



## Tom Yates Oral History Interview, February 10, 2016

**Title**

“The Early Years of Computing at Oregon State”

**Date**

February 10, 2016

**Location**

Valley Library, Oregon State University.

**Summary**

In the interview, Yates provides an overview of his family background and upbringing in Washington state and the Bay Area, noting his memories of the attack on Pearl Harbor, his love of reading, and an early job that he held with the Hartford Insurance Company. He then describes his military experience as an enlistee in the Navy near the end of World War II. From there, he discusses the circumstances that led to his enrolling in undergraduate studies in Mathematics at Willamette University, his first job following college at Scott Air Force Base, and various other jobs that followed.

The session then turns its attention to Yates' career in computer programming. In this, he recalls his initial employment as a statistician for the Oregon Highway Department, his move to Boeing to work as a computer programmer, and the enormous IBM 704 computer that was then in use at Boeing. He then recalls his return to Oregon, where he was among the first people to be hired by the state as a computer programmer.

The remainder of the interview is primarily devoted to Yates' years of service to Oregon State University. In providing an overview of this period, Yates touches upon the state of computing on campus at the time of his arrival in 1962; the imperfect process that finally resulted in automated class scheduling in the late 1960s; a sabbatical that he took to Australia in 1975; and his memories of being named director of the OSU Computer Center in 1976. Yates likewise notes the major expansion of the computing infrastructure at Oregon State that occurred during his term as director, and touches upon a few mistakes that he made during his administrative career. The session concludes with notes on family and activities in retirement.

**Interviewee**

Tom Yates

**Interviewer**

Mike Dicianna

**Website**

<http://scarc.library.oregonstate.edu/oh150/yatest/>

## Transcript

**Mike Dicianna:** Well, today is Wednesday, February 10th 2016, and we're going to capture the early history of Oregon State University Computer Services and the life story of Thomas L. Yates, director emeritus of the OSU Computer Center. My name is Mike Dicianna, I'm an oral historian for the OSU Sesquicentennial history project, and this interview is being conducted on the OSU campus in the Valley Library.

Basically we always like to start with a short biographical sketch of our folks - where and when you were born, early memories, family, that type of thing.

**Tom Yates:** Ok, I was born February 6th 1927, in Seattle. My very earliest years, our home was roughly in the university district of the city, and when I was about four years old we moved to Vashon Island which, for a little kid in those days, was a wonderful place to grow up. We had maybe an acre property, a rental house, and I had several friends in the area. And the interesting thing to me about that is, while I thought it was such a wonderful place, I found out many years later that my mother truly hated it. Because it was occurring in the depth of the recession/Depression and things were very tough, especially for a salesman like my dad was, who sometimes took the ferry boat to Seattle without enough money to buy his way back again, so he had to do some sales work. At that time, he was selling fire extinguishers. And I was oblivious to all that.

Then when I was going into the fifth grade, we moved back into Seattle and lived near Green Lake. It was also a pleasant time for a young boy. We lived there two years when my father saw better opportunities for his work. And at that time he was selling feather quilts. And we headed for Oakland, California. Except for a brief period of four months where stayed back on Vashon Island, we were in Oakland for the rest of my youth. We lived there in Lake Merritt; the lake seemed to play a role in my life. And I went to junior high there and then onto Oakland High School with the war, Pearl Harbor, occurring when I was a sophomore in high school.

One of my vivid memories of that, the day after Pearl Harbor we went to class as most people did and listened to the President speak to Congress, and then we went back to our classroom. And my classroom at that hour was Geometry, with a very fair but tough old lady, Mrs. Sumner. And it really struck home to us what this meant to us when she broke down and cried in the classroom. We began to appreciate that it was not an adventure. The Bay Area, at that time, felt like it was under threat from the Japanese, so we immediately went into night blackouts and general awareness of what was up in the sky. Fortunately, nothing developed along those lines.

But a positive, family-wise, that came out of that was that because of the gas rationing, my father could no longer be a travelling salesman. So I think three or four of my mother's happiest years were when he worked at the naval supply depot in Alameda and brought home a regular check. [laughs]

[0:06:01]

She couldn't budget and my approach to life in those years was pretty lackadaisical. I was not a particularly good student; I coasted. But I got by and got a pretty good education because a friend of mine introduced me to two wonderful publications, *The New Yorker* magazine, and the *St. Louis Sporting News*. And they were both immaculately edited publications with wide ranging interests; they just captured my interest and even to this day.

In those days, I was about six feet tall; I got ultimately up to 6 foot 1 1/2. After I got out of high school, it was not too long after that I joined the Navy and at that point I weighed 130 pounds. I was a sports nut who had very little talent sports-wise, so I got my satisfaction out of knowing a lot about sports. And this served me well later in life. I expect I'll mention it. But throughout those high school years, I was working all year long. My junior year, I got what I considered a green job; It was with the Hartford Insurance Company.

**MD:** Wow.

**TY:** And every afternoon after school, I'd catch the streetcar and go from Oakland High School down to downtown Oakland to the Hartford Insurance office there. I'd pick up a briefcase full of mail intended for the San Francisco office, I'd walk down the street and catch the electric train that went across the Bay Bridge, rode the train over reading my

magazines and newspapers, walk up the hill on California Street to the office up there. Exchanged mail, went back, caught a train, got home about 6:30-7 o'clock, and feeling fulfilled, because of *The New Yorker* and the St. Louis Sporting News. [laughs]

**MD:** [laughs] Well read.

**TY:** Yeah. So again, I'm a great believer in serendipity and I've had a lot of serendipitous things happen and that was one of them.

**MD:** Now during the war years you were in high school. Were you participating in things like scrap iron drives and ration cards and things like that?

**TY:** Oh yeah. Well, I was very aware of them; my parents of course administered the use of the rationings. So other than knowing what was rationed, I wasn't really involved much. I do remember especially the bond drives, and in those days they reduced it below bond drives by, I suppose, as little as a nickel and quarter stamps to put into a booklet. Eventually you'd fill up the booklet and turn it in and you'd have a bond. [0:10:56]

Other than that, I don't remember much involvement. I did take the high school ROTC my first year in high school, and regretted it very much when I had to march in the Armistice Day parade carrying a heavy World War I rifle. And of course, the wool uniform. So I was back into taking PE instead, come next year.

**MD:** So did you wait to join the Navy until you were right at that age?

**TY:** Yeah, I graduated from high school when I was just barely seventeen years old. So I actually went to University of California at Berkley for one semester. I had a good friend, actually, from Vashon Island who was in the Navy and his ship was stationed in the Bay Area, so he would come and stay with us when he had brief leaves. I was lucky enough that his older brother had been involved in a naval program called the Eddy Program. It was a comprehensive test and I've always been good at taking tests - that's one of the ways I got through without really studying. If you passed the test, you would enter the Navy as a Seaman First Class and go into an eleven-month training for repair technicians for radar, radio, and sonar.

So I joined the Navy a week before I turned eighteen in February 1945, so the war was still on. I got shipped off to Great Lakes Training Station for my boot camp and then from there I went to a little naval armory in Michigan City, Indiana which is near South Bend, where Notre Dame is located. Anyways, this little armory had a one-month preliminary school and then we got dispersed out to at least three different locations for a three-month school. As luck would have it, I got sent to Monterey. Not only was that lucky but at Monterey the facility was, at that time, called the Del Monte Hotel, which is now a beautiful hotel. We were housed six to a room and our meals were served in the dining room by waitresses, because the Del Monte people had insisted that in the dining room they didn't want it trashed. So there was a dormitory full of waitresses on the grounds. [laughs] What a life. So I even got to take the train home a couple of weekends while I was there for three months. And then our next assignment was Treasure Island. [laughs]

**MD:** So yeah, you just stayed at home?

**TY:** Yeah. Of course, the war ended while I was still there. That was a seven-month school, Treasure Island. By the end of my training, the war was ended and they were decommissioning ships, they had no use for what we were called - Electronic Technicians. So I spent probably three weeks in what they called the receiving ship; it's a barracks where they were just trying to figure out what to do with people like me. And I ended up the rest of my naval career, which would have been the better part of the year, as a guard at the brig.

**MD:** [laughs]

**TY:** The only time in my life I carried a gun. [laughs] And it was not a high security brig, it was for people who were absent over leave a few days.

**MD:** Drunk and disorderly?

**TY:** Yeah right. And there was a really tough brig up on that island, Yerba Buena Island, which the Bay Bridge touches on. The Marines guarded that one. That was my naval career; my one time on the water was taking a water taxi over to San Francisco one time to serve as a shore patrol in downtown San Francisco. What a life. [0:17:45]

**MD:** So then you went to Willamette University and this is during the time where there is a great influx of returning veterans going to school on the GI Bill. First of all, what influenced your decision to go to Willamette in Salem, Oregon?

**TY:** My dad was a college graduate from Ohio Wesleyan University and majored in mathematics. I had always done well in math, so I felt that I would go somewhere and major in mathematics. My one semester at Cal convinced me that I wanted to go to a smaller school.

How I selected Willamette was very unscientific. Because of my interest in sports, I was aware of Willamette because they played sports during the war against people like Oregon State, Oregon, Washington. So I knew about Willamette, Whitman, etc. I gave some serious consideration to going to Ohio Wesleyan, but having spent a winter at Great Lakes and down in Indiana, I was turned off by that.

Then I considered San Jose State which was a small teacher's college at that time, probably had 4,000 students at the most. And San Jose was a cannery town; it was tiny. I didn't even end up visiting there, I just considered it.

Anyway, I wrote to Willamette and several other schools and Willamette gave the best answer. Their promotional stuff was superior to other people. So I chose Willamette.

**MD:** In Salem, Oregon. So were you on the GI Bill?

**TY:** I was. I would not have gone to Willamette if it hadn't been. In those days, it wasn't outrageously expensive, but still I could go to the colleges and universities in California for practically nothing. I don't think I paid anything but some sort of a registration fee at Cal when I went for that one semester.

So I came up to Willamette with a whole flood of GI's. They saved Willamette; I hadn't realized it at the time, but the war had caused financial problems for schools like Willamette, so the GI Bill was lifesaving. And partly because of that, they were a little more flexible socially with the students when they came back. We still couldn't smoke on campus, had to go out to the sidewalk. And if you were caught with a drink in your hand you were outta there. It hadn't been too many years since they started allowing dancing at the school. So the Methodists were fully in control - still are to a certain extent - but certainly nothing like it was before World War II.

So I found a very comfortable experience there at Willamette. My best friend from the Bay Area came up and joined me for a couple of years, and I made some pretty good friends there at Willamette. Ended up with a bachelor's degree in Math in 1950. Those were the years when you finished in four years.

**MD:** Right. [0:22:44]

**TY:** By that time, reality was beginning to sink in and the question is what do you with a degree in Math? Really the only answer was you teach, so I came back for another year to take Education courses. By the time I finished my fifth year, actually sometime before, I had run out of GI Bill so I was scrambling, doing various jobs. I drove school bus for three years, which was a wonderful way to earn a little extra money. At the end of that fifth year, I knew I couldn't afford to go any longer to Willamette and I was a little shy of qualifying as a public school teacher; a couple courses. So I applied for a civil service job with the Air Force. And one afternoon, I got a letter from them telling me that I had been selected for a job that if I wanted it, I would make myself available at Scott Air Force Base in Illinois four days from now. [laughs]

**MD:** You can hardly get there by train!

**TY:** That's right. The train wouldn't have been sufficient. I took a day to get myself sort of organized and packed. I had a car and I talked Mike, the guy I was sharing an apartment with, into driving me home to Oakland. We dashed down there and then we got there on Saturday. A little party thing Saturday night, and then Sunday evening I caught a red-eye out of San Francisco and flew to St. Louis. And I got to Scott Air Force Base and checked in, where they told me that was fine,

glad I was here, and would I please report to work in three weeks? [laughs] If I don't die of starvation in the meantime I'd be happy to, but I've only got limited funds with me. So they worked around and got me started right away. [0:26:09]

I was only there for three months, two and a half months, really enjoying that experience. I didn't actually teach because I had come earlier than they wanted me to. They just had me sitting in on a class, an algebra class, and so for the first time in my life I was getting to see Major League Baseball. There were two Major League teams, the Browns and the Cardinals, so I got to see those. But right around Labor Day I got a telegram that my father had died. And I knew that my mother, who had not worked all her life other than raising my sister and me, I knew that she needed support.

So once again, I threw stuff together and this time I took the train because I couldn't afford the plane. Took the train back out to Oakland, got there just in time for my dad's funeral, and then got a job as a substitute teacher in the Oakland school system. They weren't too worried about teaching certificates and all because there was a flood of students and not enough teachers. I spent that year doing substitute teaching in the Oakland schools. Learned that I really didn't care much for it, especially in junior high, but even high school was not my bag.

By the end of the year, I felt that my mother was able to get by on her own, and I went back up to Willamette to finish my teaching degree because, again, I didn't see any possibilities. My dream job would've been something in sports or - one thing that I meant to mention, during my college years I was a stringer for the Salem *Statesman* newspaper, covering ball games, because the sports editor was one of the top referees in the Pacific Coast Conference and he couldn't cover a lot of the high school and Willamette games. So I started writing sports for a newspaper without ever having taken a journalism class. But I read the St. Louis *Sporting News*.

**MD:** And that you were a sports nut. [0:29:22]

**TY:** Yeah. Anyways, when I got back up to Willamette, it was back to driving school bus and writing sports for the *Statesman* for one semester. I got to the point where I had a teaching certificate and I accepted a job to teach at Neahkahnie High School, over on the coast. And maybe three weeks before I was to report for that job, not being terribly enthused about it, a friend's father told me, "you know, they're looking for a statistician man in the Highway Department, you ought to apply. So I gave it a shot and they hired me. So I turned down the Neahkahnie job and I spent the next four years working on statistical studies for the Highway Department.

**MD:** Yeah. Now that was early - they didn't have computers.

**TY:** I still wasn't aware there was such a thing as an electronic computer.

**MD:** They were just crunching numbers.

**TY:** Yeah, we had all kinds of desk calculators. There were some poor guys working in the Traffic Engineering Division who spent all day long feeding in stuff, and I did a fair amount of that myself. But anyways, I was having a happy time with that.

But during that time I got reacquainted with the lady who became my wife. We had a nodding acquaintanceship at Willamette; she was two years behind me in school. In 1954, we got married and we're still married, so we've got sixty-one years in the books, heading for sixty-two.

Then, in late 1954, IBM made a pitch to the state government in Salem. IBM had finally figured out that there was marketing potential for these computers. They had started out thinking that if they built a dozen of them, that would satisfy all of the computing needs. Literally, they were on record as saying that. They finally realized that there were a lot of things that the computers could do, and so they made this pitch to the state that they would put on a one-week workshop on how computers can be programmed and utilized for the state's departments, and every state department was asked to send one to two people to this thing. The Highway Department didn't want to waste an engineer on that so, not being an engineer, I got nominated to go.

That week, I found my niche. I just loved it. I made a bit of an impression on the IBM guys because eventually they offered, some years later, a job. But I thought, "see, if there was any way to get into this, that would be great." Well, the guy who took my car and ultimately sold it when I headed back to Scott Air Force Base was working as a research

mathematician for Boeing, and we got together that Christmas and I told him about how enthused I was about this. And he said, "Boeing is looking for people to be programmers, you ought to apply." And so I did. Maybe three months later, I was working in Seattle; I was working as a programmer trainee. Training in those days was self-taught.

**MD:** Yeah, you can figure it out. [0:35:02]

**TY:** Yeah, we were in kind of a bullpen arrangement with maybe fifteen people, and everybody was willing to give advice and help and all. So within a few weeks, I was productively creating programs for airplane design.

**MD:** So this is way before CAD and design-

**TY:** Oh yeah. Someone might have been thinking about it by then.

**MD:** But this is the actual statistics in aeronautical-

**TY:** Yeah, the jobs were brought to us by engineers who provided us with the formulas. The procedures and all that were used to do things manually, and then we would translate it. At that time, machine language, there was no such thing as an interpretive language. I don't know if you're acquainted with the language Fortran, but Fortran was available at Boeing about a year after I started there as a test site for IBM. So programming in those days was at the machine level: step by step by step by step. The coding was all done in mathematical binary, and the very large IBM 704 computer that we were using was in a room that was very large. The machine was measured in tons of weight, tons of air conditioning.

IBM maintenance personnel had an office right next to the machine room because at least twice a day an alarm bell would ring, because the machine sensed that something had gone wrong in the machine. These guys would come bursting through swinging doors, racing to get into the machine room to track down what the problem was. It had 4,000 words of memories. These were thirty-six bits, so that would be six, what is now called a byte, six bytes, so that would be 24,000 bytes of memory.

**MD:** [laughs] That was top of the line! [0:38:29]

**TY:** That was top of the line, yeah. It had magnetic tapes, but disks hadn't been invented yet. And the card reader and the printer were all machines that went "ka-chunk, ka-chunk, ka-chunk." So when you were debugging a program, you'd hand in this deck of cards. The operator would eventually get around to running your deck of cards, your program would blow up, he'd give you the readings on the registers, and hopefully there would be some information that could be printed out on the printer. And you'd take it back to your desk and you'd study and study and study and make a correction and turn it in again. It was laborious but it was fascinating, just fascinating. I was at Boeing for about a year and half when the Highway Department got a computer department, and there I was back at the Highway Department. First person hired as a programmer for the state of Oregon.

**MD:** For the state of Oregon, wow. I noticed you're listed as an EDP programmer, what does that stand for?

**TY:** Electronic Data Processing, EDPM, Electronic Data Processing Machine.

**MD:** Wow. This is the beginnings. Every business now has a computer, but this was a big deal.

**TY:** It was. We had an IBM 650 which, by that time, some machines were utilizing drum memory. The drums were rotating at a very fast speed and there were magnetic recordings on this drum in bands around the drum. So you would be retrieving stuff off this drum on the fly as it came by, and the machine, if you ask for an address on that drum of information, it would have to wait until it came around. It was rotating at some fantastic rate, but the speed was laboriously slow based on what we are used to today or even twenty years ago. The highway machine - there were a couple others installed in the state, I can't remember exactly now which departments - the highway machine was being utilized for engineering calculations and business applications. As a matter of fact, the computer was installed in the chief accountant's bailiwick, but the engineers got first call on the use.

Anyway, I got to the Highway Department and started developing programs; again, at a very low-level language, what is called an assembly language - so you'd use abbreviations, alphabetic abbreviations for commands and then a program that

IBM provided would convert that into the machine language for the computer to use. So I wrote various programs there, including a suite of program for the Bridge Division for stress design of multiple span bridges, which turned out to be a pretty effective program.

But in those days one of the fun parts was developing our own tools for debugging the programs. So, for instance, I wrote a program which I called "post-mortem." I don't know why nobody at IBM had thought of this yet, but when the program would crash, my post-mortem program would take these program cards and run them back through the machine and compare what I wanted to do with what was on the drum on that spot. Because the biggest problem we had, other than not interpreting the formulas correctly, which was our fault, was that the program would do something crazy and modify the contents of an instruction area. And so when we'd find this data instruction that got modified, then we'd have a clue as to what to look for and what was wrong in the program. And so there were a number of little things like that which were fun to do. [0:45:14]

**MD:** They are still doing that today, looking for bugs in programs; some things never change.

**TY:** But they have tools like you wouldn't believe. [laughs]

**MD:** Yeah, and now you're the pioneer in this type of thing. So you came to Oregon State University. What job brought you here? You started here in December of '62.

**TY:** After I had been at the Highway Department, I went to the Motor Vehicle Department, which was acquiring a computer for the first time, and I was only there for a few months because politics got in the way. Motor Vehicles had selected a Honeywell computer and, before it was delivered, both IBM and Univac got the ear of some legislators, telling them how unfair the selection had been, and the legislature cancelled the funding for the Honeywell computer. So a group of us were stranded there.

The state found ways to employ us in various departments - I ended up in what at that time was called Finance and Administration. I headed up a programming group there that developed a payroll system and various other systems for the state, and one of my jobs was ultimately as coordinator of computing facilities in the state. And one of my roles in doing that was helping people come from outside, like Oregon State, to use the machines we had in Salem. A member of the Stat department had a research job that needed the machine that was at the Highway Department. And the Highway Department said "ok, you can have the machine this night, late, but provided you come in and stay with a guy while he's using it so nothing goes wrong." So I got acquainted with this guy and it turns out at that time, just a few weeks before that, the Statistics department had acquired a computer and had two or three programmers. One of the professors in the Statistics department was managing that with his left hand, and Lyle Calvin, the head of the department, determined that they needed somebody managing that full time.

So he was looking for a director of the Statistics computing lab, and that's how I came to Corvallis. It helped that I had done a little low-level statistics work at the Highway Department. I had, at that time, a huge background in computer programming. [laughs]

**MD:** Yeah, compared to everybody else. You got a job because you knew how to feed the cards in.

**TY:** Lyle had a wonderful ability to judge what was happening and where things were going, and he recognized that there was a need on the campus not just for individual departments to have a resource to them, but for a service to be available across the campus; to do more than just research or teaching but also administrative work.

The Math department had acquired a computer about three years prior to that, but it was holed up in Ag Hall in the basement. There were probably eight or ten people who used it. It was being productive in a computer science sense, but as a service facility, it wasn't doing the job at all. So the Stat computing lab started that for the university. And about two years after I started there, this morphed into the OSU Computer Center.

**MD:** Now, I read about the Math department basically having the responsibility for computing services and eventually the Computer Science center.

**TY:** Computer Science, yeah. The Math department was responsible for the introduction of computer science to the university, but that was really their sole interest. They didn't have any interest, nor should they necessarily, in providing the registrar with the ability to keep his records or the Forestry department to keep inventory on their forests and so forth.

**MD:** And Oceanography started to grow.

**TY:** Right, and Oceanography, matter of fact, was one of our early users. A lady who is still in town here, Sue Borden, was the programmer for Oceanography. She came over and used our facility on a fairly regular basis.

**MD:** Now, was your office next to the computer or were you over in what is now Kidder?

**TY:** We were in Food Tech.

**MD:** Oh!

**TY:** We were back there by the meat lab. And we were there for almost three years and went through a couple of generations of computers there. And then Stat and Math and a variety of others academic areas said, "we really need a central computing facility." I participated in the computer selection process and the Math department really headed up the recruitment of a director for this center. And a fellow by the name of D.D Aufenkamp was hired as the first director of the OSU Computer Center, which was located in Kidder Hall, on basically the first floor of Kidder Hall. When we moved in there, the combination of the people from Math and the people that I worked with, plus a handful of other hires, we probably had twenty or twenty-five people working there. And that's when the Control Data 3300 was brought in. That was the first, what you would call anything close to a major computer for the university, and it was to be used for all functions.

[0:54:55]

My job at that time was to take care of the administrative work from the center, and Aufenkamp and I didn't hit it off very well, so after a year or so I went back to work in the Statistics department. The Ag school picked up part of my salary to develop some program libraries for agriculture. But I had been active in a national users group for 3300 installation and, as such, Control Data kept in touch with me and offered me a year's employment back in the Twin Cities. So I took a year's leave from the Stat department and went back and worked in three or four projects that Control Data had; a wide range of stuff, I won't go into that now. But we had an interesting year's stay in the Twin Cities and experienced another terrible winter [laughs]. And I came back to Oregon State to the Stat department kind of wondering what my future was going to be, because I knew that wasn't going to be a permanent role.

During my absence, a programming group in the center had done preliminary design and development of a computer scheduling for student registration. It turned out that it was a travesty. When they tried running it at the fall registration that year, it utterly failed. It was scheduling students for the same class multiple times, it was scheduling things students hadn't asked for, it was just bad.

During my stay in the Twin Cities, Aufenkamp left the university. He had done a good job developing the Computer Center facilities and all with no regard for what budgeting is about; he had gotten the university into a lot of trouble in Salem because of the budget shortfall. Since I wasn't here at the time that he left, I don't know really if he saw the writing on the wall or if he was asked for leave, but he did leave. And the guy he had brought in as an assistant director, a guy named Dr. Larry Hunter, had taken over.

Larry asked me to come back to the Computer Center and take on the job of straightening out the registration process. Classes did not begin that fall for a week to ten days after the scheduled start because nobody knew where anyone was supposed to be. The registrar finally worked a jury rigged system where essentially students worked with professors to determine whether or not that student should be in that class at that time.

Anyways, that was a nightmare year; certainly very challenging. I had a team of wonderful, wonderful programmers. I tackled some of the programming myself, and by the end of the year we had that system working properly. We were one of the handful of universities in the country doing computer scheduling of registered students. [1:00:24]

**MD:** I've seen a report that was made in '67 that talks about scheduling, student records, and budgeting, the whole package of basically the nexus of what we have today on campus.

**TY:** The interesting thing about that was that it was all locally developed. We didn't buy a single package; there were practically no packages to be bought. And Bud Gibbs, who was the registrar at that time, can't introduce me without telling people that I saved his skin. [laughs] It was a nightmare for me because I was trying to finding bugs in things. It was a nightmare for Bud because everyone in the university was coming down on him, "why we can't we get this going?" [laughs]

Anyway, we ultimately got that going, things smoothed out, and a few years later – actually, in 1975 - there was a visitor here from Australia, a computer center director, who spent some time with me. I was still strictly in administrative systems out of the Computer Center, and Larry Hunter was having a very successful time as director of the center. By the time that the visiting guy was ready to go, he asked me if I would be interested in spending a year at his institution. And I said "well, if I can get a sabbatical, I will." So I applied to the president, and he thought it was a good idea.

So part of my family - our two oldest children were in college by then so we left them behind - took off for Perth, Australia. I spent a year in what at that time was called Western Australia Institute of Technology, which was offering three year degrees. And it was a little bit like Oregon Institute of Technology. Subsequently it has become Curtin University and is a full-fledged school. But they were in the process of looking towards acquiring a new computer, so for a year I worked with them on planning for that sort of thing. Wonderful, wonderful experience.

While I was gone, Larry Hunter resigned. He went on to work full-time for a company that he had founded in town, which I had participated in to a limited extent before I left, that was developing systems for automated sawmill operations called Applied Theory Associates. My role in that was developing a system of programs for credit unions to use; initially just for the local credit union. While I was gone, that had grown to the point where Larry needed to devote full-time one way or the other, so he went with that. Lyle Calvin was the chairman of the search committee for his replacement. When I found out that the job was open - and Lyle kind of hinted about me applying - I wrote back and told him I didn't want to apply. I was concerned because I don't have a Ph.D and I didn't know the importance the faculty put on the instruction and research side of the operation. I just didn't want to fight a political battle. [1:05:57]

So I told him I wasn't going to apply. Four months later, one morning I got a call from Dean Popovich that they wanted me to take the job. [laughs] Boy, that blew me away, but I immediately told him, "only if I can hire an assistant director who has a Ph.D and a strong background in either engineering or computer science," because I wanted somebody else to fight those battles. And Popovich said, "anything you want." So I accepted - when I came back, I was director of the Computer Center.

**MD:** And that was in 1976?

**TY:** That was in '76 yes. We got back home just before July 4th, so we got to celebrate the bicentennial.

**MD:** When they started building what is now known as the Milne Computer Center, that was going to be housing the computers for the university, did you have a hand in that?

**TY:** No, no I didn't. What time is it please?

**MD:** Oh, it is a quarter after eleven.

**TY:** Ok fine, were doing fine. I've got a parking problem, but were doing fine.

That was really most active during the time I was in the Twin Cities, but the building was opened shortly before I got back from the Twin Cities. There is an interesting story about that though. At that time, nobody except the very, very knowledgeable computer scientists had any concept of what the personal computer revolution was going to be like. Everybody assumed that the central services was going to continue on ad infinitum. When the Computer Center was first started, like I said, I think there were little more than two dozen FTE there. By the time I got back from the Twin Cities, there were probably fifty or more FTE. By the early eighties, we had seventy FTE. Anticipating that that's the way things were going to go, that building was constructed with a second floor that is still resting on top of the roof. The anticipation

was that someday we will jack that up and put the second floor in. Kind of a standing joke during my tenure as director was, "when are you going to build the second floor?" [1:10:05]

**MD:** [laughs] Yeah, because you don't have room enough for the people you had.

**TY:** Yeah right. As a matter of fact, we were scattered all over the campus. We had people in Batcheller, Home Ec, Kidder, and I'm guessing a couple of other places. We had people all over the place.

**MD:** But did you connect through a network?

**TY:** Well yeah-

**MD:** Early network?

**TY:** I had two really what I consider bad screw-ups in my career. One of the disagreements I had with Aufenkamp, I didn't see as well as he did what was coming in timesharing. There was no timesharing when that building was built, and when we first got the 3300 he encouraged and developed a very effective timesharing service with that computer - good enough that eventually Control Data bought the system and marketed it to about three other facilities. So that was a bad judgement on my part.

The other bad one was the computer selections that were made under my direction while I was center director, partly due to the rather tough rules that Salem had laid down on acquisition of equipment. Salem is upset with OSU because of the budget blowup with the Computer Center. During that time, one of the central departments in Salem had installed an IBM system that included a kind of rudimentary timesharing capability. They kept preaching to us that you gotta work with somebody like this IBM system so that you have security. We kept saying we had built very good security into our system, and while there are problems that crop up every now and then, there's really nothing wrong with that.

One of our student programmers got upset with Salem with their attitude so he went in and crashed their system. Needless to say, they weren't happy about that. He ended up working for IBM. [laughs]

**MD:** During your time, computers must have grown in leaps and bounds. How often did the actual system, the physical equipment, change?

**TY:** Frequently. Not as frequently as the Computer Science guys want, and too frequently for the administrative users to be comfortable with. That was one of the finest lines I had to walk as director, trying to keep close to the state of the art but not screwing up peoples' work that's already doing well.

**MD:** You've gone through not only various generations of computer technology, but the same thing with compute language?

**TY:** Oh yeah.

**MD:** Now as a director you didn't deal with it as much, but you've seen the development of how programmers work. [1:15:45]

**TY:** It was moving fast enough that you had to develop an intuitive feel for what can work and what probably is too risky to undertake. Sometimes you didn't guess quite as well as you should have.

**MD:** You would have to have a crystal ball with the way things were moving.

**TY:** To the point that when I retired, I decided I was not going to try to keep up my knowledge of the field. Right now, I have a laptop, but in the interim I had a desktop. I did some spreadsheets and email and stuff like that, but I had no desire to try to program. I live in the Regent retirement home with eighty people up there and everybody is gung-ho about everybody. A lot of people are gung-ho about their iPhones or their laptops or whatever, but they are always looking for help. They don't get it from me. I don't have an iPhone and I'm not about to get bogged down in helping people. We've got a 93-year-old guy up there who is a wiz and he just loves helping people with everything, and I say, "go to it."

**MD:** That's just an interesting thing, that you would say, "hey, I'm retired. I'm done." Now this was early, really prior to the Internet becoming what it is today. Did we have, in essence, an Internet here at OSU prior to what it really was?

**TY:** I'm trying to think of the acronym for it but there was a precursor to the Internet. There were a couple people on campus who had access to it, so I was aware of it. Of course we had a big timesharing array here. We were supporting 120 terminals.

**MD:** So that's basically an inter-college network.

**TY:** Yeah. All developed by people here, which is kind of amazing. But anyway, two or three years leading up to my retirement, the personal computers were the IBM PCs. They were becoming available. I had to be involved in individual faculty members using outside funds to buy computers for their own use in their own research - getting Salem's approval that this isn't something that's duplicating whatever. It was a pain. But over the couple of years before I retired, there were probably four different manufacturers, including HP, who were getting into the personal computer area. The last major task that I had was selecting a contractor and negotiating a long-term contract for a large number of personal computers. We ended up with IBM for a thousand units, and that was my last undertaking here. The internet became generally available - I retired in '85 - sometime between '85 and the early 90s.

**MD:** Yeah, and then within the campus. [1:20:56]

**TY:** Yeah. I didn't start using the Internet personally from home until maybe twenty years ago. I was still operating with a dial-up system into the university system. Eventually that got discouraged, they didn't like that.

**MD:** [laughs] Yeah, it was too much of a dinosaur for the system.

**TY:** Well, it wasn't that so much as they starting discouraging outside users even if they were retirees from the university. We got kicked off the email system probably ten years ago. Anyway, the guys who developed Peak filled a wonderful gap there. That's how we got here.

**MD:** The whole idea of saying the development of computers up to 1985 and between 1985 and today, thirty years, is just crazy compared to the exponential growth. Your top of the line computer when you retired is far less than what people have on their cellphones.

**TY:** That's right. Incidentally, the beat goes on for our family. My oldest son was a software developer, first for Control Data and then working for Battelle up in the Tri-Cities. He had a forced retirement in the dot-com crash back around the turn of the century. He had taken a job with an outfit in Portland and they went under. He didn't want to leave Portland, and finding a job in Portland for a guy over 40 years old was very tough. So he has been retired for a long time.

My other son, incidentally, was a Computer Science graduate from Oregon State. My younger son went to the data processing curriculum at LBCC. He worked first for the credit union systems company. It's out there on 35th.

**MD:** In that business center thing.

**TY:** They moved since then. He worked with them for a while and then for HP. Now he's director of information systems for the Samaritan Health complex here. If I need something technical, there he is.

**MD:** That's one of the things we always like to do is catch up with our interviewee's family. You live in the retirement center but you settled here in Corvallis when you went to work here. Did the kids go through the school system?

**TY:** They did.

**MD:** And you had four children?

**TY:** Yeah. Our oldest daughter started school in Salem, but she was a second or third grader when we moved in here. They all graduated from Corvallis High School. The two oldest - daughter and son - went to Oregon State. The two youngest went with us to Australia. Our younger daughter had just graduated from high school and actually she worked in

the Registrar's Office down in Australia and took a couple courses while she was down there. And then came back here, and decided that, like kids often do, "I don't want to waste four years going to school, I want to go to work." So she started working retail, came back, and went through LBCC for two years, and then went back working in the restaurant supply business. She's now retired; had a very successful career including Northwest Sales Manager for Libbey Glass.

Our young son started out at LBCC. He thought he wanted to be a policeman; scared the hell out of him. I kept pushing him towards data processing and finally he took a course there and kind of liked it. So he finished up in data processing and has a career in that.

We have just two grandchildren, one with the family that lives here. A young man who's a graphic designer working up in Portland and our daughter who lives up in Portland has a daughter, our granddaughter, who is now 32 years old. Very successful career in what I call management science; I don't think it's called that anymore. She worked first for Adidas and then several other companies. It developed to the point where she is a consultant who gets work because people come to her, and she's expecting our first great grandchild. Needless to say we're pretty excited about that.

**MD:** Well, one of the things I also like to do, what do you guys like to do for enjoyment? Do you have hobbies or other special interests? Obviously computers are. [laughs]

**TY:** Right, obviously they are. My wife has been an avid quilter for many, many years and still spends many hours a week working on quilting. She belongs to a very large group that meets weekly, so that's her primary outside interest. I should've mentioned, because it's my life: Golf. I love golf. I work at keeping as fit as possible so that I can continue golfing. I don't golf very much anymore, maybe two or three times a week for nine holes, but that is what I live for. I'm still an avid sports fan, but my interests have narrowed. Baseball and golf are my primary television watching.

**MD:** Did you come and watch the Beavers? [1:30:22]

**TY:** We used to have regular tickets to all the games. A few years ago, I developed a condition that I would get very stiff in the shoulders and neck going to games. I haven't been to a ball game in ten years. Actually, up in the retirement facility I do a little bit of volunteer work. They have a small library up there that was in shambles when we moved in, so I've taken control over that and got it not only organized but beefed up quite a bit. And then we were appalled at the notices that were coming out of the manager's offices - grammar and spelling was outrageously funny but embarrassing. There are a lot of ex-school teachers living up there. [laughs] Anyways, I volunteered to edit those to be a little more lucid.

**MD:** So after you retired, did you maintain contact with the Computer Center for a period?

**TY:** I did. Actually, I did some consulting work with the Chancellor's Office with computer issues. I also did some consulting for a while for a fee for industry, but that got to be a drag. I wanted to set my own schedules and didn't want to be bothered. I also discovered that it sounds great to make a hundred dollars an hour, but when you start figuring in all the expenses that go along with that, it turned out it wasn't as lucrative as I thought it to be.

So then I got into some volunteer consulting and I helped out various government agencies like the city of Corvallis and the city of Scio, if you can believe it, and various non-profits; particularly in helping with selecting equipment and stuff like that. But again, I outlived my knowledge pretty quickly. That only lasted about ten years.

I did some volunteer work for an outfit; a political information service. They were located in the basement of Ag Hall, oddly enough in the room that the first Math department computer was located. Operation Vote Smart. I enjoyed that thoroughly; I've always been a kind of political junkie. I don't directly participate in electioneering or anything like that, but I'm fascinated by the process. Where most people today are really turned off by what's going on right now with the debates and the lead up to the various primaries, I find it fascinating.

**MD:** It's definitely entertaining this year. [1:35:15]

**TY:** Anyways, Vote Smart had this plan to develop a facility out in Kings Valley. They had the land and were all ready to build when they got stymied by people appealing on land use issues. They packed up and went to Montana.

**MD:** One of the things we always like to do is allow our interviewees to pass along any other words of wisdom we might not have covered here. Do you have anything that you would like to impart to the Beaver Nation?

**TY:** I wrote a little memoir for our kids a while back. Well, that's not important.

No, I'm not going to presume to have any wisdom to pass on. I think that it's important to respect what the scientists are doing and in general not be so much in search of conspiracies and suspicious of bad information being passed on by governmental agencies and so forth. I think there is far too much of that going on. The computing people have gone back to where they were in my early days in the field. They're back down in the basement where no one can see them; most of us like it that way. Personally, I'm a pragmatist and kind of a loner; I'm not a highly social person. I was a nerd before there were nerds.

**MD:** Pioneer nerd. [laughs]

**TY:** [laughs] Well, I think that's enough.

**MD:** Well on behalf of the Sesquicentennial Oral History Project, we really appreciate your participation. You've filled a major gap in our knowledge base and collection.

[1:38:26]