the educational issue, right? So that's, in part, what the Narrative Evaluation System is supposed to get away from. But you can't escape the forces that are out there in the outside world. You've got to provide a record that

[7] Page Smith, *Killing the Spirit: Higher Education in America* (Viking Books, 1990).

people can know how to interpret, and can interpret hopefully fairly quickly and accurately. Reasonably, right?

So I put the N.E.S. on the table and got CEP to say yeah, we ought to look at the weaknesses of the N.E.S. I put out a proposal for multidimensional grading, which is, in fact, used in grade schools. (laughs)

Reti: What does that mean?

Tanner: Well, if you get an A, as I just said, what am I really saying about you? So I said, "Why don't we talk about how you would assess students along multiple dimensions of what we would consider to be a successful performance as a student?" A straightforward one was what I called diligence. Do you actually get the work in on time? Is it, in fact, thorough work on your topic, okay? Another one, I called scholarship. Do you read all the texts and understand them well enough that you can, in fact, characterize the main themes and respond and understand how the reagents interact and what they will produce, and so forth and so on? The third one I called synthetic or analytic creativity: someone who's got the ability to see something really quite new about a topic, and come up with a new approach, which is not always the same as a student who gets all the work in.

Reti: True enough.

Tanner: So I put it on the table, hopefully getting people to talk about how you could do multidimensional assessment. Given that we have limited time in this oral history, I'll try to be brief about it. But if you have multidimensional grading, it puts a number of important questions before the faculty members, before the students, and before the employers. As a

faculty member, pedagogically, what are you trying to accomplish? I found it interesting. When I was starting, I hadn't thought a lot about it—but what is it that you really mean when you've said you taught differential equations? What does that mean? Does that mean that they can analyze a situation that involves differential equations and write the differential equation down to represent the situation? Is it a modeling aspect? Is it the ability to manipulate the differential equation to come up with a set of solutions within a vast space of well-known approaches to how you solve this differential equation? Is it coming up with the idea that there ought to be a change to differential equations, that there is something that's missing in this, right? What is it that you're trying to do? And when you give a test, what is it that you're trying to get out of the test? And for the student, when they want to come grubbing, (laughs) "Hey, you only gave me an eight out of ten for my synthetic analytic creativity but I think this was really creative."

And you go, "Well, I don't think it was all that creative." And another student comes in, "Well, I think I was terribly diligent."

"Well, I noticed you only got half the homeworks in. Do you call that diligent? I don't." Anyway, so it allows better characterization of performance, even if you have just a few dimensions.

Why would that help with the N.E.S.? Because if an outside employer said, "We'd like to know who your best students are," you can turn around and say, "We have a computer that will run it for you. What is the property that you're looking for?" For a computer, it's a snap. If you can keep a student record that has one grade, you can keep a student record that has three. I mean, it's not like there's a data overload.

Reti: Right. So you could search for all the most creative, thinking-outside-the-box people.

Tanner: Google runs far more complicated things for you right now. The system could be computer powered with no problem. "Do you want the creative students? Well, okay, here's a bunch. Would you like an equal balance of these qualities?" And they'd say, "Oh, well, we don't know quite how you weigh them." "Well, we can give you equal weight on these and you can see who we come up with." And for a lot of students, they're going to be really excellent on all three, or not all that great on all three. But there are going to be some who are very hard working, but they don't seem to move beyond the straightforward.

Reti: I see here the melding together of some of your expertise in computers with thinking about the institution.

Tanner: Yes. So this would be pretty radical. But, in fact, if it had been adopted in the 19th century, we'd still be doing it today. And computers would not have any trouble providing the kind of rankings desired—so it's an intermediate between just one dimension and a prose statement that's very hard for you to interpret unless you know the author.

Reti: Often in the past, those prose statements were translated into one grade. That's how graduate schools would deal with them sometimes.

Tanner: Very often they would have someone do the translation to get down into something that they could process in a sort of mechanical, computational way. And, on the other side, we had faculty members—and here's where I got a little bit stiff and prickly about it—we had faculty members who would take their numerical database on the student—what they'd gotten on the midterm, and what they'd gotten on the final, and what they'd gotten on each

of the homeworks—and write a script that would turn that into a prose statement that would sound like such and such. Now I couldn't hold it against the faculty, per se, given the burden of N.E.S., but you realize what you're doing. You're masking this numerical rich set with a bunch of prose statements that sound like you knew the student better than you actually did. You can't keep track of every student in a class of a hundred if you've got a busy life and you're trying to do research and you're trying to do all sorts of other things expected at a university.

So there was a distortion of the grand principle. The grand principle you could not sustain because of the effort required of each faculty member to actually know all the students and to write all those prose statements. It was just not realistic to say that you could do that, or that that was the proper work of the faculty member to spend their very valuable time doing that. I just don't see how. It was not workable.

So I said, let's see if we can get some discussion about better workable assessments. But there were a lot of people in those days, and this was in the mid-'80s, who thought that the Narrative Evaluation System was one of the Santa Cruz pillars. For them, I was trying to attack one of the central pillars. I was on the road to perdition.

Reti: (laughs)

Tanner: It got to be quite heated. I was involved in one public sort of exchange, a debate, and I actually, in preparing for the debate, went in and grabbed out the records—which I could do just as Congress is entitled to ask for records—I don't hold it against the person who was a great advocate—but there were on the order of six evaluations that were basically

identical. And if you read one of those, you would think, if you read it in isolation, "Irene is a great student and what she wrote was probing and showed depth of her understanding on the first assignment." If you read that in isolation, it would lead you to believe that the faculty knew Irene really well. But in fact, when you read that there are about six that are the same in that context, you say no, not really. Really, all those six students were just the same? No. It was a simplification going on. So I called the person on it without actually revealing that the six were his. But he acknowledged that were his and then he had to defend them. He was very upset. He was very upset. And I would say, "Well, I just pointed out how it actually works. I think we can do better."

But it got back and forth, and back and forth, and there were people wanting to be champions and maintaining the status quo and everything else. And so eventually I said, okay, enough. Even my own committee said, "No, we've got too much resistance to even look at something new." And if you try to do something new, you'd have to go through a whole process to get it implemented. Changing the status quo is always difficult, because everybody knows the status quo. So we didn't move forward on an alternative. And as I understand it, now pretty much standard grades are what are happening, which I viewed as likely to occur.

Reti: Yes. I never knew about this path not taken, Michael. Thank you. That's really great to get on the record.

Tanner: So that was CEP. We rubbed a few people the wrong way by actually using the authorities of CEP to challenge some of the proposals that came before CEP.

Reti: That was at the time that I was working in the registrar's office with the academic editors. I remember you coming in and looking at a lot of course approval forms. And wasn't that during the period in which breadth requirements were being changed as well?

Tanner: Yes. One thing I think every university grapples with is: how do you want to characterize what you would say is the core learning experience, that you hope will have some commonality to it? In the extreme case, it's the great books, and we all read this canonical set of great books. But every university tries to figure out how do you assure a good general education. We had a series of "distribution requirements," I think was the word that was used, saying you should be taking one course in art, and one course in this—and courses got various designations. But it was very hard to say that every one of the possibilities for satisfying distribution requirements led to a good, rounded education. For example, say this course just barely got the A designation; the arts division really didn't think that it was all that much art—but this instructor brought in a little bit of art history, and therefore their course got the A designation someplace. It's almost impossible to assure quality and breadth. You don't necessarily want to try to constrain the choices. But how far do you go to try to say, yeah, we're going to have some commonality in certain kinds of experiences even across our diverse student population, and we're going to choose that commonality carefully to reflect today's world and what we think tomorrow's world will look like. But yeah, we're going to force students to not just take what they want at that moment. We're going to force them to take some courses that we think would be good for them to be exposed to.

So we went through general education and we had discussions. There was a quantitative analysis requirement, and ethnic studies requirements, and what should count, and how should we make the designations. We made some changes. At this point, I can't remember in detail how they worked.

Reti: When I was a UCSC student in the late '70s, it was very loosey-goosey. I somehow managed to take something like twenty-five environmental studies courses and have them all count for breadth requirements because environmental studies was interdisciplinary and almost everything counted as a breadth requirement. In retrospect, I think I didn't get as good an education as I should have, because no one was requiring me to go take some of these other classes.

Tanner: Well, on the positive side, some would say you were following your passion and hopefully you learned a whole lot because you were really invested in what you were learning.

Reti: Well, that's true.

Tanner: But maybe if we'd pushed you a little bit more to understand visual representation, it might have been good for you later on.

Reti: It would have been really good for me, especially because I ended up being a photographer. (laughter)

Becoming Acting Dean of Natural Sciences, 1989

Okay, well that's great. So let's move on to talking about, if you don't mind, when you became acting dean of natural sciences in 1989?

Tanner: Yeah. So the dean who had been serving stepped down. I'd been investing myself a great deal in this campus, serving on CEP, serving as chair of the CIS board, helping to get computer engineering started. Some of what I took up I had done because in my research I was publishing and trying to get people to adopt this new way, this different way of how you structure error-correcting codes. And I had one major run in getting my ideas adopted for satellite communication in the mid-'80s, but then the contract went to an existing methodology, versus my kind of novel way of doing it. At that point I was going, gee, I keep fighting on this.

And so, it was around that moment when the dean stepped down and people in the natural sciences division put my name forward as someone who might serve as acting dean. I hadn't really thought about that a whole lot, but I said okay. I talked with Robert Stevens about it and what the expectations were. I said, "Well if I'm going to do it, somehow doing it for just a year to me just puts me in a paper pusher kind of role and I can't do too much. I think I'd rather prefer to do it for two years, even though it's a certain kind of sacrifice and a further diversion from what I'm working on. But let's talk about that."

So I did take that position. And as has often been the case—I don't know in the natural sciences, maybe they were a little more patient—but often when I come into administrative positions, people are initially annoyed that I take a long time. Sometimes I would be taking a

long time because I spend more effort trying to structure the decision and making sure we've got the processes that will lead to good decisions. I could give you a "yes" or "no" quickly. But to know that I've given you the "yes" or the "no" for a good reason, and that the next case that comes up will be treated with equal consideration and the same sort of range of considerations, that takes more work. So both here and when I went to the University of Illinois, I'd say, "No, we're not getting the process right for making good decisions. We're not getting the information that's really important to making a good decision. And so, I'm going to be restructuring the process for a while before I'm able to make decisions in a certain kind of way." But the decisions would take longer if I'm in the early stages of trying to get this decision process down so that later on it can be done well and quickly.

Reti: So you're building a management structure?

Tanner: Yes, trying to build a process. Sometimes it's a management structure and sometimes you have to know what information is necessary to make a good decision on this kind of question, and people aren't actually getting it to you. You're being asked more or less, "What do you think?" (laughs) As opposed to "I've studied it; I've considered the following variables. Here are my criteria. This is why I'm making this decision."

Anyway, I came in and as always faculty positions, FTE, full time equivalents, were one of the main coins of the realm. Everybody's always clamoring for FTE. There was always an argument for why the intellectual agenda, the research agenda, or maybe the graduate student balance or whatever, needed another FTE. This board could come into you and say, "Well, now, if you understood the field of" (I'll pick biology out of the air, but it's not biology), "If you understood biology better, Acting Dean Tanner, you would see why we really need a

faculty member in this area to complete this very balanced array that we have and the quality of what we're doing." But on the campus, there was very little consideration of, yeah, and how many students are you teaching, and what kind of resources are you bringing to the campus because of these mechanisms where we get resources. Because you can't forget about that.

Ultimately, when I became vice chancellor, there were some groups that were always talking about the quality of their work. But when you actually looked at the number of students they were teaching—well, I hope you do really good quality work, because you certainly aren't teaching many students and one of our obligations is to figure out how we can teach students.

I love philosophy but the philosophers could get that way sometimes. They're happy to teach a bunch of small seminars on topics in philosophy. Well, I don't hold it against them that they like to do that. But somebody else has to be figuring out how to teach more students, because ultimately our enrollments are a key part of how the resources flow to the campus.

So we had these kinds of arguments going on in the natural sciences division. And one of the things I did in natural sciences division is to say well, what are the typical loads, and what are the numbers of ratios of faculty to students, and what are the modes of teaching in each of these disciplines that are in the natural sciences? And how do we compare if we're competing to hire another faculty member? We're not hiring someone out of mathematics to become a biologist. No, we're hiring another biologist from some other biology department. So how would we compare on the same kinds of lines that are typical in biology?

So I put that issue of teaching loads and ratios out on the table. I wrote something up and put in front of people that this is one of my considerations before I consider allocating FTE. If you're well below what certain national averages are, and you're not generating enrollments that would cause us to be getting some resources from the state, then you're going to have to have a special argument about what's happening in the future and why this is going to be critical in a way that will cause, at some future date, lots of people to want to be studying here, or a different balance. Or that in fact your discipline is so important that others should be carrying the burden of actually providing instruction to students.

Reti: Yeah, that's a hard argument to make. (laughs)

Tanner: Yeah, but you might be able to make it. I mean, implicitly it does get made that we support certain kinds of things for their inherent value. "This is one of the gems in the intellectual crown of the university and we can't be missing that gem." But it's quite easy for faculty not to think about that issue. So I pressed on that. I used graphics, and ratios, and all that stuff. And some people said, "Well, okay, that is an interesting way of looking at it. We hadn't thought about that." And of course some people grumbled about it.

On the whole, I would have to say that in the natural sciences, because of the paradigms, the sense of what it means to accomplish something in the sciences was clear. It's clearer than it is in some of the fields where you have schools of thought—is this a contribution or merely another argument being put into this great hopper of arguments? The natural science people did not get, for better or for worse, quite as pulled away from the more standard ways of approaching their fields as did, I think, some of the humanities and the social sciences.

I think, probably of the boards at that time, it was my own board that maybe had some of the most difficulty defining itself, because it was still a field that was in definition. It was only evolving into definition. You have other things that continue to always be out there. You have the mathematicians. We had some really bright ones, but they just couldn't get along. One of the mathematicians would be off doing something and others would be complaining about it. That's kind of a theme. And the biologists had their natural schisms between those who were cellular and molecular, versus ecological, organismal people. So you had all those things going on. But on the whole, I thought we had a very respectable division— It was not as well-known as it should be externally how good the sciences were. We had some really strong groups—the earth science people. We had marine science that had access to this amazing resource, almost unique. We have the Monterey Bay.

Reti: It's phenomenal.

Tanner: So anyway, we could be outstanding in a variety of fields. Internal tensions were strongest in I think math and computer science. Every place has them.

Reti: You know, it seems to me one of the great paradoxes of UCSC is that it was founded to, at least at the beginning, de-emphasize science. Not that we wouldn't have any science, but it was founded with more emphasis on the humanities and social sciences. And yet, it's the sciences that in many ways, are the highest rated departments— astronomy, marine science, earth science. I know some of that has to do with the coming of Kenneth Thimann, who brought with him many high-level, internationally known figures. So it's interesting that you bring this up, that the sciences were unappreciated. I know even when I interviewed Dave

Kliger, who came after you, he said he was going out in the community and people said, "Oh, you have science at UCSC?" It still wasn't a known fact even then.[8]

Tanner: Yeah, it was because of the way the campus projected itself with that humanities and social science perception of what we were going to do, and the small colleges. Big science and small colleges are not really all that compatible as a concept. I think that caused people to not know that we had the sciences that we had. We had very bright people in a number of areas in the social sciences, the humanities, and creative people in the arts. In some instances, I think they frittered away a lot of their energies because of their own internal divisions and they did not have a sense of how they were going to distinguish themselves. Too many internal small factions. We had interesting new thrusts, like the history of consciousness, that got national attention because it's Hayden White forming this new field.[9] We got attention in those areas.

Reti: Oh, yeah, absolutely.

Tanner: It's not like they didn't get it. But I think that through all the ambiguities and the, what should I say, many steps of evolution of the campus, the sciences knew where their magnetic field was, to use a science metaphor. (laughs) And they weren't pulled off too far by all these different experiments that sometimes worked and sometimes didn't. They

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[8] See Irene Reti, Interviewer and Editor, *Campus Provost/Executive Vice Chancellor David Kliger* (Regional History Project, UCSC Library, 2011). Available in full text at https://library.ucsc.edu/reg-hist/campus-provostexecutive-vice-chancellor-david-kliger.

[9] See Cameron Vanderscoff, Interviewer and Editor, *Hayden White: Frontiers of Consciousness at UCSC* (Regional History Project, UCSC Library, 2013). Available in full text at http://digitalcollections.ucsc.edu/cdm/ref/collection/p265101coll13/id/3849.

continued to move forward and would be seen externally as being high quality in that field. We had extraordinarily good astronomy because, in part, I think their arms were twisted to be part of this campus.

Reti: Lick Observatory.

Tanner: Lick Observatory. I knew some of the people from Lick. They said, "I don't know whether it was good that we ended up being at UC Santa Cruz." But we had excellent people in astronomy. And we had interesting physicists because we had access to SLAC [Stanford Linear Accelerator Center]. Many of the science areas you could say why we had a particular advantage. Computer science, as I've already noted, if it had been a little better positioned and more ambitious and aggressive about making contacts across the hill, it might also have taken better advantage than it has of that connection. But it has. It's not like it hasn't.

The campus did have a cultural rejection of things pragmatic. When we were about to put the engineering school, pre-computer engineering, in place and we were going through some processes, I remember people standing up in the Academic Senate to say, "Well, what would engineers bring to this campus?" I'm sitting there thinking, "Well, let's see. You're wearing clothing that's made on an engineered loom. You drove up here in something that was engineered for you. Every day that you interact, you're using engineered—so you don't think that's at all important? It's just the little substrate on which you think about high political thought. But even politics are going to be influenced by the engineering of the communication of our world. So how can you so blithely say that engineering doesn't have anything to offer to this campus?" I just thought it was frankly ridiculous. But that's where I come from.

Becoming Academic Vice Chancellor under Chancellor Karl Pister

So anyway, my acting dean year was a good year. And then along in that year there was some pressure on the vice chancellor. They said, we're going to do a recruitment for a new academic vice chancellor.

Reti: This was after Ronnie Gruhn?[10]

Tanner: Well, Ronnie was acting at that point.

Reti: Okay, Ronnie was acting. They needed a permanent.

Tanner: They needed a permanent one. I was going to say well, I'll do this acting dean for a while, and then I can get back to my coding and information. And people said, "Well, you know, Michael, if you don't put your name in for vice chancellor, you won't have any moral position for criticizing how the new vice chancellor runs things. (laughs) If you want to be critical of how the resources are handled and how the campus has been put together at this point, you really have to put your name in."

So I ended up putting my name in. It wasn't like—there are a few people, David Gardner, like when he was in the fourth grade or something, he decided he wanted to be a university administrator. (Reti laughs) I always thought, how did someone decide so early in life that they knew what they wanted to do? But for me, it wasn't like I said oh, I want to become an

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[10] Isebill "Ronnie" Gruhn was one of very few tenured women during UCSC's early days and one of the first to serve as a high-level administrator, Gruhn was the first female dean of social sciences (1981-1983) and the first female academic vice chancellor (acting) from 1987-1989. See Irene Reti, Interviewer and Editor, *Professor Isebill "Ronnie" V. Gruhn: Recollections of UCSC, 1969-2013* (Regional History Project, UCSC Library, 2013). Available in full text: https://library.ucsc.edu/reg-hist/professor-isebill-ronnie-v-gruhn-recollections-of-ucsc-1969-2013.

administrator. It was just the circumstances. I said well, this seems like a place where I can make a contribution. So that's how I got into the search.

I think Robert Stevens really was hoping to have some great figure from outside coming in, as opposed to having an internal person. But he offered the position to me and I ended up accepting it.

Reti: Right. So tell me about what it was like to be AVC under Stevens, who was a rather interesting figure. I guess we should back up and just say, very quickly, when you were talking about the pressure on the boards at this time, that we now are at a time in the campus's history, by the late eighties, when the campus is starting to grow. So there are these pressures that are mounting under Stevens. Suddenly we're a growing campus and we need more infrastructure, and we're facing all these kinds of questions. And then the budget crisis hits, too.

Town-Gown Relations

Tanner: Yes, it's well-established, probably in other oral histories, that UCSC has had town-gown relations that were often problematic. I don't know if anybody else has put it in there, but let me record my thoughts about that. I think when the city and the county were wooing UC, they probably looked at what's happened at other UC campuses. UC is a gold star employer. I mean, it's ecologically sound. You don't have to have coal plants and all sorts of things. It's a big industry. It brings a whole lot of money in to people who are working at the university and being paid by these other revenue sources. And they educate bright people and they stick around the campuses where they are, be that Berkeley or Irvine or San Diego,

and they start engaging in economic activity. And the fact that they're well-educated generally has raised the level. So if you look around any one of the UC campuses—I don't know where the Merced campus is in this regard at this point—but, for the most part, over the course of time, they've become more and more successful economically active regions. I mean, Irvine's just an amazing story, right? The Irvine Corporation, I think, knew what it was doing. They were very smart people. They knew what they were doing if they could attract a UC campus to Irvine. They owned a lot of the land around there (laughs) which suddenly started becoming very valuable.

So in any event, I think the county and the city were really eager to attract the campus, but maybe with the idea of the employment, the infusion into the local economy, and all those students coming to buy button-down, madras shirts or something, from the '60s. (laughter)

And lo and behold, two things happened. The Supreme Court lowered the voting age. It had been twenty-one. And as a result of pressures around the Vietnam War, the statement at the time was, "Well, if you're old enough to fight, you're old enough to vote."

Reti: Oh, I didn't know that.

Tanner: So there was a decision that lowered the voting age from twenty-one to eighteen. And then there were challenges that led to—and I can't remember where they occurred, whether it was national or state—but the residency requirements got dropped. So at a certain point, before you could vote in the local election, you had to live there for at least a year or two years, sometimes. I'm not an expert in that. And they said, well, that's disenfranchising too many people, because we have a highly mobile society and people come

and they only live one place for a year. And if you have one-year residency requirement, they're never voting. I mean, you can think what you might do to try to fix that. And so long as you've been living in the state of California, you should be able to vote for senator, shouldn't you? Even if you lived multiple places. But that's very confusing, and it's very complicated to try to do that.

But they changed the residency requirement and suddenly, all these students up on the campus became voters that could be registered. That immediately changed the politics. The campus that was so beautiful attracted students who really loved the environment, and it had a lot of faculty that loved the environment. And lo and behold, they ended up voting environmentalist down in the town, to the consternation of, I think, of the old agriculture and other business interests. They became a very powerful bloc in terms of how they were voting up on the campus. I think that is the paradox. It's a reflection in the mirror in the politics of the city, and the city fighting the campus about any of its growth. The UC system said we need to serve the whole state and we're anticipating a campus—I think in the early plan was maybe 28,000—

Reti: Twenty-seven thousand, five hundred.

Tanner: Okay. And then suddenly in the town/gown relations, they're saying, "Well, no, we don't have the resources. We don't have the infrastructure. You should be capping your growth at something much, much smaller."

So as Stevens came in, he was having to deal with a lot of that tension. And he had the legacy of the colleges and how they were working. That hadn't all been ironed out. Though I liked

him personally and on lots of levels, I don't think he really had enough depth of background and diversity of background, nor maybe the instinct nor patience to read this campus well. The UC system has this secret process by which they appoint chancellors. The person doesn't get to know the campus, or the campus to know the person. There are reasons why that is reasonable in a sense, in as much as you won't get candidates to enter a pool if they're going to be exposed. If you have someone who's in a visible position, maybe a sitting president, will that person put their name in if their name is going to become known? Then they have to go back and apologize to everybody on their own campus when they don't get the job. So having a secret process has got a certain kind of rationale.

Reti: Do other university systems have a secret process for their recruitments?

Tanner: Well, some certainly wait till they're down to a very small number of candidates, and then they ask the candidates if they're willing to be revealed, and if they're not, then they don't get to go forward. So that's another thing, as opposed to down to only one and you're appointed before there's anything public. Some of them, I think try to do it by having a small number of candidates who become public. But up until that point, they try to keep it secret so that people will apply. And at least they've got a serious chance, and they're willing to take a chance before their name is known and potentially their loyalty to their own home institution at that moment is going to be called into question.

I actually heard David Gardner—one time when I was meeting up in Oakland with Robert Stevens and David Gardner—kind of tick through why he thought that Robert Stevens was ideal for this campus: because he'd been at a small campus; he'd been at a big research

institution. But I don't think Gardner necessarily had the complete list of what exposure he might want.

Robert Stevens, though I think his graduate school was here in the United States, he'd come up through the English system and had a certain sense of the status that accrued when you reach a certain level of success. He'd been at private universities, where you're not subject to the same kind of scrutiny, and every single move could be brought out onto the table. So he tended to go on his judgment, and to move fairly quickly. Okay. But a lot of times he moved before he understood it was not solid ground to be stepping on. So there was that kind of thing, a tendency to want to move quickly. He was going to really get in there and not recognize that he was walking into a morass of problems by trying to move too quickly on some of these issues before he understood where the points of contention were.

So even before I came in, he'd already gotten himself some antagonists out there by the way he tried to approach things. I don't think that any of his intentions were bad. But it was much more complicated with all the stuff about the colleges and everything else. And he was looking to appoint people, hoping that he would get the stellar leader, whatever. But from my point of view, he didn't understand the structural problems. You can bring in good people, but if they don't have the authority and you don't have the structure for them to be able to make improvements, all you can hope is that they will identify that fact and somehow work with you to get it fixed. That was a real issue on the campus, that the authorities were not vested at the right level in the right people on numbers of issues. The deans of the divisions didn't have the authorities they should have. They didn't have the responsibilities they should have.

Reti: What would be an example of that?

Tanner: Well, the amount of budgetary latitude that they had, and how they would actually get new resources. I may be misreading it or mis-recalling it because it's been thirty years, almost, now—

Reti: I know, it's a long time ago.

Tanner: But the real resources were still being held too close to the center. If you don't move the resources out that are appropriate for the activity— Now you've got to have the mechanisms for being able to shift things around and to recognize that this activity over here has got this base of resources, but no, it's not the future and they've got problems and you can't squander resources there. So you've got to have mechanisms for being able to move them. But in the daily running of an institution that's running well, a great deal of the decision making has to be quite close to the action.

Reti: This is so ironic to me. (Tanner laughs) Santa Cruz was founded on the ideals of decentralization of the colleges, but then you had a very strong central figure in McHenry. It seems like perhaps—and this was before your time, in a sense, although you came at the end of the McHenry era—McHenry was such a strong leader and it was a very small campus, so he could make all these decisions centrally. But then after he left, we were left with this structure that was very centralized, even though we were a very decentralized campus.

Tanner: Well, that's right. I would agree with you. We talked about how we'd have these decentralized little communities that would have their own integrity and their own sense of themselves, their own local cultures. I never worked hard to try to understand Dean

McHenry and where he came from. I did get a little insight because I had a lunch with Karl Pister, who invited Clark Kerr and Dean McHenry, so we got a little bit of interaction to see what he thought about himself. My sense is that Dean McHenry really enjoyed being the thumbs up/thumbs down decision maker. And if that's in the back of his mind, unfortunately that went along with him ultimately being the decision point. And then at a certain point, when you have a thousand people with pointed spears coming at you to ask you to make a decision, you can't handle it anymore. That's the problem with having too much that gravitates toward the middle. Or, as I said earlier, there're not mechanisms for making appropriate decisions at an appropriate level and sticking with it, unless there's really something egregious that can be pointed out.

So we had too much that was coming into the chancellor's office. Robert Stevens didn't really understand that that was a problem. See, if you devolve resources down, you run the risk of creating a hierarchy in having all those things gravitate toward the resources. So if the resources for all the people who have the title "science" on them or "engineering" come down via this dean, then that's what helps create the barriers so that you don't get interdisciplinary work going across the boundaries. I think in their early thinking they thought, well, all these resources will come. But then, well, who's up there making the final decision on this critical issue, right? If you want to have the best of both worlds, you have to think more creatively about how you're going to do it. Lots of places do do it by having an infusion that is targeted between two spheres, and not having it all within this sphere or that sphere. But on day-to-day operation, it has to be pretty local. You're going to waste a great deal of time gnashing teeth if you don't have that clear as to what the real decisions are and why you're making them. Now the vision is to explain to people who are going to have to make decentralized

decisions why they should be thinking in a certain way, what the bigger picture is that they should be fitting into as they make those decisions.

Reti: Ah, right. So they're not just in their little fiefdom.

Tanner: They're not just saying, "Well, me, by the way I see it, I would like to do this." No, no, no, you've got to be constantly reminding them, "You're getting responsibility for doing this, but the responsibility includes hewing to a sense of where this campus as a whole is going. If you're not doing that, you're not going to last long in this position." If you can impart that sense of what the campus as a whole needs, then you could hope to have people making smart decisions when they know what's going on. I mean, people could come into me as vice chancellor—this happened at my next campus—everyone would want to come in to the person up at the top and see if they couldn't persuade you to give them some special support, because they know you don't have the time to analyze whether or not they're just selling you a great story and actually there's not much behind it. You don't know the field well enough. You hope that you can have people who put together really great proposals for the level of the campus, and those come to the top. And you're going to make some big decisions about why you're going to open up a new activity of significant magnitude. But not on little small stuff. So that was a problem. I, at one point, said, "With the dean, we've got the Groucho Marx paradox." The Groucho Marx joke is, I wouldn't want to be a member of any club that would have me as a member. My version was, "I wouldn't want any dean who actually would accept the deanship as it's constructed."

Reti: Right. (laughs)

Tanner: You know, if the person hasn't done enough administration to figure out why they don't have a set of authorities that will allow them to really do something well, then why are we hiring that person? I think in a few instances, we had well-intentioned people, but they hadn't analyzed the problems that were being encountered with resources. So if the campus was going to grow from where we were when I was vice chancellor—where were we, 12,000, 15,000 students, somewhere in that zone—if we were going to grow to 25,000 eventually we had to shed that and hopefully maintain some of the initial inspiration about how we will back these interdisciplinary things, or what kinds of experiments we were willing to try. We'll take a gamble on doing something that's a little different from the way the rest of the world does it, but you can't do it all the time.

Karl Pister and I were both engineers. This is kind of ironic, that you ended up with two engineers on this campus that had started off as being social science and humanities.

Reti: Another paradox.

Tanner: We were trying very hard to think about where the campus could go and how we could make it successful. Karl Pister one time talked to me about how engineering really shouldn't be a four-year degree because what you need to become a well-rounded engineer for the modern circumstance is bigger than that. So maybe we should have a five-year degree. I said, "Well, I think that's a wonderful idea, and I hope MIT or Berkeley picks up on it. But for us to try to pick up on that, the outside world will not understand what we're doing. We do not have the stature in engineering for us to—I mean, if we're going to do that, we'd better think really long and hard how we're going to communicate to the world what our engineering degree is going to be and why students should be spending five years to get their

initial degree, or how this is going to work." You're trying to step out of what habit is. Great. But you've got to have some momentum to be able to do that, and you've got to know how you've designed it so that it's going to be successful in a variety of ways. It's not just like oh, this is a good idea; it's got to be a good idea that you've thought through all the implications of—I mean a large number of implications—and handled the problems that will come up by trying to be different. Just trying to be different, you'll have to face some challenges. So if we're going to do it, grapple with it. I don't think that Santa Cruz was really the right place to do that. We didn't ever pursue that. But I just thought I'd give you that as an example.

Reti: That's interesting though, yeah.

Tanner: So where were we? So when I came in, I said we've got too many protests, coming down to the old habit of "go protest any decision down at the chancellor's office." No, we're going to be putting a lot of resources out, and I'm hopefully going to be getting deans who understand that they've got a responsibility. They're going to have to take some of the heat for decisions because that's what their job is. If they try passing it up to me, I'm going to push it right back down because I'm not here to make all those little decisions. And that's what we're going to need if we're going to be able to grow bigger. Vice chancellors should be thinking about these bigger initiatives, bridge across things, and new things that aren't even on the map now, possibly. New disciplines. Not little things about the number of FTE that go into this little thing or that little thing in small detail. That's not where it is.

That showed up. The fact that we were still thinking about a campus that was too small showed up in budgetary matters when I got into the administration level. We had budget meetings where we'd have the budget officer who would go on more than they probably

should have about the budget details. We'd have meetings of the chancellor's cabinet, a lot of very senior people. And they said, "Well, what do you think about giving five thousand dollars to the Women's Center?" You know, here you have the top leadership of the campus. Is this a political issue that we have to—you know––Tell me if there's a political issue I'm not seeing about this five thousand dollars. But in terms of the amount of money, this was a campus that's running at, what, 125 million dollars a year. And where's five thousand in that? It's way down there. The chancellor's cabinet shouldn't be quite the place where that five thousand will be decided. It wasn't just that five thousand. I use that as an example. I remember there was something about the Women's Center, rehabilitating it.

Reti: Oh, that was probably after the earthquake, would be my guess.

Tanner: I don't remember. Anyway, we were spending too much of our energies on things of the wrong scale, on things of the wrong heft. And therefore being distracted from thinking about the stuff that you needed to think about for the big picture of the campus.

Reti: Stevens, from things I've heard from other people in oral histories, wasn't doing too well and he decided to resign. There were those who say it was your leadership that kept things going as well as they did. I don't know if you agree with that assessment or not.

Tanner: Well, I think he was doing things, as I said, a little bit impulsively and sporadically. I think he made some missteps. He made missteps politically in the way he was handling a number of things. I came in and tried to create a process for how we made decisions, and for how we thought about where we were that would stabilize and give people—okay, if I go through this and provide the right evidence and so forth, then my argument will get well

heard. I may not be happy with the outcome, but at least I'll know that it got a good hearing. Stevens was more likely to do something that would be—oh, yeah, that sounds like a good idea—and go for it. But then he'd get himself into all sorts of bramble thickets and feeling the pain. I could work with him. And sometimes you need complementary. I said, "Let's see if we can think carefully and plan and balance all these things out." And here's a person who's full of this initiative or that initiative and kind of reacting. There were just a couple of times where I had to push hard back because I began to feel that he was wanting to trade off of my integrity as a way of covering some places where he'd been playing a little fast and loose. And at that point I'm going, "No, no, no, I'm not in that one. That's yours." So that's where we got a few frictions. You know, it's interesting. If you looked at the UC system at that time, how did the president of the UC system actually learn about a campus? You've got this vast UC enterprise, including the national labs. They're up to 15 billion dollars a year or something. This is a vast enterprise. And you've got ten campuses, each of which has its own thing. And you're just one person who's the president. Now how do you learn about it? Well, you can learn about it in part because a vice president for administration maybe gets readings. David Gardner, my sense was he just listened to his chancellors. He had great faith that he had appointed people who were well-qualified to be chancellors. Well, it wasn't true that that was adequate. I mean, you can't have all sorts of people clamoring in; UCSC is famous for the revelations of the cabal that went up to try to talk to the president and so forth and so on.

Reti: Right. (laughs) More than one time.

Tanner: Okay. You can't entertain too much of that. But at the same time, you've got to have some systematic ways for getting information, and for not allowing end runs. But at least so

that at the top, you're getting information and you know if something's not working quite right. When things weren't going well with Robert Stevens and from the set of interactions that I had with David Gardner, I didn't get much sense that he had a good way of knowing what was really going on on this campus. He relied pretty much on his chancellors to tell him what the story was.

Reti: Hmm. Interesting.

Tanner: As I say, you can't allow yourself to get into end runs where you're overriding, Gardner should not be stepping in and somehow dealing with me and giving me certain kinds of authorities that undermine the chancellor. But he might, nonetheless, be interested in hearing a little bit, just hearing a perspective from the vice chancellor. There was never an avenue for that actually to happen. I don't remember all the details of why things got really very difficult for Robert Stevens. I think he had a sense, perhaps coming from being English, where by the time you reach a stature, people recognize the stature and they bow. He came here and didn't realize this is a hyper-democratic place (Reti laughs) and the nobility of being a chancellor is not going to carry the day here very much. You can't just say okay, people will give me lots of room to maneuver because I'm the chancellor and they all know chancellors have to be able to maneuver. No, not at Santa Cruz. It took him too long to figure out that he couldn't operate that way.

Reti: Okay. So then we transition to Karl Pister coming in, first as acting chancellor, and then eventually as chancellor for a few years. Under Pister they re-visioned that position from academic vice chancellor to executive vice chancellor, right?

Tanner: Sure.

Reti: So can you talk about that changing of the role, what that meant?

Tanner: Yeah, it has to do with scale, in part. So if you think about a really small campus, suppose you have a campus that has a thousand students. If you have a chancellor and a vice chancellor for administration, a vice chancellor for academic affairs, vice chancellor for student affairs, and they all have to earn good salaries because they're vice chancellors, pretty soon you say, "Oh, this is a pretty top-heavy ship. It's about to tilt and go under." (laughter) So in a smaller institution, you expect to have a sort of merger, and the chancellor will carry more. The bigger it gets, the more the chancellor really has to be able to delegate a lot of the thought process down, not that the chancellor doesn't ultimately have the authority and the decision-making responsibilities. So anytime I made a decision, the chancellor could interrogate me as to why and to see whether or not he was going to agree. And if he didn't agree, let's disagree right now and work through it. But otherwise, then I can make life easy for the chancellor if he says, no, Michael Tanner understands how I think about these things and he can, in fact, do these things, and I can have good confidence that what he's doing is what I would do in his shoes, right?

So we went through a process. And Karl, of course, has got an approach, a way of thinking about things that comes out of his engineering background. He and I were very compatible in that we liked to work things through. So at a certain point, he knew that he wanted to free up more of his time. In a big institution, the chancellor has to be spending a great deal of their time outward-facing. They have to be interacting with the constituencies; they have to be interacting upwards with the state government. They have to go out and cultivate

relationships with other institutions where we need to work symbiotically. And they kind of hope, except for big decisions, that the campus can move forward and do lots of wonderful things without the daily intervention or involvement of the chancellor on every detail. Just keep to the big picture. So that was kind of what happened.

Reti: I see.

Tanner: I think it was furthered—when I came in as academic vice chancellor, the budget office was actually under Vice Chancellor for Administration Wendell Brase. A lot of people have this attitude that budget is a technical thing. It's complicated, and involves decimal points and zeroes. You know, somebody can take care of that stuff.

Reti: (laughs) Right.

Tanner: Well, I'm coming out of a numerical kind of background, and that's not the way I look at it. You are making key decisions about what's going to happen and what won't happen over the course of time by how you're designing the budget and how the budget is responsive to dynamic changes. It's not a static object. The way the budget was being run—it was sort of, we have a static budget and then every year there will be a little augmentation, and we'll have some discussion about whose little budget goes up and who's not. I said, "Well, no, I think we need to think more deeply about how we model the budget and why the budget should be the way it is. What is requiring us to have growth in this area?" This is particularly important when you've got a growing campus. It's not a static campus, where you say oh, we're going to have to augment this. How should the growth be occurring? Should the budget be shifting? Should we be spending more on our transportation issue or less in the future?

Where are we trying to go here? Do we want to be the best transportation campus, or have the most beautiful buildings? But then if we have the most beautiful buildings and we don't have faculty in them, it's not going to work out well, right? So you have to say, well, given the resources that we have, do we think we're putting them behind what we really value?

Reti: So it becomes an exercise in planning and vision.

Tanner: Right. And analyzing what causes you to have costs. Why are you incurring these costs? Do you need to incur those costs? Will they grow in the future because you want them to grow in the future? Yeah, we're happy to see growth here because it's growing in this way. That's why we're already set to provide budgetary growth in that area with the budgetary growth that we will get because of the activity that's leading us to have more resources.

That kind of thinking wasn't worked out at all. The budget office was under the vice chancellor of administration and the budget officer knew who he was working for. (laughs) The budget officer knew that he was working for the vice chancellor for the administration. And the way he would massage, work out the accounts, somehow tended to work out okay for the vice chancellor for administration, but not always so well for the people who weren't in that wing. I mean, that's what I finally got it down to. It's not malice or anything like that, it's just people being responsive to the natural cues that they get in the world. Wendell Brase said, "Think of my budget officer as being your budget officer and if you need to know something about the budget, just ask."

I said, "Well, that's not quite good enough for me." So I hired a man named Richard Jensen, who is very experienced, and had been at Santa Barbara. He'd been active in all sorts of things

down there so he really knew how a UC campus worked. I said, "Okay, we have to have an understanding of our budget here in the academic wing, at least, so that we know how it's really working and where the money's coming and where it's going. And we aren't accepting some of the stuff." Some of the mechanisms that had been used by the budget office—if you got into them, as I would as an analytic engineer, they were kind of misguided. They were not from, again, any evil intention. But they were setting up things where they were fooling themselves about what was really going on. I said, "No, no, we've got to make sure how those resources are going, and we're not going to have some area that is getting resources without our actively knowing why it's getting those resources." So it was a big effort.

And then when Karl Pister came in, he said, "No, now I've got a formal budget office under administration, and now I've got the academic vice chancellor who has something to do with budgetary authority. I'm going to put the budget into an office that goes directly to the chancellor, so that if we're having discussions about the budget, we should be able to put it right out there. It's going to be a much more open process among those in the higher level of administration for why the budgets are where they are." I was perfectly happy with that.

Reti: That makes good sense. And I can't get a clear answer out of anybody on this one: did UCSC have an academic plan in the '80s and '90s?

Tanner: Well, it depends on—I'm trying to remember what documents would have constituted an academic plan. We had numbers of documents that constituted aspirations. (laughs) We had lots of documents that said: here's a vision for where we would like to be. But if by "academic plan" you say we have to make some tough choices, and we're going to occasionally have to do some kinds of compromising, and other times we're going to have

some people who are upset because what they're most interested in is not going to be put forward, I don't think we ever had something that really articulated that as well as we might.

It's a challenge. I encountered this in my Illinois context as well. When you've got a huge amount of resource uncertainty, what do you mean by an academic plan? If I provide a plan for a building, it assumes that I think I'm going to have the resources to pour the concrete for that building. I somehow think I've sequestered, gathered the funding to be able to buy all the materials that go into this. And by telling you it's my plan, I intend to actually carry out the plan and build this building. That gives it sort of a sense of determinism that you're going to do it.

Reti: Yes.

Tanner: We were facing all these budget cuts. And at the time, you kind of say, well, can we really tell people, and later lead to them having a sense of disappointment, that our academic plan was that we were going to grow this area, say, environmental toxicology, if we know that we won't be able to sustain it? So the uncertainty about what was happening in the budget made it really hard for me to feel comfortable about saying we're going to put out something we call a plan, certainly something that tries to put on course a certain resource flow, unless we had contingencies about what happens when the resources don't flow the way we thought they were going to flow. Now we could talk about what we were missing. We could talk about where we would like to be and kind of get that down.

And I think we had at the time documents that did do that. Everybody had an opportunity to put in their aspirations. But I don't think we did as thorough an overall plan. Maybe it would

have been a good exercise to try to do it, but I would have had to put in these caveats: Don't think that this means that we're going to be able to build the building as you're envisioning it here, because we don't know for sure. We just have to know where, if we get the resources, where we would want to put it.

Reti: Yes. That's really helpful, to understand what was behind that—the resource uncertainly in particular. From some of my conversations recently with George Blumenthal in his oral history, which is in process right now we talked about more recently he spearheaded an effort for rebenching. At the time you were working with this budget, we were really under resourced because we had started out as an undergraduate-focused campus when graduate students were funded at a higher rate, and that made us fall behind.

Tanner: Yeah, when I came in, I tried to get us to press on this issue that, actually, UC got resources on the basis of overall enrollments, graduate and undergraduate. The UC system would pass it through its prism. And it was 3.5 effective to one; counted weight of one was the freshman. I think it was 1.5 for upper-division students, 2.5 for first level, first two years of graduate, and 3.5 for graduate beyond that. They allocated out according to this weighting scheme.

Reti: The weighted formula.

Tanner: They had a formula that they were using. I said, "Well that sort of builds in a certain expectation. And if we're a campus that is going to be getting undergraduates heavily, with a very small graduate program, that means we're getting at 1 and 1.5, whereas Berkeley and the others are going to be getting 2.5 and 3.5, particularly master's programs. There's some

areas, like in engineering, where there are big master's programs and they can actually be run at not that great expense. It's like MBAs, which are now falling out of favor, because there's way too many produced. But they were not that expensive to do certain kinds of MBA programs, so people were doing them.

Well, anyway. We weren't going to be in good resource shape. That was one of the places where I kept knocking on the door, from my position as vice chancellor. We've got to see if we can't get them to reassess this, because if we don't reassess this, then our future is heavily constrained by this. Everybody on the campus, I think, is eventually going to have to understand this. We all have these dreams and wishes, and we look up enviously at what Berkeley can do, but we won't be able to do that because right now, our funding base is way out of line based on that weighted formula.

I had a nice talk with George Blumenthal about a year ago and he said that he did persuade them to rethink that. I say congratulations, George, if he finally did that. I was trying to figure out how can we get us to not be shackled by that. It works against this campus to have that kind of weighted formula applied to us.

The campus got special dispensation in the early years because it was a growing campus. People got those extra resources and they thought we could put them into having more personal interaction between faculty and students. For the UC system, according to their formulas, we were getting richer resources than those weighted formulas would have told you. They were giving us extra money. In their thinking it was because we were a growing campus and we had to make some forward investments to get out there and build. But for a lot on the campus, I think they thought oh, that allows us to have these personal interactions

and a richer student/faculty ratio. Well, the richer student/faculty ratio was not built into 1.5 and 1, you know? (laughs) It's not there. We weren't understanding how the resources were coming. So when I was in the vice chancellor position, I wrote this document about managing faculty resources. And it laid out: we get the resources in this way and we're going to have to think about how we do manage our resources. Some people on the campus viewed the very concept of managing those resources as somehow a little offensive. The very framework of managing them was something they objected to. You know, "Where's your heart? Where's your soul? Aren't you investing in your soul?" I said "Well, I'd love to invest in my soul, but we're getting money according to this weighted formula and I can't generate new money at my level. I don't have that capability. Now if you go out and raise funds yourself, you might be able to, if you can get some endowment, then we can get some more funding going on here. But otherwise, we're going to have to figure out how we deal with the resources that we're actually going to be getting. And that means we have to think through where they're going."

Reti: Okay. So I still get left with this question of how is it that Dean McHenry and Clark Kerr, who had spent years in the UC system combined—Clark Kerr being president of the university and Dean McHenry having been at UCLA and having been in administration at UCOP with Clark Kerr—how could they think that UCSC was going to be an exception to this rule? I just don't understand how that happened. I know this is before your time, but I wondered if you had any reflections on that.

Tanner: Well, I'd have just conjecture. When they started San Diego, they said this is going to be UC campus and we're going heavily into graduate programs. Okay. I think Dean

McHenry—I disagree with Dean if this was his position—but he thought somehow that you could do this college system with this dual identity and be heavily undergraduate-focused more cheaply, that it would be less expensive. Well, I don't think so. Nobody ran the numbers, as we might say. You've got to sit down and think through how the resources are actually coming to you and what that means. You could do it and you could think that it might be possible, if in fact the hiring pattern distorts your funding base. So in particular, and this is again where, like once the bone has grown and it's ossified in this position, you're pretty stuck with whatever happened.

Reti: (laughs) Right.

Tanner: They hired a lot of very high-status, high-visibility, exceptional people down in San Diego––at big salaries. Per FTE, they were paying a whole lot more there than here. Here, they hired a number of really distinguished people—Ken Norris, Ken Thimann. But then they hired a whole lot of assistant professors. They were missing the mid ground. So per FTE, we were less expensive, so long as it's assistant professor, versus full professor step six. If you go back to how the salary funding got distributed in UC system, that is imprinted for a long time to come. In effect, you've got a smaller budget. Your average FTE cost is much smaller and that was somehow I think where they thought that they could have some economies. But it doesn't really work. It doesn't really work, in my view. San Diego started off with a much more funding per FTE going in. So when one of those positions came up, they had a lot more money available in their budget to be able to make the next FTE and go to a higher level. And if they really had to, they might have been able to split one and go into two. Anyway, it's a whole set of things that are involved in analyzing that.

Reti: Thank you. That's very helpful.

Okay. So some of the other issues under Pister, in your notes for the oral history you were talking about a death threat, about something?

Tanner: Oh, we had, you can look back and kind of—

Reti: Yeah. The Trojan horse demonstration, class project—

Tanner: Well, one of the things we had to deal with is getting past this history of success at protesting at McHenry Library. They don't protest here anymore, do they?

Reti: No, because they moved the chancellor's office to Kerr Hall. We do occasionally still get protests in the library, but rarely.

Tanner: Well, we had all these protests. It became part of the culture and part of the habit. So there was one protest that came down where I go, "What in heaven's name? Where is this protest coming from? I was wandering through and the students there were carrying some brightly colored signs. But they didn't have the fur up for this particular protest. I recognized one of the students that had been a school friend of my daughter. Her name was Erin. I said, "Erin, what are you protesting about?" I finally got out of her, this is a class project.

Reti: Oh! (laughter)

Tanner: They were learning how to protest. They picked some issue and they were coming down to do a protest at the library. That just shows you, how shall I say, how picturesque this protest stuff can be.

But it was also pretty fierce. When we started getting the budget cuts in the early '90s, we had to cut, I think it was like 12 percent of our state budget. That's not easy and there are a lot of people who are counting on that funding. If it was not there, you're going to have rapid attrition. You may have to close activities. People are going to be losing jobs. You hope we don't have to do too much of that, but that's the way it goes.

Anyway, when we started getting into that, like one time when it was known the budget was going to be cut, I had a protest about how I'd cut the Rape Prevention Program. They were protesting that. Well, I hadn't cut the Rape Prevention whatsoever. We hadn't even gotten into discussions of what might be on the table. This was a preemptory protest. The person who was running that center had told the students that what they should be doing now was going and protesting any cuts to this budget.

There was one protest—and with a little sense of irony, of course—where the protest got pretty nasty. It was about ethnic studies and it got combined a little bit with LGBT issues. It was in the library. The students were—however they'd arrived at it—they were quite worked up. They were emotionally involved in this thing. And I dealt with the protest. They were protesting me.

Reti: Why were they protesting you?

Tanner: Well, it's because of something that was happening. I don't even remember now what it was. It's hard to remember. That's a long time ago now. It could have been on sort of misleading information being given out about what was actually happening, which you always have to deal with if you're in administration. You constantly have to be sure that

you're getting out the best information you can because otherwise these rumors about fears are running wild.

But anyway, they were protesting, so I went out and faced the protest. And as it happened, Robert Stevens had been away. He was up at San Francisco. He didn't come down to the campus. Now that was okay with me. But he didn't come down to the campus throughout this protest. I said, okay, well, I'm dealing with this protest. And we're making progress because they're not protesting to the chancellor, they're protesting to the vice chancellor. So my program of trying to get away from centralization is making progress. When you start protesting at the deans, okay, we'll have made another bit of progress.

But some of those got really, pretty bad. And unfortunately, I'm sort of, what should I say, an innocent engineering person who likes to think reason and logic and approaching something calmly is usually the way that you end up in the best spot. The students would get whipped up somehow. I don't know where all it came from. Some of the stuff, I knew where it came from. I knew where it was. But we had a very nasty protest and that spreads. What happens is it starts getting vicious statements being made out there. We've got some of this going on at the national level right now.

And this is where I really saw it myself. You know, I didn't think my life would be full of this. I thought I was going to be an inventor. (laughs) And they get out and turn to—I hate to call it a mob mentality—but there is the way that you can spread the ill will if you start getting people angry and if you get a whole lot of people upset. So somehow something got going and you had a whole lot of really angry vibes out there aimed at me and Karl Pister. In the context of one of those, one of them turned quite ugly. I later said, "Well, maybe could have

done something better in how I handled that." But anyway, one of these protests got really ugly and it kind of spread around the campus, and there was lots of ill will. And some guy, I think it was one of the students, actually phoned in a death threat against me and Karl Pister. Whoa, this is not what I thought I was bargaining for when I went into the academic life. The police came and said, did I want to hear the recording. Karl Pister declined. I said, "No, I want to hear it, because I want to recognize the voice and I want to hear whether I think it's serious or not." So I listened to the voice and I said, I think some undergraduate has been drinking too much and is doing a little showing off for some of the other students, so I'm not going to be lying too much awake over this thing. They found the student because he'd made this death threat from one of the telephones on one of the corridors.

Reti: In the dorms?

Tanner: In the dorms. It didn't take them long to find out who phoned in the death threat. For a few days, I had a police escort every time I came onto the campus.

Reti: Geez.

Tanner: Fortunately, I didn't get really anxious. If it had been a different voice I might have been really very concerned and wearing some sort of vest if I had to come to work.

Reti: That's an extreme example, but how did you deal with the stresses of being the EVC, or the AVC?

Tanner: Well, first you hope that your personal life is not full of stress.

Reti: (laughs) Right.

Tanner: Actually, some of the stresses on the campus caused me a little bit of stress in personal life. Then my wife lost her job. She was one of the people who got hit in one of the cuts. It just had to happen. So she was unhappy. This was a negative impact of this budget cut right here on the home front. She was not happy at all about that, but it had to happen. So you hope that you can have a sympathetic home environment and not have too much stresses there. Then you've got to find the things that allow you to feel like gee, I really enjoy life. I play classical guitar and I enjoy music. And I enjoy athletic activity, tennis, in particular. So if you're going out and doing stuff so serious as hitting a little yellow fuzzy ball around (laughter) it kind of focuses your mind, if your mind wanders. Or skiing. I always say, nothing focuses the mind like going downhill about forty miles an hour. (laughs)

Reti: That's true.

Tanner: With all those trees going by you. You say no, I'm really concentrated here. (laughs)

Reti: So you found your ways.

Tanner: Yeah. You just have to take some breaks.

Reti: Yeah, because it's got to be hard. You could stay awake all night worrying about some of these things.

Tanner: Dedicated faculty members work long hours. If they really believe in what they're doing, they do work long hours just because they're doing everything. But I had one faculty member who was lobbying for an appointment and caught me, "Well, did you process that file?" I had to think twice about whether or not you even say anything.

I said, "Yeah. I think I processed it three days ago, so it's already taken care of."

"Well, that couldn't possibly be right."

"Why?"

"Well, that was Sunday."

Reti: You wouldn't be working Sunday.

Tanner: I said, "Sunday? That's when I do personnel files. I work Sunday afternoons. That's when I have the calm to actually read these files, okay? So don't think that you somehow got me when I tell you three days ago, I processed it." (laughs) In the morning I went and played tennis, but in the afternoon I'd catch up on these personnel files that you've got to give your attention to, at least, I always felt I had to. You try to do things that lift your spirits and get you feeling positive about the world.

Reti: When people read oral histories with folks who have had these kinds of positions, some of them themselves have recently taken this position, and it's helpful to hear, how did Michael Tanner deal with the stress, Dave Kliger, or George Blumenthal, or whoever.

Okay. You said you had office hours here for students, and student demonstrations?

Tanner: Oh, that's just a little bit of, a touch of, amusement. The students have this tendency to interpret democracy in a certain literal sense. If they weren't involved in the decision, then it must not be democratic. The idea that we have a democracy that elects people, and those people have delegated authority and stuff, that can kind of get lost in the shuffle. But there was always this question: are you accessible and open to listening to students? It's really

good for someone in administration to go around and have systematic ways that they interact. I think Karl Pister was very good at that. And M.R.C. Greenwood was really good. I had to learn it better myself. But I did always have office hours, I think, almost all the time. But they were for students who were pretty serious about [their issue] because my office hours would be at 7:30 in the morning.

Reti: No! (laughs) No undergraduates get up that early.

Tanner: Well, it would be the undergraduates and some of the more activist students who always want to have an opportunity to talk to the vice chancellor. I said, "I'm here at 7:30. I'm almost always here at 7:30. That's when my office hours are. So if you've got a serious issue, you will set your alarm and you will get up and we will talk. But if you can't find the energy to get up at 7:30, then it must not be all that serious."

Reti: It weeds things out. Okay. (laughter)

So let's go a bit more into that budget crisis of the early '90s and how was it resolved? Or was it resolved? What process did you use to wrestle with it?

Tanner: Well, that was pretty dramatic. This is in the context of the vice president [of UC] at the time, Bill Baker, who had said, "We've got a structural issue in the state. If you look at how the state's getting its revenue and you look at the demands on the state, which includes prisons and I can't remember what year the three strikes you're out law was passed, but—And then you look at education writ large, and various demands, and Medicaid. The universities are seemingly the most self-sufficient, or potentially self-sufficient element of that budget. Medicaid—how do you cut Medicaid?

Reti: Oh, right, because there's no revenue generated at all.

Tanner: There's no revenue generated. At least the universities can call on their students, as much as UC tried very hard to not have to call it tuition. At least you have some other revenue sources and you have a big budget. It's true, universities in the glory days, did have a lot of different resources coming in. When we got hit with budget crunches in the state of Illinois, there was enough money in the piggy bank that we could sort of ride through for a year. Most of the other agencies can't do that.

So if you're talking about roads, Caltrans and all these things—when you looked at all those competing, and looked at what the trajectories were of the demands—I remember Bill Baker giving a talk. He was saying, "We're going to find ourselves more and more pinched over time. So don't think that this is a temporary little thing that you can ride out for a year. You're going to have to figure out how we can carry out the UC mission and keep the UC quality even though the state level of support is likely to be diminishing."

Reti: Boy, those are prophetic words.

Tanner: Yeah. And it didn't go away.

Reti: No, it's been the new normal, really, ever since.

Tanner: Yeah. That's another whole topic. It's common across the whole nation. It's a sad commentary about where our society is. But in any event, when we faced this big cut, we had to figure out how to handle it, with the idea that it wasn't necessarily just going to immediately rebound. But nonetheless, we had to move fairly quickly to make the cuts. Now

you can say, ideally if we have a whole bunch of studies of where the students are, what the future interest is, the intellectual agendas for each of these departments, and whether or not they've got a vitality in their own pursuits and so forth and so on, you could sit and say, "Santa Cruz has the following differential advantages as a campus. It's known for these things, and it will be in the future. You know, in the arts, we're going to have to get rid of some of those things that are not going to be hallmarks of this campus in the future." You'd like to be able to do that, but it's very hard because every single group—they're here and they are doing good things. If you have one place where you say—this is really problematic, the quality's been going down and we really need to cut the budget—then you can say okay, well, the message is coming through. We're having to cut and we're going to take this moment to get rid of something we don't think is very high quality and it's not doing well by the students, either. But it's not too often that that leaps out with clarity. The coloring is far more subtle in its shades.

So we looked at where we were. We had the budget sort of worked out. I know under Stevens, tried to see if we could get a budget that would be more reflective, what I'm going to call a better structural attachment of the budget to the resources going to where they're going for a reason and in proportion to activity, in a sense. We made some headway there. We made more when Karl Pister came. We at least, I thought, had pretty good command of where the money was going and what was costing us—where our investments, where our operating money was being spent.

We had categories. We characterized different kinds of expenses: this is for instruction; this is for academic in support for research; this is an administrative cost associated with the

student area; this is an administrative cost associated with an auxiliary activity. You can kind of go through and get these budget categories. We went through the whole budget and said "Okay, what do we think is really important to maintain in the face of this crunch?"

Reti: Oh, boy.

Tanner: Now you had faculty members—a member of CPB—I give him credit that he had the gumption to at least go in front of a very public audience and explain why he thought all the cuts should come out of staff.

Reti: (laughs)

Tanner: But at least he got up and he was willing to say it publicly, right? We had various consultations. I remember the chair of CPB at the time advocating that somehow the budget cuts should be taken in such a way that the faculty, of course, were spared. Telling me about something that I proposed, that I'd lost my academic values. I was rocked back. I said, "You know, you and I have been on this campus together for over twenty years and you think, actually, that I've lost my academic values?" Well, he didn't, really. It was just rhetorical posturing to try to beat me into—you know, moving his way in the advocacy game, I think.

"But really, seriously, I take umbrage at the fact that you would suggest that I've lost my academic values. I'm trying to grapple with some tough stuff. You want us to cut health and safety? You think we ought to cut all the shuttle buses, maybe? Is that what you have in mind? Exactly what *do* you have in mind?" So it actually forced the faculty people to come forward and say, "Well, according to these big broad categories, we think you ought to cut this, this and this." (laughs) You can do this once you have spreadsheets and everything, kind of say,

"Well, this is what it would look like." Now, lo and behold, we hadn't thought about the fact that the support for the Academic Senate actually was a staff position, and the staff position would have to take a significant cut because they really wanted to have the staff cut. Well, you haven't thought through the fact that every single faculty member is actually supported and amplified and magnified in what they can do by a support system. I mean, we wish we didn't have to have as large and expensive police. Great. It would be nice. But we don't live in that world. We actually do need police. We do need health and safety people going around. We do need environmental, right? We've got these costs. It's not like we can just thumb our nose at it and say we're through with it. So we have to think this through very carefully. We tried to run out budgets that would be based on yeah, we're going to have to cut more heavily on administrative positions, and there probably are some places where administration can go. One of those happened to be the position my wife was in, a staff position. That was one of the activities that got cut at that moment. That's another complexity.

So in any event, we ran those out. And we said okay, then that's what this would mean for the various divisions. It's too complicated. If you say values, someone will say, "Well, you're not running values, you're just running a machine here." But within the categories as we tried to characterize them, this is saying okay, this is the direction that we think we have to go, and now everybody's going to have to think more carefully about how they can achieve the best of maintaining our UC mission, maintaining the quality of instruction, maintaining our momentum, even, despite these cuts.

Reti: Now who is "we?" You keep saying "we." Is it you and your staff at the vice chancellor's office?

Tanner: Well, by that time there's been a lot of devolution. And I said to the deans, "You're going to have a lot of latitude for how you handle the cuts within your own divisions."

Reti: Okay. So the deans and you—

Tanner: Yeah. And hopefully it's a cooperative exercise, right?

Reti: Yes. Okay.

Tanner: But every single dean is—I mean, if you are in administration, you're sort of the champion of the people who are working for you. But at the same time, you're the messenger of whatever—you know, it's not like I generated the money. (laughs) They're saying from here that the state's not going to give us any more. I can't change that message very much. We try at the polls. We try to put in our votes. But there's a limit on what you can do. So you're in this position.

So we passed it down to the deans and said, "This is what this 12 percent cut is going to look like for you. Then we can think through about how you might be able to stage it. If you have some funds that you've been able to set aside, sequester, hold in reserve, then you might be able to stage it. But don't think that you can somehow just get by. Because the message we're being told, and there's good evidence that it's true, is that this is not a one-time shot. This is likely to be a deeper, longer-lasting cut. Relative to the magnitude of our activity, we're not going to have as much state funding. So how do we handle that?"

So that goes out. We went through some processes that we have in the budget process of laying it out and giving people opportunities to come in and say "Well, I don't like this, and

here's what you've missed in your thinking about this." I mean, very minor adjustments. I know in one of your questions you said a social science faculty member said, didn't the social sciences get harder hit, and weren't the sciences protected? I just have to smile at that. People always say, "Oh, you're this or you're that, you must be—" I personally worked really hard at not somehow—every once in a while later on I said, I probably would have had better instincts if I'd been a little more willing, in fact, to go on some of my instincts. I'll talk about one of the things that I did do. Well, I'll mention it. I did as, not a huge thing, but I did put a special investment from the EVC's office into digital media and the arts. We created one of the first labs that had very high-quality graphics with Macintosh quad processors. I said, I think we're missing a bet, given where we are, if we don't take advantage of our proximity to Silicon Valley and the fact that the arts are going to become much more digital in the future, and we really ought to move there.

Reti: That's great.

Tanner: That's my own personal instinct. I'm doing it. But there weren't too many places where I felt under those circumstances. Now if I'd been getting new money coming in, I might have said, "Okay, let's have some discussions, and then at the end of it, the chancellor and I will talk about what we think, based on our sense of the future, where we can afford to make this with this new money coming in." But when you're cutting back, any of those things you do, you have to be able to stand up in front of people and say, "This is why I did that." I still think it's best for the university and this campus that I did it. But it's not easy. The dean of social sciences came in and lobbied hardest about somehow they were being hit. Now it could be that because of the distribution of categories and everything else, maybe there was some

little effect that they ended up having a little greater squeeze. But I don't think so. The dean of social sciences was playing the resignation card. Karl and I sat there and debated, do we just invite the dean to act on his threat? Or do we give a little bit of relief? We finally said, "Okay, we're going to give a little relief there. I'm not entirely comfortable that we're doing that. But, okay." So, we tried.

Reti: Wow. Geez. What a thankless job.

Tanner: We did what we could to make sure that we were keeping our direction.

More Reflections on the Early UCSC Campus

Reti: This is Irene Reti. Today is July 10, 2019, with the Regional History Project and EVC Michael Tanner. This is the third session of our oral history that we're doing together, on the second day of Michael's visit to Santa Cruz from Washington, D.C. So we're going to start today, Michael, by doubling back very briefly to the early period of the campus and some reflections and observations you wanted to make about the kinds of senior faculty that were recruited to the campus, and what the implications of those recruitments might have been.

Tanner: Yeah. Well I think, just the observation that when you're starting a campus de novo, you go through an initial recruitment process. I don't know how UC has done it in the cases of brand-new campuses, but probably they're identifying the founding chancellor early on. And then the chancellor's thinking about an immediate team who will be the academic vice chancellor or the EVC, but probably the academic vice chancellor, and those positions. But then you start thinking about the academic wings, and what kinds of things will be on this campus.

I think most people would say, well, given the geography of the campus, the location of the campus, what are the natural strengths that each campus would have? So if you're talking about UC Merced, it's so close to the Sierra Mountains and so forth that if it doesn't have some connection with the Sierras, you'd kind of say hmm, why not? Or to agriculture, because it's so close to a lot of it. Here, we were close to the Monterey Bay. And we were close to the Bay Area, though the barrier of the Santa Cruz Mountains was considerable. But here you have this gorgeous place, and you're starting tabula rasa. Well, at least a green field with the waving grass. And trying to say, what will this campus look like?

When you recruit the first main faculty, you're making a really important decision. You're looking for a kind of leadership. And at least in my own mind, that's a tender moment, a delicate moment. What kinds of people are going to be interested? Chances are, you're going to get a pioneering spirit. They are going to be people who are successful and feel confident about who they are. And they kind of know that even if this didn't work out for them, they wouldn't have any trouble having another position. But they're excited about what they will be able to build. There's probably some financial incentive for them, right? They're not taking pay cuts to come be a pioneer out in this unknown, not yet established university. But you have the question of what are the personalities of the people who come. You want people with ambition, but are those ambitions compatible? And ultimately, are the personalities compatible?

In my own department, they hired David Huffman from MIT. And, as I think I said earlier, a very bright guy, but by personality, he was not a team-building person. He was not an easy person to work with. In fact, he was very formal and rigorous, and expected things to be in a

theoretical kind of vein. And because of that, his personality ended up shaping, and in some ways inhibiting, certain forms of growth that could have occurred in that field. A different person in that lead position probably would have led to a different kind of development of Computer and Information Science.

So you have that. And at the end, you also have people who are willing to take the job because they think this one's going to be more exciting than where they are. And among those, there's some people who were not necessarily altogether happy in the environment that they had. They had a mixture of ambition for what I can do, and discontent with where I actually am.

So with all those leaderships, now you put them onto the same bus, so to speak. (laughs) You put them into the same redwood forest, and you say, "Now we're building this university." And you've got a whole lot of reconciliation of visions that may or may not be quite compatible. So it's a great social experiment to see, how do you pull that off? In a few instances, I think there probably were some sort of rocky elements where if you'd had slightly different people in the roll of the dice as to who headed up recruitment, you might have had closer relationships between a couple of entities if the lead people had been a little different. At the end, we had some tensions because a person wanted to build this direction, but everybody else on the campus might have been wishing they were going another way.

So that's one of the challenges of the early years that I pondered whenever I would see what appeared to be a kind of leadership head knocking with two different competing visions of where the campus should go. I'd say, you know, this is a legacy of that early defining moment. Most universities will end up recruiting with some self-selection. I know the character of that university because that university's been around for a long time, and I can learn about its

history and I can learn about the people who are there, and I know its expected trajectory. Am I compatible with that? Am I excited about that? I may be able to bend it; I may be able to send off a new shoot in some direction. But I at least can ask that. When you have this brand-new campus starting off, exactly what is the identity? I mean, I guess I could talk to the founding chancellor and see what his vision is. You see what I mean? There's a great deal of fluidity.

Reti: I don't know what you think, but was that more pronounced at Santa Cruz because it was founded with a different kind of vision than, say perhaps Irvine, which was designed to be a more conventional campus?

Tanner: Well, they had some of these issues even at San Diego, where they tried some experiments and recasting things. And lo and behold, ten years later they're saying, this just isn't working for some reason. Santa Cruz, I think was probably a greater challenge in that regard because it was a significant departure from the DNA of a standard UC campus at that moment. It's going to be undergraduate; it's going to be interdisciplinary; it's going to have these colleges. It had a lot of new, experimental elements in its intent. Somebody coming in might say, "Well, what is that actually going to end up meaning over time?" I think the intent was a little bit more ambiguous, had to be more ambiguous than it would have been in another campus that said we're going to be the next UCLA or Berkeley.

Reti: That makes sense.

Tanner: So, anyway, you got all sorts of fascinating people. (laughs)

Reti: Right. Do you think that that led to the somewhat later perception that this campus was ungovernable?

Tanner: Well, as I said earlier, part of it was the way the decision- making process didn't lead this place to actually—

Reti: Yeah. Structural.

Tanner: Structurally, and the way all of the decisions were being made, you had a hard time feeling that it would be brought to a conclusion that was going to be readily accepted. But I do think that it was also kind of the independent-mindedness: those who were independently minded were preferentially attracted here. And some of that, I think probably fed into that sense of geez, these people want to go every place, you know? They've got their own ideas. Well, get in line. Aren't you going to get in line and get behind this UC campus as a UC campus? Well, no, they're not quite ready to get exactly in that line. For good or for ill, for better or for worse.

Reti: Sure. That's great.

Environmental Studies and Other Non-Traditional Departments

So now, moving forward in time, do you want to talk about environmental studies?

Tanner: Yeah. I thought it might be worth touching on a challenge that every university faces: when do you create a new entity? And what does it mean to form a new department? What is the essence of a department? That was something that we really had to grapple with. Sometimes you would say, "We want to do something new. We think a department should

have this responsibility and it's very promising as territory for exploration and research and for ultimately undergraduate teaching. So we think that we should have a new department." Computer and Information Science was one of those. Environmental studies was one of those. Then later on—should you have ethnic studies? Should we have Latin American/Latino studies, for example? Or different kind of thrust in the humanities—the history of consciousness. What does it mean to form a department called the history of consciousness? So it presses you to think, from the point of view of university administration, when is it appropriate to form a department? And how big an activity gets to be called a department? Now I mentioned that very often there is an impulse to mitosis in departments. Biology was a very big department but they had a natural split in terms of the methodologies and the paradigms of generation of knowledge between the molecular/cellular/development people and the organismal evolutionary group. The whole department gets to vote on things. And when you have groups that have very different senses of what they're about, and then their voting is eclectic, that's when you get into a whole lot of potential tugging and pulling. And if it's not well-resolved, it can be a dissipation of energies as people engage in a tug of war with their colleagues, rather than saying we're on board and we're going to accomplish this. So you might say well, the simple thing is to simply split departments. But then you say, but these two departments really should be in more dialog. There's more dialog between MCD and the OEE people than there is between MCD and history, right?

Reti: What's MCD?

Tanner: Oh, molecular cellular development biology.

Reti: Oh, thank you, of course, yeah.

Tanner: I mean, there is natural intellectual propinquity or something, and certain kinds of synergies, even if it's not tight. So how should you create these units? And then you look at what UC expects, or the template for what's involved in a university, and they have rights; faculty have rights to be involved in departmental affairs. They have a right to vote. They have votes on critical issues having to do with hiring and so forth and so on. Those voting units are really important. In the bigger society now, we have the re-examination of gerrymandering. Well, you didn't end up with gerrymandering, per se, in the university quite in the same way. But you have the same kind of issue, though. Which group is going to be formed into some sort of bloc? And on the almost amusing side, if you have interpersonal breakdowns, you could often have a sense of fractionation going on. The departments would like to divide up; the five of us would like to go off and form a department so we don't have to deal with those other ten over there.

Reti: So then you've got a totally personality-driven structure.

Tanner: A department has to be able to mount a curriculum. They have to be able to have people go on sabbatical and not drop what they're doing. They have to be able to sustain a graduate program. You hope that they have enough heft, enough scale, that they will be seen—nationally and internationally—for the work that they're doing. It could be that five outstanding people could pull that off. But it's much better if it's fifteen or twenty. Or, conceivably in a really well-run place, it's fifty. And the fifty, in a department of that scale, if they can know what they're studying, and why all fifty of them are in the same boat and why they're pulling in the same direction, they can really make a great imprint.

In any event, we had to grapple with that. And what happened in my own field, as I mentioned, it started off with a very big vision. Then that vision had to be pared back. Which meant that some people who were hired in fact just weren't going to make it, a certain level. It was clear that they weren't going to succeed in the kind of environment that we were going to be able to create at the scale that we were going to be. And for the most part, they saw that coming and said okay, I'm leaving.

But you had places where the sense of what it means to do research and to establish knowledge gets tested. Environmental studies was one of those. Back in the early 1990s I looked at environmental studies. I was thinking, this is a really important area for the future of the world. I'm someone who really does believe that our environment is at tremendous risk. To have universities looking at what needs to be done, how the environments are working, and what we need to do to be good stewards of those environments is really critical. But a department had been put together that had policy people in one perspective, and more scientifically-oriented people, more physical, natural science kinds of people on the other, divide. And at one point, I was looking at what was coming out of it and I will confess, I said it doesn't seem to me that they can join together in making some of their judgments of what they're proposing. And it begins to feel it's almost like a religious test is what they have to apply, not what we would like to see is an academic test. They're kind of saying, "Well does this person believe enough in the importance of the environment? And if so, then we back him or her." But it wasn't, as much as I would like to have seen, of the character of what their research is and how it fits in with what we're doing and what their contributions are. It got into some other kinds of things. It just felt like this was straining, trying to put together an entity that didn't quite have enough commonality.

Now I think I'd learned in a passing interaction yesterday that those somehow got divided up later on, right?

Reti: Yes.

Tanner: So that tension that I was feeling got played out in terms of we're going to divide this.

You had the question of sustainability—now it's outside of my field—but I was quite fascinated, as a great deal of the world is fascinated, with the notion of the history of consciousness, which was really I think, Hayden White's historiography, and thinking about how the historian is conscious and how people thought about themselves, right? It's a cultural analysis and thinking about self-reflection in a way. So that was, for me, a fascinating consideration. Is it the basis for a department? Do you know who sees the world the same way, and that they understand what kind of work they're going to be doing, and how they would be able to look at the work of the others in the department? How do you recognize a history of consciousness person? Now maybe the people in the field would say, "Oh, it's not that hard. Come on, Michael." (laughs) But from afar you kind of say, what are the tests? What's their paradigm?

Reti: You mean in terms of peer review.

Tanner: Yeah. Being able to sit in reviewing a faculty member for promotion. Do they have a sense of what the work is? The chemists do. Here in the natural sciences, you usually are pretty well-behaved. In math and applied math, you could see disagreements about what constitutes legitimate, important work. Pure mathematicians tend to look at applied

mathematicians as being sort of lesser pragmatic folks. And those pragmatic folks look at those ivory tower pure mathematicians whose work may or may not be of interest in a hundred years. So they have a little bit of a division even within something like mathematics. But in some of these other fields, you kind of say hmm, what is the glue? Is there really a glue that holds them together? Is there a sense of how they are going to think about the work of each other and what is important in this field that you can feel comfortable that their judgments will be good and that they will have a strong sense of direction?

So Santa Cruz tended to have some of those and I had to think it through quite carefully with my people. I brought in—I'm forgetting the structure that I inherited. But I had a position, associate vice chancellor for planning and programs, to work on doing the program reviews mandated by the University of California, and to spend time thinking through the kinds of issues I was just discussing on behalf of the university. When somebody says, "We would like to form a department of X," do we know how to think about that and make a good decision, and say, "Yes, you can go ahead and do that because we see what the future is," or, "No, you don't have enough of a critical mass to have a department that will actually work well." And think that through carefully, and not just casually on the basis of gut instinct in some way.

We have been, I think, very comfortable that we were the undergraduate campus. But we didn't have any sustained attention to the undergraduate experience. So I also created an associate vice chancellor for undergraduate education. Ed Landesman was one of the people in that position.

Reti: I did an oral history with him.

Tanner: So let's not just rest on our laurels and assume we're paying good attention to the undergraduates. It's easy for you, in fact, to start drifting away and not paying good attention and not having an integrated program of study for the undergraduates that will lead them to have a good education at the end.

Reti: So what you're talking about in terms of undergraduate experience or undergraduate education is the academic side of the house. You're not talking about student affairs now.

Tanner: Right. No. But you have to integrate with student affairs because what student affairs is doing influences how this is going to work. So you need someone to keep thinking about these things. So I got someone who would spend half time, effectively, on that as I recall, the way it was structured.

Angela Davis

Reti: And in relation to history of consciousness, there was some controversy around the appointment of Professor Angela Davis.

Tanner: Yes. That was one of the kind of amazing little experiences that has got an element of humor. The history of consciousness, whatever its criteria for what constitutes the scholarship of history of consciousness, had an opportunity to recruit Angela Davis, who had been at UCLA and gained notoriety for her involvement with the Black Panthers in the '60s. At this point, I don't even remember all of how that played out. But I think the chancellor at the time was defending her academic freedom and so forth.

Reti: Yes.

Tanner: But anyway, she left the university and she was out being a public speaker and doing stuff. Then history of consciousness, based on some of what she had been working on and writing, said she would be a good candidate for this program. So they went through the whole process of having the history of consciousness vote on it. And then it was reviewed by committees. And it came up to my desk. And I'm saying well, okay, it's gone through the process and they made the arguments that where she is at this point in her career, she could be a good person on this board. But I know she's got a history that is at least California-wide, if not nationwide, and even internationally established. So let me check with the people up the line—what do they feel about this? Are we ready to stand behind these processes and so forth?

And so, I ran it up and they said, "Yup, we're ready to stand behind those processes." We went ahead and appointed her. She became a faculty member and she was teaching along and nothing out of the ordinary. Just another appointment.

And then we had a program called the presidential chair. I can't remember which president of the University of California established this, but it was sort of an endowment that provided a little extra money, relative to many universities, small potatoes, I would have to say. It was on the order of twenty thousand dollars a year or something, I can't remember the exact number. But we're not talking about a hundred thousand, two hundred thousand dollars a year. It was just some support for someone to work on some aspect of the undergraduate curriculum. It was given this rather inflated title and you held the presidential chair for, I think it was a three-year term.

Angela proposed doing what, to my mind, was really important kinds of thinking. I don't know about who else was thinking in this, but [she was working on] the comparative situation of incarceration in the Scandinavian countries (I think it was Denmark), versus what happens in the United States. The whole notion in the United States is of a punitive system, as opposed to in Denmark it was more rehabilitation with the people who've stepped outside our social norms—we have to have them spend time, and we have to work with them to get them back into being a member of our community. As opposed to: we are going to punish someone for their transgressions, and we're going to isolate them from our community and we kind of hope in some instances that they're never coming back. I'm being really harsh about it, right? So she was saying these are very different, and it's far more successful, actually, the way Denmark's approaching it. At this point, we had this huge problem of incarceration in the United States. Far too many people are in jails and all that. It's very complicated. Well, she was working on that. And she had proposed some sort of curriculum where she would allow the undergraduates to get exposed to thinking about these very important issues.

So I looked at the applications we had. There weren't too many. I think there were three or something. And I said well, in my view, this is probably the most interesting one. Let's see what this might produce. So I kind of checked it out, you know: this is just this little twenty thousand per year over three years.

Lo and behold, we gave her that three-year chair and the title, and a conservative politician picked it up and it became a big political maelstrom about Angela Davis. People could remember back into the '60s. Here it is in the '90s. That echo is coming back, and they're

trying to make lots of political hay out of it. That's just a little anecdote about the complexity of the political environment in which universities have to operate. The appointment didn't cause any kind of ripple, and it all went smoothly. She just contributed to the campus. And then what should have been a secondary or tertiary kind of thing suddenly blew up into a big issue. You just can't know sometimes.

Reti: Yeah, that's a good example of that.

Affirmative Action and Diversity

So now let's circle back to talk about Pister's era. Yesterday we spoke about the budget crisis that was happening during his tenure and your leadership on that. But another major theme in Pister's chancellorship was diversity. And of course he became chancellor during the SP1 and 2, and the regents were voting against affirmative action—

Tanner: Right.

Reti: And Ward Connerly and all of this stuff that a researcher can track through our oral history collection and other places. What was your experience of that era?

Tanner: Well, I don't like the term "race," because "race" itself ends up being racist. You have people of diverse genetic backgrounds and experiential backgrounds that end up being compartmentalized in our society according to some racial designation. Using that language––that in fact got reified by the federal requirements that you check the boxes–– this campus did not have a very diverse student population. I think both Karl Pister and I had a great deal of sympathetic understanding of what needed to be done. You look at the demographics of

the state and you say, the population is changing. The students that we really need to be educating—this is now almost thirty years ago—but the students that we need to be educating are the bright, particularly in our case, it was Latino students. And African Americans. But in California, population growth in the Latino population is enormous. There's a whole lot of talent in there that's not getting connected up into higher education. If you look out thirty years, we're not going to have the student population that we'd like to have unless we can be seen as a more open, welcoming campus and somehow connecting up and bringing those students in.

We also were not successful with those who are in the Asian groups. That included people of Vietnamese, Southeast Asian, and there are much fewer of them, but Japanese or Chinese backgrounds as well. Nor India. We didn't have very many students. We had a whole lot of Caucasian students, if you want to use that term. And on that one, I think, the analysis was that we were ungraded. A lot of the parents of the upwardly aspirational Asian, Indian families didn't want to see their children coming to a place where the excellence of their hard work at the university would not show up. So we weren't getting our share. Irvine had a huge fraction—I don't know what it is now—but I'm remembering like 60 percent of their population would have been characterized as of Asian ancestry in some way. We didn't have many students there. So what are we going to do about this?

Karl worked hard on his leadership program to try to make strong connections with a lot of the community colleges, which really is the entry point for many of the Latino students because it's close to home and it's lower cost and they can support their families, and work in their environment and be at a community college on the side. It's that kind of thing. And

we didn't get many students transferring in. So Karl was working on that. But together in terms of our hiring, we were making all sorts of efforts to see if we couldn't get ourselves on the map within the Latino and African American communities. This is not an easy campus—I don't know what the present statistics are, but there isn't a large African American population in the immediate vicinity of UCSC. And even the African American faculty that we had very often would find, I think, their own comfortable space not in Santa Cruz with the hiking boot set, but they would be commuting down from Oakland, for example. They would be living in Oakland and coming down, which is fine, but it means that they're spending a lot of time on the road and we're not necessarily getting the full benefit of their presence. But that was just very hard because of the local population. Given that, I think where we really tried to advance it was to think about—and we ultimately did, I think, in my time—establish Latin American and Latino studies as an area that would be able to visibly look at the issues that might be of interest to that community. But we tried to reach out in many different ways via the feeder schools, to see if we couldn't get UCSC to be seen as a place where Latino students and Asian students—

Now, I think whatever the process, I can say yesterday I was walking around the campus and I saw the tours going by, of prospective students. I kind of did a quick check and I can tell you overwhelmingly the ones I saw yesterday were not Caucasian. (laughs)

Reti: Yes. It's changed quite a bit.

Tanner: So I think, just walking around seeing the students here in the summer, okay, the demographics and how UCSC has adapted. We've now got a student population that's more reflective of the population of California.

Reti: Right. We've become a Hispanic-serving institution, which is, I believe, 25 percent Latin American/Latino.

Tanner: I think that's where they do a cutoff—

Reti: Yes. At least 25 percent. I certainly remember those days and all of the efforts that went into trying to make this a more inclusive place.

Tanner: I a few times had, either in the context of sort of my office hours or rumblings, I had, I used to say, the wealthy kids coming from Beverly Hills to berate me over the lack of diversity of the campus. (laughs) I would sit there and say, "Well, okay, I appreciate where your heart's at, but you're coming in to beat on me. (laughs) Don't try to think that you can relieve the history of your privilege by coming in and dumping it all on my desk." Anyway, that's just a little humorous take on it.

Reti: (laughs) Okay. Well, great. And the building backlash against affirmative action was taking place in that period as well. Was that something that you worked much with?

Tanner: Oh, we had to figure out what we would do, and put our heads together when Pete Wilson was wanting to advance his national prospects by making this a drum that he would beat on. It's an easy one. Here we are in 2019 and there are people who are looking to exploit the same kind of divisions by saying okay, "Well, there's a lot of unfairness going on, and people who don't deserve to be getting the benefits of our society are somehow sapping the strength of our society. I mean, these things are quite timeless.

Reti: Yes.

Tanner: So Pete Wilson did it and he appointed some trustees, including Ward Connerly, who took the delicate issue of affirmative action and decided they could make this a real point of pride in capitalizing on what I'd call a backlash. Now, we don't have time to discuss affirmative action, but I guess I'll echo what David Gardner said at the time. "If you think affirmative action is easy, you don't understand the issue." It's this question of what do we do to open the gates to allow in people who have been systematically and institutionally pushed away. I could cite all sorts of things from my life where I could give you firsthand testimony about how that worked. And to say no, we want to bring you in. We're a new group and we want to bring you in.

How do you do that without engaging in a sort of discrimination? It's a delicate line to walk. But I'd always say, if you see someone who clearly comes from a background where they don't know why they would want to go to this university, we really have to put out some special efforts to make sure they understand what doors it will open up for them, and what that means. So, we did that, which to me was a really important issue.

Reti: It is a really important issue. And I would imagine your early experience in Tennessee would have informed that as well.

Tanner: Yeah. Public universities over the last thirty years have been getting decreasing amounts of public support. I always take every opportunity to say: why do we have public education? It's because our society needs to provide an opportunity to develop the talents in our own population. If we don't do that, if we engage in practices that cause talent to not be fully developed, we're going to lose that potential contribution. We will not be as strong a society if we're not able to recognize and cultivate talent. And women in lots of areas that

were told no, you're— I could go off on that one. There was a time when women going to the university was sort of viewed as unusual. Right? Why do you go to the university? And now roughly 60 percent of the student population in many places are women.

Reti: Right. In the old days, it was about women go to university so they could meet a husband. (laughs)

Tanner: If you go back to the '40s or something like that, that would be the case. But we had all this talent. I would always say I was the beneficiary of women who were very bright and ended up in teaching. They gave me the benefit of their talent and their intelligence. They probably would have gone some other place. In today's world, they would have another avenue. But I was the beneficiary. So I have to express my gratitude for that.

Anyway, I had a student at Tennessee State who seemed like a bright guy and he was doing all sorts of stuff. He wouldn't have gone to the university, had it not been that Tennessee State was a public university and he could go there for very low cost. He was the first in his family (there were ten children in his family), to go to the university. And as he was graduating (his name is Jesse Russell), and as he was graduating, I said to him, "You know, Jesse, you've got talent and you could go further." I had feelers coming out from people I knew at Stanford saying, "Do you see any students there at Tennessee State who might do well here?" I said, "Well, the one I would bet on is Jesse. You should try Jesse."

And they did. They admitted him and he got a master's degree in electrical engineering. I'm sure he had to work hard to do that. He went on to work at AT&T Bell Labs. And they put him on a project. I saw him when I was in Chicago, so it's been a while. He said, "Well, you know,

they gave me this project that wasn't likely to succeed, but they gave it to me." He went out and he proved that a digital cell phone would work.

Reti: Oh my God!

Tanner: And he's now in the National Academy of Engineering.

Reti: Whoa! That is so cool. It's a very emotional subject, isn't it? For me, too.

Tanner: It is. So if it hadn't been for that opportunity, he wouldn't have had the same experience. Who knows? At some later time, somebody else would have established the digital cell phones that work. It's not like it's unique, but—

Reti: You don't know. I mean, that's the thing, all the paths that are not taken because—

Tanner: —you know, it was his contribution. So that's the kind of thing that says we've got to keep trying to persuade people to support public education.

Reti: I know. It's so true. And the moment in which you record an interview shapes the content of the interview. The fact that we're recording this interview at this present historical moment is very much shaping how we feel about what we're talking about. It's important to make that explicit.

Tanner: Some of these things go right to core values for me.

Reti: Yeah. I understand.

Eileen Tanner

Do you want to do a little detour? We haven't put this on the list. But do you want to talk a little bit about [your wife] Eileen? We usually talk just a little bit about people's spouses. I don't want to get too personal, but just a bit about her, because I know she's also a professional, and you've had a long, long association.

Tanner: Yeah. To my benefit, she has been flexible. She's someone who has graduate degrees in education and French literature from Stanford. At one point she taught French. But she would usually say, "Well, okay, wherever your career location is, Michael, I'll try to figure out how to make it work for me." So she did get employed. As I got to be in positions like EVC, you had the delicate problem of perception of nepotism. So we had to make sure that somehow whoever she reported to was not actively reporting to me, or that we had some sort of intermediate buffer, so that nobody could accuse us––that somehow I was putting my finger in. I hate to say it, but there are people who do that. That's a comment. I got accused of all sorts of things over the course of my time being in administration in a fairly high level. Anybody, who's seen as in a position of power, is immediately a target for that. And then, the more I pondered some of the things of which I was accused, I kind of said, you know, I think I understand this. They accuse me of what they might be tempted to do if they were in my shoes. It's not got a whole lot to do with me.

Reti: (laughs)

Tanner: It's actually got a lot to do with their own sense of what they might do. So some of the times I'd say, how ridiculous that somebody would suggest that I would be so lacking in

integrity, or ready to abuse my powers to do that. But I can't say that it doesn't happen, and I can't say that attention to that, being vigilant, is not important.

So, Eileen was always on a special kind of track. She taught at Stanford. I can't remember if she taught French here. After our children were growing up, she got employed working in the Center for Teaching and Learning. And then when we went through the budget cuts, that center, which hadn't really established its feet yet, that was part of what got cut. So she lost her job and was rather glum about that.

But fortunately then later on, the campus created a Center for Teaching Excellence. She came back in and she was really the one who built that up. And so it was a nice thing. It's not that we engaged in much, what you might call pillow talk. But she would have an interaction with faculty in trying to help them improve their teaching. And it was perfectly compatible with my sense of you know—if they associate the name Tanner (laughs) it's fine with me. So she really enjoyed that and I think she did it up until the point that we left Santa Cruz. That's when the transition occurred. But she had good interactions with all sorts of faculty because of that position that she really enjoyed.

She then went onto a different position in Illinois, in community relations, and making the campus there—which is an urban campus and hard to figure out—making that campus more easily read for the visitor, because you could go right through the campus and not even know it was there. In some sense, it's just a bunch of big buildings: what are these? So she had to make it so the people would really know when they were at the University of Illinois in Chicago. That was another great project for her. I think she would say that she's had some great experiences in the academic world because of these opportunities that were there.

Reti: Thanks. That's good.

Teaching and Research in the 1990s

Let's talk a bit about your teaching and research during the '90s. I know we talked about the earlier period when you were working on error codes. Generally, what directions did your teaching take in your later part of your career here, and your research?

Tanner: Well, the more I moved up, the more demanding I felt the administrative job was. In a certain sense, I was getting paid for the administration. Now there are people who say oh, I'm president of University X, prestigious University X, and I'm teaching a graduate research seminar, or something like that. I would occasionally say, well I'm glad that that university is sufficiently well-funded that you can provide an ample set of staffing to carry those other responsibilities that allow you to carve out enough time to do justice by that graduate seminar, which can be very enjoyable. I don't remember exactly how that transition occurred. But the further up I got, the more it was just interacting with individual students and providing some supervision on theses or something like that.

We were trying to restructure the way this campus works in a time of budget cuts. And maybe symbolically it would be valuable for me to be teaching five students about digital communications or something like that, but I'm not sure I'm quite comfortable giving up that other task. Maybe there are people who are able to strike that balance and get so invigorated by doing it. But I would tend to worry well, I'm not doing as good a job in teaching the graduate students and I'm letting some other things slide by like the personnel files I have to

read to get out timely offers. And you know, this is a bit much. So at the end, I was just interacting with individual students, for the most part.

Reti: Okay. And then in terms of research, was it similar that your focus was mostly on administration during that period?

Tanner: I went into administration. I kind of regret that I had a paper that was effectively accepted as I moved into being the dean and I never finished revising that paper and the paper never got finally accepted and published in that journal. I've had a few things that have actually become well known that were never formally published. But I've regretted that I didn't just say, okay, I'm going into this new deanship, but I'm going to take the time and set aside four or five days to work on this, which is what it would take in that particular instance.

I'd been watching what was happening in my field. But in 1993-'94, there was something that came out from some French researchers that was called turbo codes. And turbo codes got the attention of the coding world. Suddenly, in a computationally feasible way, these French researchers had come up with something that would get very close to the limits of how rapidly you can send information reliably, according to the theories of Claude Shannon. So that got a whole lot of attention. In fact, one of my friends at Caltech said to me, "You know, when that paper came out, everybody said, "Well these two nice people from France have made some sort of silly error, because this is in fact not really possible to do." But then, of course, it being science, they could go out and test it. And ultimately they said, oh, this really does work.

I saw it, and I said yes, what they're doing is probably good enough to be able to get close to the Shannon limit, according to what my vision had been, that I had published in 1981 and filed patents on with the University of California. In some sense, you could interpret what they were doing is a variant on those same themes. I saw that and I had a little regret that I'm here in administration, when in fact the line of algorithmic approach to this coding problem has now sort of reached its plateau of success.

Some researchers from Sweden and Switzerland, in trying to understand how these turbo codes worked were saying oh, it's because of the way they pass information, and there's this partial information about what's correct in the coded word, the transmitted word as received. Partial information is passed back and forth and it's done iteratively, and it works according to this message passing. And another researcher from Eindhoven happened to be with them and said, "You know, what you're talking about here is very much like a talk I heard from this guy Michael Tanner when he came through back in 1982. I found it intriguing. You ought to really go back and look at Tanner's work."

They went back. They ended up saying yeah, actually it's the strategy that Michael Tanner was laying out. What he's doing is he's using the graph, and we're going to call it the Tanner graph for the code. And they're doing message passing on this thing called a Tanner graph, which is, I think, both highly responsible and very generous on their part, that they would do the work to discover that there had been an antecedent.

Reti: Yeah. Unusual.

Tanner: Doesn't always happen, right?

Reti: Right.

Tanner: So in that sense, I got lucky that I'd given a talk in Eindhoven and that person happened to alert them to the fact that I'd been working on the same style of thinking about coding.

So that caught fire. And sort of unbeknownst to me, somewhere around 1994, '95, I can't remember now—I was at the Quarry conferring degrees. (Reti laughs) I get through conferring degrees out there on a sunny day. I'm walking up the stairs and this gentleman says, "Oh, Vice Chancellor Tanner, do you have a moment? Could I talk to you?" This is a parent, apparently, out in the audience. He started walking over. And when you have that kind of approach, you're projecting what the conversation's going to be about, and it's going to go one of two ways. One is that someone was really quite thrilled with how their son or daughter—with the experience they had. Or they've got some sort of gripe because in fact the degree didn't come through. Which way is this one going to go? It turned out that this was, in fact, one of the senior researchers from JPL. He said, "Dr. Tanner, do you know that we're having a conference on your graph approach to coding occurring right up the road?" (laughs) I said, "No, I'm sorry, I haven't been following it enough." He said, "Yes, everybody's talking about how they should be looking at codes using your graphical construct that's called a Tanner graph."

So that was sort of the beginning. Now these Tanner graphs are built into what people use in in a certain large branch of coding that pertains to cell phones and cellular communications and to Wi-Fi and to deep space probes, all sorts of things. Someplace in there, they probably talk about how the codes that should be used are defined by this graphical representation,

and the algorithms are very much the kinds that I was working on here in the '70s and actually got a patent on in 1981. So that was just fortuitous. While I was sequestered in my administrative responsibilities and not watching closely, that the field came around to my point of view.

Reti: That's amazing.

Tanner: And so when I decided finally in 1998 that it was time for me to do something different—I was feeling kind of burned out with all of the burdens of being vice chancellor. M.R.C. Greenwood had come and she brought a new kind of energy to things. I said I think it's time for me to kind of step back and reconsider. I could go on sabbatical. I went on sabbatical to MIT and to Caltech, sort of split it. MIT in the fall where the weather is good. And then when the weather—(laughter)

Reti: Right.

Tanner: Then went out to Caltech. They were two very strong coding groups. And I could just kind of click right back in because I'd thought about these graphs and how you structure them and everything else. Now lots and lots of coding researchers were saying this is the way we have to study codes now. So I could just click right back in and start making contributions quite rapidly.

Reti: That's amazing.

Tanner: So that was a fun little interlude.

Reti: Yeah. I'm so glad that we got that in here, because it's a big part of your life, and very exciting.

Working with Chancellor M.R.C. Greenwood

So you mentioned in passing that M.R.C. Greenwood came and things started to shift. You want to move forward into that period now?

Tanner: Yeah. M.R.C. came with a very different style. I have to say, it was, for me, wonderful to work with Karl Pister. He was brought in as someone who'd been dean up at Berkeley. He was known to be a sensible person with really solid values and tremendous integrity. He and I could talk things through and he could just say, "Okay, go handle that." Over the course of the five years that we worked together, there were probably maybe two or three times when, if he'd been really blunt with me, he might have said, "Michael, why the hell did you do that?" You know? (laughs) He never did say that. But that was our sense of being able to communicate well and to understand how we wanted to approach things and to be sure that we had the processes worked out. I have to say, I think in some fairly trying circumstances we did well. He was a great person as a chancellor to work with, and as a mentor. I'm indebted to Karl for those interactions.

And then M.R.C. came in. M.R.C. was someone who'd been in Washington, D.C. and her style was completely different. Very, very different. I mean, she's just a mile a minute: see an opportunity, I'm going to go after it. I'd sit there saying, "Now why do you think this opportunity's really one that we should put our energies into?" "Well, it's a good one and it's right here." Her sense is, you see something there, let's go after it. Some of her instincts that

were honed from Washington exposure were really good because she knew that something was going to become highly visible. It's a political instinct. My own personal instincts just were not naturally political. But hers, even though she was a scientist, she was a scientist who developed these strong political instincts. So sometimes she'd go after it. I knew that I was in a kind of new era when every time she went around the campus, she'd be sure to have at least one photographer following, so that she could get the picture, for the photo ops. (laughs) Karl Pister didn't have the photographer on every occasion.

So when M.R.C. came in I said well, okay, this is the way M.R.C. works. She needs to be sure that she's got her face appearing on some publication for this going around, which is, again, more like a political person would do it. So it was, I guess, fun working with M.R.C. I sometimes would feel that she's grabbing more than we can chew. (laughs) You know? The appetite is greater than our ability to absorb and digest here, and I have to figure out how to push back and not have us spread out too thin. But at the same time, it was an imperative toward seeing the campus grow.

But it didn't take long for me to say you know, this is now my third chancellor, and my work in coding is suddenly finally connecting. I worked so hard on that in the '70s and that I was, at a certain point, frustrated that I wasn't getting traction for what I thought was really important. So it was gratifying for me to see the field coming around and would have a moment where I'd go back and say yeah, this is the way you should think about this issue. (laughs) So I decided I'm going to take a sabbatical and reconsider where I am. So that's what I did.

I went on sabbatical and got some more papers published, and actually designed some rather beautiful codes, and helped formulate some archetypal examples of this graph code to find out what are their inherent limitations; how do you get around them? There are still things out there. The basic problem that I was working on that was considered almost unsolvable in the 1970s by some people: how can you get close to this Shannon limit? It just completely flipped and nowadays, all sorts of people will know how to do it. If you understand codes at all, it's not that hard to get close to the Shannon limit. It's just an enormous change that occurred from the 1970s, when people say oh, we're up against a computational barrier against ever really getting the quality of coding that Shannon said is possible. But you just didn't see this algorithmic insight about what needed to be done to structure a code that way. Now it's no longer an interesting problem. There's not enough left in that classical problem. The modern theories have to do with multiple antennas, and what you can do with multiple communication paths, and integrating the coding, and something that I haven't given enough time to, what are called polar codes.

But in any event, I went and did coding for a while. Then I came back thinking about my experience and was on the faculty and rapidly said, you know, you can't go home again. When you've been operating at the vice chancellor's level and seeing how the campus works, and then you go back to being a faculty member, you're sitting in meetings and kind of saying, we're just spinning our wheels here. This group of my colleagues in my department aren't seeing how they need to attack this. But I'm just one faculty member now, right? I'm not going to be piping up all the time saying, "Well, no, no, no, this is the way we want to do it."

It's an uncomfortable situation. What role do you play? There are other people who go back and I guess feel comfortable because they enjoy their research and their teaching so much they say that's fine, I'll just leave that other life aside. Sometimes that does occur. But in any event, I was there for a while saying, I don't think this is quite right for me. The department's moved and the students have moved. When I came back in coding, I said I'm the Rip Van Winkle of coding. I've been sort of asleep in administration relative to this. I had sort of the same experience going back in the classroom. I'd given up teaching my freshman class on systems and simulation. I came back and after ten years the attitude of the students and the expectations of the students had changed a lot. I'm seeing a different style of thinking coming out of the students after a ten-year hiatus or something like that, maybe a little longer than that, a twelve-year hiatus. They don't write as well as they used to. It's harder to get them to concentrate on detail. I was amazed when I discovered there were students who'd say, "Well, I'm having a hard time understanding what you're doing describing the graph of the system's response, what the temperature of this object is going to be over time at various places in the systems analysis. But if you gave it to me as a spreadsheet."

Reti: Oh.

Tanner: You know? And I said, "Well, now that's interesting. I use spreadsheets, I understand." But that a student would say, "I'm comfortable. I will know this if you give it to me as a spreadsheet." I said, well, that's really fascinating. The next step was ... students don't have to do long division anymore, which is great, because they now use calculators. So that was a step from doing hand calculation, and slide rules, using hand calculators. Now the next one is somehow we're moving to thinking in terms of spreadsheet operation. But being an

old timer, I'd be rather disconcerted when they'd make some mistake on the spreadsheet and it would be off by a factor of ten, and they wouldn't immediately recognize that it was off by a factor of ten. So I said the knowledge structure they have around here, mediated by the spreadsheet, really isn't rich enough. They've got to have multiple ways of knowing this if they're really going to be able to do what I hope they would be able to do in analyzing this kind of problem and solving this kind of issue.

Reti: I'm sitting here thinking that at the beginning of the interview yesterday we were talking about brains and how brains process information. In a sense, were you encountering a shift in ways of knowing at that point in your career that was profoundly different than what you had encountered before?

Tanner: Yes. And you have to be wary about rejecting the new way of doing it. But at the same time, I was a bit skeptical when students would say, "I understand the spreadsheet." I'd say, "Well, what do you mean you understand the spreadsheet? If it's off by a factor of ten and you don't know that, then there's something not adequate in your understanding. The spreadsheet's not actually doing it for you when you miss the decimal place and you don't know it."

But you know, they grew up with these tools. And the next generation now is growing up with smart phones and immediate access to the internet. I mean, that's great. It expands your capacity. But teaching people how to think carefully, to think critically and to think creatively—that's still out there as the fundamental challenge. That's still out there as what you hope good teaching would do, is to say I'll help you confront a brand new situation and to begin to think it through in a way that in the end, you will know where you stand vis a vis

this environment that you're studying. You'll have an in-depth understanding of it. People now move very, very quickly because they have these tools and they can move so quickly. But, you know, being the old-timer, I say sometimes they're moving a little too quickly and they don't understand they're missing some things because it's going by too fast. They drove through it on their high-speed car, but they missed some of the phenomenon they would have seen if they'd been walking. (laughs)

Reti: Yeah. Good analogy.

Tanner: So in any event, that was some adjustment.

Director of Silicon Valley Center

And then I was saying well, this isn't the long term. Life has it's coincidences. I was over with one of our kids at Stanford. Both Eileen and I graduated from Stanford. We were there with our own children in the Stanford sculpture garden. I think it's the Cantor Sculpture Garden. I happened to run into an old friend of mine, Carol Christ, who had been the vice chancellor at Berkeley, and who's now the chancellor at Berkeley. I ran into Carol, just like, "Oh, my heavens, what brings you here?" she was, at that point, associated with Smith College. She and I chatted. And I conveyed to her that I was back in the department. She said, "What are you doing?" and I said "Well, I'm back in the department, but after you've been in administration, it's not necessarily a comfortable place to be." So she actually was the one who told a friend of hers at the University of Illinois that I might be a prospect when they were looking for a provost at the University of Illinois in Chicago.

Reti: Now, wait, did we skip the Silicon Valley Center?

Tanner: We did. We just went by the Silicon Valley Center.

Reti: We can backtrack to that.

Tanner: That was the springboard. So when I was a faculty member again, and not back in teaching for very long, I got a call from my successor, John Simpson, saying, "We have this approach from NASA, the possibility of our opening up a sort of satellite campus that would serve UC." It was broader than just being UCSC's, but UCSC would be the lead campus. But it would be something where UC faculty from Berkeley or from even Southern California would have a place where they could have, an academic pied de terre, so to speak, if they wanted to come and be at the Silicon Valley Center, where they would be able to make connections and do all sorts of stuff. And they came, because in the base reuse and closure process of 1994, Moffitt Field, which had been where those dirigibles had been in the big hangars, that military use was no longer necessary and so that military base was closed. Under the federal rules, the property transferred immediately to NASA, and the NASA Ames site. So NASA Ames suddenly inherited this big parcel of land right there on the marshlands of San Francisco Bay, right in Mountain View.

Reti: Mm hmm. My goodness. What an opportunity.

Tanner: At that point, the rents for buildings in Mountain View were really, really high. And the growth in Silicon Valley—everybody was looking for a place that they could build. And the people in NASA said, "Well, we've got this land asset, and we want to turn it into a research asset for NASA. And what we're going to do is to create a research park and we'll have a university presence." Interestingly, they already had a connection with Carnegie-

Mellon. But they didn't just want Carnegie-Mellon. They did a lot to interact with Carnegie-Mellon because of robotics, and the strength of Carnegie-Mellon. So NASA Ames had a lot of interconnection with Carnegie-Mellon, which is a really interesting, good institution. At least in my field they tend to be really top-notch.

So I was asked by John Simpson if I would be the initial director for this activity. I said, "Well, that sounds like it could be interesting. I grew up in this area. And you know, kind of get the lay of the land here so to speak and try to see what could you do. That's a nice task to set out."

So I accepted that and started working on it and doing some teaching on the side, not completely abandoning it, but doing all these interactions. It was quite fascinating because we opened up and tried to get going with NASA. But NASA proved to be very difficult to work with because they're highly bureaucratic. They have to have approvals for doing all sorts of things. They weren't able to move really quickly. And this was just about the time that the Silicon Valley was going to take another downturn.

Reti: Not good timing.

Tanner: And the site that they were really proposing had another problem, which was that it was a Superfund site. It was a Superfund site largely because of the silicon semiconductor industry. The wheel of life turning again—across Highway 101 from this NASA site had been Fairchild Semiconductor. In fact, in 1962 I'd driven there on a number of occasions to pick up chips. So I said, I know about that Fairchild Semiconductor. But however Fairchild Semiconductor had been run, they had storage of TCE, which is used as a degreaser and cleaner in the silicon production process. And they'd let it get away. It had gotten seeping

down into the ground. Whether they were just casual in their disposal, or one of their storage tanks for TCE, I don't know the origin. But this whole thing had been through litigation. The TCE, which is actually lighter than water, if I'm remembering correctly, was seeping in the plume going toward the bay and passed under Highway 101.

Reti: Oh, no!

Tanner: You wanted to get rid of it. So they had gone through a whole bunch of stuff and they had a whole bunch of pumps to pull the water out and to pass it through a filtering system to get rid of the TCE before that got into the bay. So this was all worked out.

Reti: Yipes.

Tanner: But the problem of having a Superfund site like that, particularly with this underground plume of the contaminant, the TCE, was if you went to build something, you ran the risk of disturbing the flow patterns. You might have some of the TCE coming into wherever you're building. You had to be very careful about that because otherwise you'd find yourself being blamed for exposure to your workers, or that your putting in the foundation for your building had diverted the stream and it was no longer— I mean, there were just opportunities for lots of issues here.

So you had to say, we've got to really figure out how we can handle these without having them later on come back to bite us. So that was one effect that made it slow. But we tried to gear up. We'd been talking with De Anza College and the community colleges, and try to interact with San Jose State to say, "Well if we do something here that might be graduate level

and research level, how will that interact with you people?" We didn't want to be seen as a threat to what they were doing. We wanted to be cooperative. So we put in a lot of effort.

But by the time all of these things had been thought through and NASA had been able to move forward on its own planning, the value of the real estate had dropped so much that they were not going to be able to get that part to immediately come up, and they weren't going to be able to sell the land the way they thought they would be able to do maybe in '96, '98, somewhere in there. By 2001, that moment had sort of been lost. So I know that the Silicon Valley Center had got started—we had an activity going in in a borrowed NASA building. That's when I left. I think finally they just decided that wasn't going to be workable at all. I mean, now it's more than fifteen years later, seventeen years later. George Blumenthal might have been involved in making the decision that UCSC was just going to give up on that.

Reti: Yes, he did cover that in his oral history, so anybody who wanted to know about this chapter who is reading this should go over to George's oral history.

Tanner: Yeah. Well, it didn't come as a huge surprise to me, because I was there at the beginning and saying, "No, this has got too many sticky aspects to it. The overhead of this interaction is very, very high. I'm not sure how this is ultimately going to work out." I think in truth, rumor had—and I tended to lend credence to it—that NASA had tried to get Stanford interested in doing something, and Stanford had declined. (Reti laughs) I think I know why.

Reti: UCSC's fate. (laughs)

Tanner: Well, for us it would have been valuable. When I was presenting it here, I'd say, "When you think about it, it's not that far physically, the number of miles. Highway 85 kind

of takes you right to where we want to be." So if we're looking to create a connection between UCSC and Silicon Valley, this is almost a perfect location because it's right at the end of Highway 85. So I found that attractive, if we could get it going. That's why I said I'd work on it. But in the first year everyone said this is very, very tough sledding here to make it through all the bureaucracy and issues that this has.

Reti: And you brought up an important issue, which is the ways in which UCSC has wrestled with serving that area. This gets into all kinds of things that probably were not your purview, about fundraising and stuff like that, but there's a major cultural difference between this side of the hill and the other side of the hill. Silicon Valley Center was an attempt to try to bridge that. There have been other attempts. I mean, this is more of a comment than a question. It's something that I've seen the campus wrestle with.

Tanner: That's right. Here we are in this beautiful environment where you get a lot of coastal rain and wetness under the redwoods. So people tend to gravitate toward waterproof hiking boots.

Reti: (laughs)

Tanner: You know? And then you go over to Silicon Valley and at a certain point in IBM's heyday, it was coat and tie. So when I became chair of our department in 1981, whenever I'd go over, I'd be sure that I was actually dressing in that more corporate kind of way. I'd come back to Santa Cruz and I'd notice a few little glances at the fact that I'm going around in coat and tie.

Reti: I do remember that. You stood out (laughter) because there just weren't that many faculty that wore a coat and tie around here.

Tanner: Well, that was just a quick era because then later, if you were really part of the inside crowd at Silicon Valley, you should be wearing a black turtleneck.

Reti: Oh, yes.

Tanner: So Silicon Valley passed through the coat and tie moment and went into the—

Reti: We're so hip.

Tanner: We're so hip that we don't even have to do that sartorial thing with the cravat. You know, we'll get rid of that.

Reti: (laughs) That's hilarious.

Tanner: So I had to kind of migrate. But with certain of the people, I wanted to be sure that they didn't think that Santa Cruz was just this casual, ungraded place across the hill, and that we weren't serious. So I'd make a point of wearing a coat and tie.

Moving On

Reti: This is segment two of interview three with EVC Michael Tanner. We were starting to talk a few moments ago about how you got this offer from the University of Illinois and decided to leave UCSC, which I would imagine must have been a huge decision because you had been here for what, thirty years?

Tanner: Thirty years.

Reti: Not everybody decides to pull up stakes from Santa Cruz and go to Illinois.

Tanner: Yeah, when you have to move out of the place you've been living in for twenty-five years, it's not a decision to be taken lightly. (laughs) Well, we'd been here for a long time and it's a beautiful place. And we'd take advantage of the cultural aspects of San Francisco, as well as what was here. I certainly enjoyed it, because I like being in this environment. I like the outdoors. We played soccer, adult soccer. And I'm a tennis player, so I could play tennis all the time. It's a great place for that. And go hiking, and beautiful scenery that we have here in California. So it was a great place to spend your life in that sense. But what was the next chapter going to be? And along came this sort of sporadic and unexpected connection where I was approached about this job in Illinois. And I thought well, that would be interesting, to go to a big city. Because we'd not been in a big city. Chicago's really quite a fascinating place.

So I went through the process, which involved a video interview, just an initial screening. Then you do what they call the airport interview, where you're under the radar so that if you decide you're withdrawing, nobody knows that you were even there. You just happen to be on a layover at Chicago O'Hare kind of thing. But I was at that point not in a position like EVC where it would be a huge problem if people were aware that I was looking at some other job. So I didn't worry about it terribly much.

It reached the point that I was going to be named as one of three finalists. And in their process, that's when your name becomes public. Now I knew that this UIC campus had had a recruitment the year before that I hadn't participated in and word reached me that they had made an offer and the person they decided they were going to pick changed his mind, that he didn't want that urban environment. He was more of a rural, agricultural kind of person.

So when it reached the point that I was going to be one of three, I sat down with Eileen. We hadn't really talked a whole lot about what it would mean if I were actually—you know, this is just "give it a try and see what develops." So we sat down and I said particularly given that they made an offer that didn't get accepted on a previous attempt at this, it would be really embarrassing if I were to go through and be a finalist and then at the end say, "Well, you know, I don't think I'm going to be able to take this position." So I said, "Would you be ready to move to Chicago?" And Eileen leaned across the table and said to me, "Do you really want to know what I think about this?" I said, "Yeah, this is the time where I really have to know what you think." And she said, "I'd love to live in Chicago." (laughs)

Reti: Oh, wow. Very cool.

Tanner: We've been here in Santa Cruz for thirty years. Why don't we try something different? Chicago's got all sorts of things happening. It's got the Art Institute of Chicago and the MCA, the Museum of Contemporary Art, and opera, and symphony and all sorts of things. All the big sports teams, everything.

I went back and went through the process. It was a big deal, but I felt fairly comfortable. If I didn't get the offer, that was okay. But I went through and they made me an offer. And I said, okay, this sounds like it would be good. So we ended up going there.

And for me personally, I guess it was like––when I was recruited into administration here––was kind of like well, we need to have good administration, and I'm going to put my name in because I really do have strong feelings about what needs to be done to make the campus function, to work better, to be ready for growth, to be ready to be successful as a UC campus.

So I have strong feelings about it and I really owe it to myself to put my name in here. But it wasn't like I targeted [being and administrator].

This is one where I sat there and I thought about it, and I said well that could be an exciting adventure, because I really do have a lot of experience. So I went there. It's a big campus. At the time, the budget was 1.3 billion, and one of two dental schools for the state of Illinois. It is the principal dental school for the state of Illinois, and one of the top five nursing programs for the country. And so to get into those things, which were far afield from what you have here at Santa Cruz. They had a full array of professional schools, including engineering, that connected down to the Urbana campus. So that was an interesting challenge, and very satisfying in a number of ways.

You asked me about the academic plan here. When I got back there, I said, "We're going to do a strategic plan." But we were also facing uncertainty. So I said, "I'm going to call it strategic thinking. It's going to become a plan if we have the resources to develop it. But at least we'll know where we want to go. We will have thought through." Your purpose in having some of those plans is not just to produce some document. Your purpose, really, is to engage the broad swath of the people in the university community to put in their thinking about where that university should go. You're going to have to work through the competing visions, and the different senses of it. But at the end, if you've got a good process, everybody's understanding why you've chosen this particular path that you want to follow. So that's what we tried to do at UIC.

Did I learn a lot in terms of the assumptions? You know, whenever you leave your own culture and you go abroad, it makes you aware of the assumptions that you have from back

home that you never really actively thought about as being your assumptions. But they're challenged when you go into some other environment where those assumptions are not valid anymore. That was the case when I was in Illinois. Their processes of how the state funded things, particularly the capital funding, was so different. They had gone through the approval process for a new building for chemistry back there before I got there. The state legislature had authorized it and in fact, had voted the funding for the building. So with my California mentality, I said, "Well that means I have to get the people who are going to be in this building—we have to start getting serious about exactly how it's going to be laid out, and make sure we really understand the plans, and so forth and so on.

No. There's another step in the state of Illinois, which is the governor has to release the funds. And Governor Blagojevich came in, and Governor Blagojevich had other things in mind for the funds. So the eight years that I was at UIC, those funds were never released. And that was just one example of okay, well, you have the way life works in the UC system and you get used to it. Here we had Garamendi-funded buildings and the state funded, and you'd get on the capital list and you'd go up and you'd try to say to the people at the Office of the President why we should have a priority for this building. Maybe interdisciplinary science or whatever. You'd make the case and you'd sort of get in line. And then a bond measure would be passed and you'd count on it. That process would allow you to plan ahead. It was a lot more fraught with unexpected perils in that process to getting something accomplished in Illinois, which I thought wasted a great deal of people's energies. It's an inefficient way of approaching things.

Reti: It seems very backwards to me.

Tanner: You know, you've got people sort of geared up and they spent their time on this planning, but then the money didn't come through to actually realize the plan. So that's back on actually the theme of when you use the word "plan," what do you mean?

Reti: Yes.

Tanner: There's a contingency factor in there. And Illinois, with respect to that one building, I got taken completely by surprise when it turned out that building wasn't going to happen after all. And so I had to rapidly say, "Well, I'm sorry, it looks like we're not getting this funding, so we have to put this on hold until the climate changes." But that was a good experience.

Reti: What are you doing now?

Tanner: Well, after eight years there, there was a big turnover in leadership and recruitment, in which they ended up hiring a new chancellor at UIC. I said, I think it's time for me to move on. And I got an offer to be vice president for academic affairs at the Association of Public and Land Grant Universities. Back in 2000, it was known as NASULGC, the National Association of State Universities and Land Grant Colleges. But Peter McPherson had put in this shorter acronym. He was looking to have someone who really did understand academics, had come through as an academic because though APLU is the national association for the public research universities, they had very few people actually on their staff there who were genuine academics. We had people who were professional in government relations who could go up [to the Hill], and a couple of registered lobbyists and so forth. But he wanted to have someone who could provide a national leadership for the provosts of all of the research

universities. So that's the University of California, University of Florida, University of Wisconsin, and then the land grant universities, like North Carolina State is the land grant university in North Carolina. And it includes the historically black colleges that were created in the second Morrill Act of 1890. So we have among our members those colleges, those universities, including Tennessee State.

Reti: Wow. Full circle.

Tanner: That sort of closed the circle. So, anyway, I worked there on providing a perspective from the academic wing on all of the national issues it faced. APLU is the voice of public higher education when there's clearly unity, or close to unanimity, in how the universities would see an issue that's appearing up on the Hill. Like whether or not graduate student stipends should be taxable. Well, universities know that would have a huge impact on it. So they would band together and APLU would be involved in trying to make sure that all the congressmen, or the senators, would know that this is going to have a huge impact on our universities and we're opposed to this. This is not good.

And we would also be involved in spreading out: this is what we're hearing from Washington. And then its other function is getting people together to talk about the shared challenges that they face, and hopefully have a cooperative, at least an exchange of ideas, on how you tackle some of those challenges.

Almost uniformly across the country, there's been a reduction in state funding for higher education. So everybody's trying to figure out how do you explain what's going on to the public in what can become a political issue because how the reduction in funding for higher

education is being phrased has a great deal having to do with the politics of how the candidate for the governorship, or the governor wants to be perceived. And so how do we handle this? How do we communicate internally? At APLU I was involved in getting the provost to talk about that. Or a change in Title IX—what will that mean for us; how do we deal with that? Or the new laws on sexual harassment or sexual assault—what would those look like if these proposals went through? So that was fascinating.

And I also had a component that I worked on which was trying to accelerate and improve the quality of computer information technology as an aid to learning. There's a field that we often call adaptive learning, which is when a computer system interaction can learn something about what you actually know, and then begin to adapt what it invites you to look at based on that. So in the shorthand, I'd say: If Netflix can suggest a next movie that you might want to see, and Amazon can suggest the next product, couldn't we have a system that would suggest to an introductory math student the next topic they might want to look at in mathematics. And if you can get that going, it allows a student who knows two-thirds of what's taught in the introductory course—to say to them, "No, we're going to focus on the parts that you don't know, not spend your time going through the stuff that you do know." If it's really well done, it can provide a lot of immediate feedback.

So I went and testified in front of the National Research Council about where I thought this might go, and said, "You really ought to think about it as a replacement for the textbook, not as a replacement for the instructor." There are some people who were saying, "Oh, well if students can learn all this online, then can't we cut back on the number of expensive faculty?" I said, "I don't think that's the right way of looking at it, in terms of getting new students to

be involved. These kinds of systems can be very useful if they're well done for students. They need to have the literacy of interaction with computers. So that's like their first step in having the tool. But it could provide a lot of non-judgmental interaction with students that could be very, very helpful."

I think when it finally reaches its full potential, it will be almost part of every teaching experience. We'll be doing more and more of this adaptive learning. But it's a tough one, because it will take a really large investment to do high-quality materials in this way. If you think about the money behind just a movie and its graphics, and we're talking about budgets for a movie that are 200 million just for a two-hour experience, right? Now you think about now suppose we're doing a really outstanding presentation on the whole range of introductory topics for people. To really back that up with the quality you'd like, you are talking about hundreds of millions. And who's going to make that investment? But I was successful in getting Gates Foundation funding. They are interested in the topic. I created something called the Personalized Learning Consortium that got funding from Gates to have people in many different universities who were interested in this and wanted to watch the market, to be able to interact and try to influence the development in the field.

So I did that at APLU for five years. And then three years ago I said, I'm about to turn seventy and before I begin to lose some of my abilities to enjoy the world in certain ways, I think I'm not wanting to work fulltime. So since then, I've simply been consulting. For the first two years, I consulted for APLU. And then in recent times, doing volunteer work and serving as an expert witness in the coding business.

Reti: Oh, great.

Do you have more you want to say about UCSC, in closing?

Tanner: Well, I come and I see how this campus has expanded. It's marvelous to see, knowing where it's started, where it's come. Many of the initiatives that we saw out in the future have now actually come to some fruition. I'd have to go talk to graduates to find out what do you feel about the experience, but just in walking around I see that it has migrated in a way that I thought it would become successful.

I was disappointed that we weren't able to create a stronger connection with Silicon Valley because that's obviously my area, and I think it would have been a tremendous opportunity. But steps have been taken in recent times to strengthen that. And I think the perception of this campus is, even in that way, has been improved. It's good to see it flourishing.

It was always the campus that was going to try to be different, a little bit. It was always the campus that would question authority and do something a little different. There were times where I'd say (groans), you're still questioning that, and there's not much question left, but you seem to be insisting on questioning it. On the other hand, it's a place that saw some things earlier than many other places. It saw the issues of, for example, the need to change the perception of women's role in our world. UCSC was way out in front compared to a lot of these places. That, or in the GLBT kinds of issues that the world came around to, right?

UCSC has done some wonderful things in being a leader in fields. For that, I think it can be very proud of what it's accomplished. So it's been a pleasure to be able to come back and visit, and spend some time with you and walk across those bridges under the beautiful redwoods, and say, wow, we remember when we were pushing strollers (Reti laughs) with

our kids along these little walkways. And there they are, still doing very well. So I hope that it continues to grow, and I hope that UCSC and others can continue to persuade the people of California to support public higher education. We all have to live up to being accountable to those that are providing support because it really is an institution of the people of the state of California. But the people have got to step up and make the investment and I hope they will continue to do so.

Reti: Great, Michael. Thank you so much for doing this with us. It's fabulous to get to talk with you and hear all your ideas and stories.

Tanner: Thank you for taking the time.

About the Interviewer and Editor

Irene Reti is the director of the Regional History Project, where she has worked since 1989 conducting and publishing oral histories. Reti has a B.A. (Environmental Studies and Women's Studies) from UCSC and an MA in History from UCSC. She is also the publisher of HerBooks, a nationally known feminist press and is a landscape photographer, writer, and small press publisher.