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STOKES: This is Ray Stokes in the Oral History Section of TCOM. Today I have the pleasure of being in the studio of the Biomedical Communications Department of the College. My guest today is Dr. C. Raymond Olson, better known as Ray Olson. He is a professor at the school in the Department of Medicine. He has been with the school ever since it opened and he has worn a number of hats and we would like to have his story of what he's done since he's been at TCOM. However, Dr. Ray, I'd like to ask you; you graduated from the Chicago college back in 1956. When you got out of school where'd you go from there?

OLSON: I went to Detroit to a regular rotating internship and then a three year residency in General Internal Medicine.

STOKES: Where were you then?

OLSON: At the Detroit Osteopathic Hospital in Detroit.

STOKES: When did you come to Fort Worth?

OLSON: I came at the end of that residency. I came to Fort Worth in 1960 and I've been here ever since and I've never worked any place except on the corner of Camp Bowie and Montgomery. I've been here 29 years.

STOKES: I know the cold weather ran you out of Detroit, but what brought you to Texas?

OLSON: Well, that's an interesting question. I think my wife and I were looking for something exciting to do and this was an exciting alternative to living in the middle west.

STOKES: Where are you from originally?

OLSON: A small town outside Chicago, a little town called Crystal Lake, Illinois. My parents settled there when they came from Sweden.

STOKES: Okay, now when you first came to Fort Worth in 1960, there weren't too many D.O.s here at that time.

OLSON: No, and that was one of the attractive features about it. I think I was probably a little shy about competitive medical practice. There was only one other D.O. internist in Fort Worth and he was working himself to death; that was Mel Johnson, a wonderful man, who was kind enough to take me in as a partner and we worked together for seven years at Fort Worth Osteopathic Medical Center and finally split and established separate practices, but he was a good influence in my life.

STOKES: Well, TCOM was opened in 1970. I'm not quite sure it was founded when they got their charter in 1966, but then they made some progress right on up when we opened in October of 1970. At that time we had a very skeleton faculty, so to speak, any more than absolutely what the law would permit. I think that there were only about nine members on the faculty. We had a great number of new clinicians who volunteered your services. Some of you got paid once in a while but not as much as you were worth. So you made a contribution. What was your first assignment when you came to TCOM?

OLSON: During 1970 and 1971 I gave a couple of spot lectures in basic science couses, the nature of what I don't even recall at this time.

And I didn't get a regular slot at TCOM until the summer of 1972 when it became obvious that the first class needed clinical instruction and at that time I was asked to put together a clinical curriculum.

STOKES: Was Dr. Coy here at that time? Is he the one that hired you?

OLSON: Originally it was actually Dr. Hart and then later Dr. Coy. The man who hired me was really Dr. Hart. And I put together the first clinical curriculum and I did a lot of it myself, did a lot of the presentations while I scurried about Fort Worth finding other clinicians who would fill in the gaps and it was stetchy to begin with I recall at one point teaching a course in pulmonary medicine that I went off to take a course in pulmonary medicine about a month in advance of giving the course.

STOKES: Where did you go to take the course?

OLSON: At Southwestern.

STOKES: That's part of your life I hadn't heard about.

OLSON: Then later, in 1972, it was obvious that we needed a clinical dean and I was asked if I would accept a position as Dean of Clinical Sciences, and at the time there was not enough money in the cash register to hire a full-time dean so I was asked if I would do it half-time, and I accepted that and I scaled my practice down and took on the job of being the first clinical dean. It took me only three months, Ray, to dope out that that was not a half-time job, that that was in fact a full-time job.

STOKES: I remember where your office was. Your office was a little make-shift we had up on the fifth floor.

OLSON: And at that time I asked to be appointed to a full-time position and the powers that were at the time said, "No we don't have enough money for that, we'd like to do that but we don't have enough money, so we'll have to find some other option."

STOKES: Who were the powers at that time?

OLSON: Well, as I recall it was, along with Dr. Hart, it was Dr. Luibel and Dr. Evert and Dr. Danny Beyer.

STOKES: The board members?

OLSON: The board members, yeah. And they were honest in what they wanted to do and also honest in facing squarely their fiscal limitations.

STOKES: Okay, then what did you do in that interim of time? You went back into general practice?

OLSON: I went back into the practice of internal medicine, private practice, but working all the while with the clinical curriculum as a volunteer, so I was only on that half salary for a three month perior of time.

STOKES: I'm just asking you to think off the top of your head. Do you know...we kept hours, those clinicians who volunteered their services and so forth. My wife happened to be the office manager at the time and

bookkeeper and she was keeping records, although we didn't have enough money to pay anybody, we were putting them down at $50 an hour. Did you get any of that money?

OLSON: No I don't recall that I ever did.

STOKES: The reason I'm asking is, we did go back and pay some, I'm not sure under what circumstances, but you know the first money we got from the state of Texas was $150,000 and after they passed the bill, and we started becoming affiliated through the coordinating board, we had $150,000 and we took that $150,000, or a good portion of it at least, and went back and paid off some of the clinicians who had just volunteered their services and I couldn't remember if you were one of them.

OLSON: I presume it was because by that time I was again, from 1975 to 1976, I had a half-time appointment as professor of medicine and I was at that time officially appointed as the chairman of the Department of Medicine.

STOKES: When did you come on board full time?

OLSON: 1976.

STOKES: Then Ralph Wollard was here?

OLSON: Correct, and it was Ralph who hired me then as a full-time professor of medicine, to be the chairman of the department.

STOKES: Looking back on some of your experiences now that you've had

with some of the students. I know you've built a good friendship with some. I can remember the class of 1975 was very fond of you. Do you remember a certain night at the senior banquet? Weren't you the principal speaker?

OLSON: Yes, I gave what went for a baccalaureate, I think at the time. It was done at a county club, Shady Oaks, and I copied a format that Pete Seager had once used, where he took a guitar and he gave a college graduation, I think at Ohio State, and he spoke a few paragraphs and then played a guitar song and sang something, and then spoke some more and maybe did five little vignettes. Since I couldn't play the guitar I had to hire somebody. I went out and found a singer who would sing and strum the guitar and then I just did the little speech parts.

STOKES: I was looking through the 1975 annual, a speculum recently, and I saw your picture there with your guitarist there sitting next to you. For identification purposes, now, you was Pete Seager?

OLSON: He was a folk singer.

STOKES: I knew I had heard of him. He was popular in the 60s, wasn't he.

OLSON: A great American folk singer. My wife and I got very close to the first class, the class of 1974, and we offered a series of weekly meetings in our home for that class and their spouses if they wished to paticipate, in which we allowed for an open and free discussion of the issues and problems surrounding entry into medical practice and life in a doctor's family and what that was like.

STOKES: I was very close to the first class myself, but that was a phase that I was not familiar with. Can you give me a little more of a description?

OLSON: Well, Nancy, my wife is a psychiatric social worker. She had gotten her master's degree in social work at University of Texas at Arlington, and she was very acclimated to group process and so, sitting down one day we looked at ways in which we could help this class and ideally what could we do to help these people the very stressful demands of medical practice. Ray, one of the issues that stayed throughout the history of medicine in general, and the history of TCOM in particular, has been this little thread of meeting the enormous stress demands imposed by medical practice, and I think these stress demands become stronger or worse every year. In those early years, in 1974, we looked at that and we decided to take that step and it worked very, very well. It allowed students and their spouses to open up some conversation among themselves. It allowed for them to begin to look at problems that they were having with rearing children in a doctor's family and what it was like to have the phone ring at all hours of the day and night and for example, for the phone to take precedence over other kinds of family life, including treasured birthdays and holidays and things like that. What's curious is as I see people who are in that little class, that little group now from time to time, every one of them recalls it and recalls it favorably and we talk about it with good warm feelings in our hearts.

STOKES: I guess you were very close to David Wyman? He was in the first class. You know he's back here now as a practicing psychiatrist?

OLSON: Right. He was in that group that I was talking about that my

wife and I had. That's another part of the history of TCOM that really needs looking at, and that is the steps that have been taken. I remember sitting on the curriculum committee one time in the bowling alley and I'm going to guess that the year was 1976 or 1975 when Dr. Shunder mentioned that she had several students who knocked on her door and were emotionally distraught over the strain of being a medical student and she talked about what she needed to help her deal effectively as a counselor with these people. So we talked about that at some length in the curriculum committee. At that point a small group of us scratched our heads and decided that we would put on, for incoming freshment, an event called a survival course. What we thought we could teach incoming students was a set of skills and maybe some attitudes that would allow them to carry the load of stress more effectively without resorting to more destructive kinds of behavior. Dr. and Mrs. Ogleby, Charlie and Reva Ogleby, were involved in this. As a matter of fact, Reva Ogleby cooked delicious breakfasts to serve the students and their spouses and we scheduled a week-long period of group meetings all day long throughout that first week before the official opening of classes. At that time Prescott College in Prescott, Arizona, seeing the same problem, the stress problem, elected to have their students go through a week of outward bound as the survival course to get ready for the rigors of being a student at Prescott College. Well, we weren't going to go that, but we did go out and find a local coach at Trinity Valley High School who had extensive outward bound experience and we invited him to come and help us put on this program, and he did, and we had a number of events scheduled in it including learning some communication skills, including learning to ask for what you wanted, communicating more clearly, learing to become aware of what your own feelings were. Each day we would go through some awareness exercises and we spent a short period each day in quiet

reflection or medidation, teaching students actually the skill of doing this as a way of lessening their stress. We organized a daily exercise program in which they would work hard and included in this were some of the outward bound exercises like the students being organized into teams and having to get everybody over a wall that was higher than anyone could reach so they would have to dope out how they were going to go that and then work as a team to get everybody safely over the wall. So they learned some fundamentals of team work. That was a very exciting thing.

STOKES: Is that survival course still being taught here?

OLSON: No, it sort of faded over the next several years. It became displaced by people who wanted kind of hard science introduction like how can I get a better grade in biochemistry kinds of things and so gradually, because this was a soft science and because we did not have any prospective randomized study evidence that such a program actually paid off with successful outcomes, it was gradually over a period of four of five years discontinued.

STOKES: How long was the course?

OLSON: A five day week to begin with and gradually it shortened to four days, three days, two days, and finally down to one day probably at the end of five years. But it was an honest attempt to meet student need and it was motivated by our sincere desire, the sincere desire of several of us, to give students an experience that they could use positively in their own lives in dealing with the enormous burden of being a medical student. For many of them at the same time carrying a family relationship, being a spouse, being a parent, and sometimes

even being still a breadwinner, at least a part-time breadwinner, and the stress of that we recognized. There are some small tenacles that reach forward from that early historic beginning and are now found in the humanities course where a couple of us still do a one hour or two hour workshop in an interdisciplinary course to look at ways that not only practicing physicians but also medical students can bear the stress. This is a major factor in the delivery of health care, Ray. You see, somewhere we have a picture of the doctor as a caring person and as somebody who listens and who is compassionate. That was born in a time when physicians didn't have much they could intervene with. So what they did was they sat at the bedside and held a hand and listened a lot and they became very good at it. But as the scientific side of medicine has grown by leaps and bounds over the past 75 years, then because I suppose because of the constraints of time, doctors have gradually relinquished the role of caregiver and compassionate companion through illness to mostly no one or to maybe other professionals, but I suspect that's been lost along the way. The process of becoming scientifically equipped to deal with illness has made it very hard on doctors. More and more we are aware that no matter how much we learn about the human fabric and about disease process, we always work in an atmosphere of great ambiguity. We don't have ready answers. Most of the time we don't have anywhere enough data to make confident decisions and yet we are asked everyday to make decisions, and decisions on which people's lives depend and welfare of whole families of people. When the stress load of working in a high ambiguity environment where we don't have certain, sure answers, when that stress load is brought to bear on the doctor, the doctor will often have to turn to other kinds of behavior, many of which are destructive to him. Let me add a couple of stress items. One is the stress of having your work looked at by others. Now when I was a young

physician, no one looked at my work. It was my chart, it wasn't anyone else's chart. Yes, it was stored in Medical Records, but no one could look at it without my permission. That meant that I had a kind of secret repository of all my decisions and many of the decisions in those years were not even recorded because it was a kind of accepted practice to have chart progress notes consist just of a scribble in the dark, and illegible at that, so that the doctor couldn't be held accountable even if anybody looked, but no one looked. Now, today, in my lifetime, 30 years of practice later, everyone looks at the chart. As a matter of fact, many of times we can't admit patients to a hospital setting without getting the permission of someone else who is not a physician and everyone has legitimate entitlement to open the chart and that means we practice medicine nowadays in a fishbowl. Not only do we do so in a high level of ambiguity, but we do so in a fishbowl where everybody can comment and there is more Monday morning quarterbacking going on in health care delivery than you can imagine. So that adds to the stress and on top of it we have become a litigious society, so that all of this stress is brought to bear on the physician. I think it's one reason why there has been a drop of medical school applicants, nationwide perhaps 15%. It's become less desirable. So we must still meet the needs of our students and of our practicing physicians. If we don't meet that need through things like the survival course, through the new mentor program that's been restarted. We did it a few years ago, we certainly did it in 1982 and 1983, where every faculty member was assigned a student or two. That's been revitalized and restarted this year. We need that, we need some kind of survival course, we need some ongoing skills classes for students to learn how to manage this amount of stress and if they don't they turn to unhealthy nutrition, they turn to the use of first licit drugs and then illicit drugs, and the impaired physician is a fact of

our day and physician impairment is a direct outgrowth of the stress level that's imposed upon the practicing physician and it begins in medical school.

STOKES; That's very interesting. You've touched on a subject that I'm not as familiar with as I should have been.

OLSON: It's not going to go away, Ray. It's going to be there so if you want to start studying it tomorrow, you can do that.

STOKES: Well I may accept the challenge. Now, what other committees have you been on? You were on the curriculum committee.

OLSON; I was on the curriculum committee. At this time I am starting a committee. When I was on the promotion and tenure committee over a period of several years back in the late 70s and early 80s, one of the things that we keep banging our heads against is the inability of D.O.s to write scientific articles. When the Ph.D.s on our faculty look at an application for promotion of tenure, they look sharply at the publications of the faculty member. Well, the osteopathic profession has not been a research profession. It has been a service profession. We are service people. Because of that our whole schooling and training is designed to produce people who will give a service rather than to do research. Because of this, D.O.s have not been heavy writers. Rather than look at D.O.s who are on the faculty who are applying for promotion or tenure as either being deficient or defective or stupid or evil because they don't publish, it seems wiser to me that we should train D.O.s to write and that's a new venture. This year a group of us decided we would put together an in-house peer review journal. So I have been asked to chair the committee that will launch this journal.

And this is history going forward. So now we have almost completed the selection of the people to be on that launching committee. Then it will be announced. Then we will begin what will probably be a year's work to turn out the first issue of an in-house, high-quality peer reviewed journal. Our goal for this is to provide an in-house opportunity for mostly D.O.s to publish juried or peer-reviewed articles so that they will be able to let go of a kind of natural phobia to publish on a national level. It will serve as a training ground for D.O.s to become quality writers. This will fit hand-in-glove with a move to develop more clinical research and I know that's something you're interested in.

STOKES: Absolutely.

OLSON: Other committees that I've served on have been: I served on the task force to produce the 1979 goals. Those have now been shelved. I don't know where they are but they are no longer available except I think they're trotted out for ceremonial purposes much like a statue of the holy family but they're trotted out on ceremonial occasions but they are not part of the working goals of this school and that saddens me a great deal. I worked very hard for a year, from 1978 to 1979, with a group of other dedicated faculty members to produce that set of health-oriented goals. Between 1976 and 1979 it became clearly apparent to me that to achieve excellence, we did not have the luxurious option of time that was accorded Harvard. Harvard had 150 years to get to excellence. We have not had that time. And it occurred to me and to several others of us that to get to excellence we would have to look at some alternative methods and that these methods should be consistent with the osteopathic philosophy and health has, for as long as I've been with this profession, since 1952 anyway, health has

been an integral part of the osteopathic philosophy, and I know in reading Andrew Still's writings that that was an early fundamental issue in launching the osteopathic reform movement in medicine in the 1880s. So several of us were appointed by the president to form a task force with the aim of preparing a set of instructional goals and looking at a health centered set of goals we first went out and read all the literature that was published about doctors and the good points and the back points of doctors. We read a lot. We read deeply and we discussed heartily, vocally, loudly, often arguing over and over again points. We then had close contact with the Commissioner of Health for the state of Texas and for the office of health for the state of Texas. I don't know the correct name of the office today, but we worked closely with them, ferreting out what were the health needs of the citizens of Texas, and if we were to be a Texas medical school we should attempt to train doctors to meet those needs. So we worked during that year as a task force in deciding what the goals were and we came up with a set of health related goals which could be converted to an instructional program and those were published in 1979. They were accepted, they were ratified by the faculty and they were ratified by the Board of Regents of the combined North Texas State University and Texas College of Osteopathic Medicine. And they formed the basis of a lot of curricular change that evoked great argument on campus. Parts of the argument were that nonphysicians had too heavy a role in this, that the Office of Education had become overpowerful, that too wide or broad or great a voice was carried by Ph.D.s, by nonphysicians and what happened was that it stirred up a campus argument that was enormous. The next step was the front page story that TCOM graduates were not performing well on the newly established Federal Licence Examination that had been adopted by the state of Texas as the official licensing examination. So it seemed that this was all that would be necessary to

get rid of the much villified Health Related Goals and so they were let go of and of course there was a change of administration and then we moved on to a new set of goals which kind of nebulously revolve around a notion of excellence. We did several things that were important in that task force, though. We worked out some work groups, we assigned some work groups tasks, and one of them was to very clearly define the scope of the osteopathic movement in medicine. A second was to describe the behaviors of a physician that would achieve these health related goals, things like become an effective problem-solver, being a self-starter, somebody who could get him self up in the morning and get going and would initiate programs and start activities or work without being awakened by a matron or a patron and say, "It's time to go to work son." We had a set of probably 20 behaviors that would achieve the goals, one of which was to pass the licensing examination whatever that was. At that time in the curriculum committee we did not have competitive performance on the licensing exam as a high priority. That was a later political development when it became obvious to many people in Austin that the way to get medical schools to work harder was to threaten to tie the appropriations to grade performance. So that displaced much of the work that had been done to develop what had become an internationally famous set of health oriented curricular goals for this medical school. Of course now, because of the shift in the economics of medicine, we know today that preventive and protective medicine will have to become the very core of the medicine of tomorrow because we can't afford the old style episodic medicine that we sought around 1979, 1980, 1982 to shift away from and towards a more economically sound preventive and protective philosophy. I was hurt by a lot of that controversy at the time and it was out of that controversy that I chose to give up the chairmanship of medicine but I don't for a moment waiver in my belief that the truth always comes

back. That's not lost forever. That work was done and it was done confidently and well and besides we had fun at it. But it will be there always, so when the pendulum swings back and we decide it's time again to look at a health oriented curriculum, all that work will be there.

STOKES: Any other activities that you've been the core of or were involved in?

OLSON: I want to say something about the use of the computer, because my own research project is to develop a computerized medical record. I have the conviction born out of 20 years of working with problem oriented medical records that we need a computerized medical record that will allow us two things: It will allow the medical student here, and ultimately the physician when he leaves here, to look at longitudinal care. Good health care depends, Ray, on being able to see longitudinal stream of care so that we can look at all of your operations, all of your medical illnesses, all of your immunizations, all of the interventions that have been done around you. All of that can be loaded on a computer and it can all be summarized so that you can look at it in one or two screenfuls. You can say, "Oh, look at this, my isn't that something." What we have done, foolishly up until now is we have expected that when people come into a doctor you start from scratch. When people come to an emergency room they don't bring a record with them, they come in and you start from scratch like this person has never been in the system before. The fact is, Ray, most people have been to doctors in the last five years. They have a record of some kind. So we need an ongoing longitudinal record that will be carried on computer and can be retrieved easily. The second thing that we need out of the computer is to stretch apart the decision making

process so that you can look at each fundamental part of it and see how that was done. In our traditional old-timey paper record that's not possible. The computer will make that greatly possible, so that while keeping the longitudinal record, our students and ultimately our graduates, who will have access to computers, will be able to clearly see the impact of decisions on the health of the patient. So I have worked at that now for 6-1/2 years and right now I have a request in to the Academic Affairs Counsel for an instructional grant to provide for the development of the necessary software that will float this medical record and I'm very excited about this. It is the research project that excites me the most. There are a lot of people out there who know a lot about computers and there are a lot of people out there who know a lot about medicine. There is almost no one who knows a lot about medicine and a lot about computers and while there are perhaps six or seven competing and now commercially available medical records keeping systems for computer use, all of them were developed by people who don't practice medicine and I have been working throughout the development of my system, I have been working in the trenches of medicine from day to day so that I have had the advantage of being able to see where this would work if it were computerized and this would not work. I count that as a real privilege.

STOKES: That's very interesting. That's the first I'd heard of that and I'm delighted to know what's going on. You've had a number of mountaintop experiences since you've been here. You may have had a valley of despair or two, but any in particular that you recall? You've been here 20 years and the school is almost 20 years old.

OLSON: I had a graduate call me a year ago and he said "You know I graduated from there 10 years ago and I remember sitting in a classroom

once and you said something and I couldn't figure out for the life of me what you meant by that, and you know, I was just thinking about it last night and it suddenly occurred to me what you meant, and I want to thank you for that. You never know how long it takes to get through to somebody but you got through to me last night, 10 years later after you said that." So, I would say some of the richest mountaintop experiences that I have had as a faculty member here, Ray, have been that type. Seeing the excitement in the eyes of a student when he becomes aware that he has just grasped a concept. When he has just discovered in his head that if you put these two things together they really do work, that 2+2 actually do make 4. And often all you get is a little glimmer in someone's eye and you see that excitement inside them and maybe a little smile no the face and they go on about their work and they may not even recognize what just happened. To me that's the rich reward of being a teacher in the medical schools today.

STOKES: What do you see for the future of TCOM? We haven't got but a short 20 years behind us but what do you see in the 90s and the 21st century.

OLSON: I see a positive future. I'm an optimist. I see that we will have to do some fighting. There will have to be some fighting done. It's kind of like a marriage where a family that never fights together doesn't really deal in truth and I grew up in a family where there never was family fighting and I would imagine my parents never said an honest word to each other in 55 years of marriage because they never fought about issues that separated them and they never learned how to do that. I think we will have to fight our way through some issues. One of them will have to do with how to treat anecdote. As we have become scientificized in medicine and have come up off the mountain of

artistry into a more scientific milieu, we have kind of laughingly let go of anecdote as being not worthy of scientific attention. I still remember many faculty when I was a student in the 50s who would teach by telling vignettes about "Well, I took care of this patient once who did this or that and here's what I did for them and that worked" and we could sit there and say "My, isn't that wonderful", and we learned that way. Well that's been laughed off the podium. You can't teach that way today. We teach now by outcome studies which are important. I don't want to lessen the importance of randomized prospective studies nor of survival outcomes because we need that information, but we also have to learn to deal with anecdote in a more wholesome, positive way because as patient's come in to us they are anecdotes. If you come into a doctor's office and you complain of headache, you're not a set of statistics about headaches, you're one man with one headache, so you are an anecdote. If we take 100 people with headache then we can make some statistics and if we do some experimentation with the diagnosis or the management of headache, we can come up with some scientific results that can be statistically molded to acceptability in the scientific community. But you're still an anecdote when you walk in the doctor's office and as an anecdote you deserve attention and listening to and you are important. And somehow we have to, while at the same time not give up the importance of statistically acceptable studies and outcome statistics, we have to look at ways of improving the status of anecdote. That means, among other things, looking at ways of accepting soft studies like watching or hearing, ways that cannot be directly measured scientifically. Alvin Feinstein, who is I think Provost at Tufts, I'm not sure, no he's at Yale, wrote a book, a watershed book 25 or 30 years ago called Clinical Judgment and maybe 7-8 years ago he wrote a series of articles in Annals of Internal Medicine calling for a new basic science for clinical medicine.

Biomedical science as we have it today: anatomy, biochemistry, pathology, and so on, that's wonderful but it doesn't prepare students for clinical medicine. It doesn't do that at all. So we need to develop a basic science of clinical medicine and one of the things in that will be to learn to deal with the soft sciences that doctors have to deal with every day in their office in their practice. So I see good things ahead. I think we'll have to fight our way through them but I see the development of a new basic science of clinical medicine as right at the core of that future development and I think we're going to have great times and we've got a great faculty, we have good administration, we have a good Board of Regents and a good staff to support us and as someone said, I think it was our last commencement speaker, "Remember the wine-o, when he buys his bottle of wine, with his alcohol tax has paid a part of your support."

STOKES; That' right. I tell you, that's very interesting. You know, I'm glad you're as optimistic as you are and I feel like, you see, I've got one more year and then I'm going to retire, so I know I'm going to be leaving it in good hands with you and your contemporaries when I do retire. I've made very little contribution but it has been a joy to have a little finger, you know, in your hand. It's been a pleasure having you with us today, Dr. Ray Olson, and I'm looking forward to the rest of your career.

OLSON: Thanks, so am I.

STOKES: This is Ray Stokes on the 22nd of August, 1989, in the studios of TCOM.