

INTERVIEW WITH DEAN A.H. SOLOWAY

MAY 6, 2002

Q. I am Virginia Hall and this interview is taking place on May 6, 2002, with Albert H. Soloway, Emeritus Dean of the Ohio State University College of Pharmacy, for OSU Oral History Program. Dean Soloway, would you mind stating the day, month and year of your birth for the record?

A. May 29, 1925.

Q. Thank you. You have had a distinguished career in both cancer research and pharmaceutical education. We would like to discuss both areas and ask you about anyone who had a particular influence in directing you toward them.

A. Well, I think that the cancer research area came much earlier than my decision to go into teaching and administration. In fact, when I finished my doctorate at the University of Rochester, I said to myself, "I'll only go into teaching if I have no new ideas." It was an arrogant, rather stupid way of looking at academia, which obviously I've looked at quite differently since. Now with respect to cancer research, that occurred much earlier. I remember being very sad when I saw this policeman who had chewed snuff all his life come down with a malignant tumor in his mouth, and it just hurt my heart to see him in that condition. And then, my mother became ill with breast cancer, when I was 11. And she died 5 ½ years later when I was 16. And I think that was a seminal period for me in deciding that I wanted to do something in cancer research if I could. But that evolved over a period of time when I felt I didn't have the benefit of her wisdom while I was in

my critical teenage years. I felt very sad for myself. And then when I had children, I hoped I could contribute in cancer research that would make it possible that my daughters and son would not have that experience while they were raising their own children. Difficult as cancer might be, it is especially hard when you have responsibilities for raising little children. So that was an important factor influencing me.

Q. After receiving your doctorate from the University of Rochester in 1951, you spent three years at the National Cancer Institute in New York City. Was this experience the start of your interest in cancer research?

A. Well it wasn't really and I should note that, it was the Sloan-Kettering Institute for Cancer Research. I had a National Cancer Institute post-doctoral fellowship for several years there. And that reinforced my view that I wanted, if I could, to contribute to cancer research.

Q. What was the area of research at the Eastman-Kodak Company, where you worked from 1953 to 1956?

A. I was a research chemist there and I was trying to develop a better color photographic image. And while I was doing that, I realized that I didn't want to spend the rest of my scientific life trying to work in color photography. I didn't look down my nose at those who wanted to do that. But for me personally, it was not a very satisfying career. After I had been there for a couple of years, I decided I wanted to get back and do something that I felt was more meaningful and more useful to society than that sort of thing at Kodak. And so I took a 25% salary cut, left a secure job at Kodak and went to work for a physician, who subsequently

became the Chief of Neurosurgery at the Massachusetts General Hospital, part of the Harvard teaching system.

Q. Concurrently with your time at Massachusetts General Hospital in Boston, you were on the faculty of Northeastern University, from 1966-1977. And advancing from Associate Professor of Medicinal Chemistry to Professor to Chairman of the Department, and finally to Dean of the College of Pharmacy and Allied Health Professions.

A. They were separate periods although I did have a continuing appointment at the Massachusetts General Hospital. But from '56 to '66 I was fulltime at the Massachusetts General Hospital, working there to try to develop a better treatment for malignant brain tumors. That's still an ongoing process for many people because unfortunately, malignant brain tumors are as difficult to treat now as they were at that particular period of time 40 years ago. There hasn't really been a significant advance in the treatment of malignant brain tumors. Unfortunately, when people are diagnosed with that disease, they have a year to two to live. And the reason is this particular cancer doesn't spread to other parts of the body, but it infiltrates the normal brain and kills the patient because of the spread of the malignancy through the brain itself. I realized I enjoyed doing what I was doing, but I knew that my position was totally dependent upon the Chief of Neurosurgery and if he left or died, I would be out of a job. I realized that that was not a very secure position and not very responsible of me, considering I had three children at the time and wanted to provide for them. I began to look for academic positions, feeling I could incorporate both my research interests and my

desire and interest in teaching the next generation, which is what a professor is all about.

Q. Well then you have answered the next question which is, what attracted you to the deanship of Ohio State College of Pharmacy in 1977? So you've already answered that.

A. Well, I have in part but I haven't really looked at why I left Northeastern University and Boston to come to Columbus and The Ohio State University. We were very secure and settled in Boston, but I was having difficulty with people in the administration above me. They really didn't appreciate my attempts to develop a quality academic program. And it was very frustrating to deal with very mediocre administrators, who made my life difficult because I wanted to try to improve our college. They cut the budget of the college and put more and more of the college's staff and faculty on "soft" money. There were federal programs that provided money for colleges of pharmacy at the time. And when I saw approximately half of the college budget was on soft money, I thought that was outrageous. When I complained, they said to me, "Well why don't you write a financial distress grant?" And so I said, "Okay, I'll do that." I spent months developing such a proposal and turned it into the chief financial officer. He said, "Well you know Northeastern is not in financial distress and we're just not going to be able to submit this grant." I felt what a gigantic waste of time! But the coup de grace occurred with firing of an associate dean for our allied program. She was a nice lady, but a total incompetent. When I spoke with the administration about her and they said, "Why don't you fire her? She doesn't have tenure." With

great reluctance I went ahead and did give her nine months notice. When she left, I ask that she be replaced, they told me, “Oh no, she’s not going to be replaced.” And I had responsibility for 1,400 undergraduates in different programs and 400 graduate students and I was the sole administrator for those students and the faculty in pharmacy, medical technology, medical records administration, a physician assistant program, and respiratory therapy. It was an impossible task and I realized I was dealing with very mediocre people above me.

Q. It was an impossible situation.

A. Impossible. I was not looking to leave but when Ohio State approached me, I said to myself, “You have to look at opportunities.” It was disruptive for my family. My wife was in a masters program in business administration at Northeastern University and had a good part-time job offered to her. My oldest daughter was at Massachusetts College of Arts. So I was uprooting the family. I wasn’t coming to Ohio State because of the greater prestige but I was very impressed with President Enarson and Provost Kuhn than with any of the people I dealt with at Northeastern. And I think the final thing which made my leaving very easy occurred when the offer from Ohio State came. I went to see the president of the University and told him that I had an offer from Ohio State to become Dean of the College of Pharmacy. And I remember his words exactly. He said, “Al, that’s a good place. Who can take over for you?” He made no effort to keep me, even though I had done a good job in increasing enrollment and fundraising activities. In a sense he was saying to me, “Take the job.” And I did. So that’s why we left and came here. I hope I’ve given you an understanding of why I came.

Q. We were very, very happy to have you, I assure you. Now what were your major goals for the college?

A. Well, not enough has been mentioned of the quality of Dean Lloyd Parks, whom I took over for. He had built an outstanding college that was highly regarded nationally and internationally. And the reason he was, he had high standards and was able to attract excellent faculty. My role, I felt, was to add to what he had already done. I always viewed myself, though as a faculty member first and an administrator second. I was in a service role for the college, faculty and students. I was not there as the boss or a dictator, but as an administrative colleague. One problem, I saw when I came was very clear. I didn't feel, surprisingly as this may sound, and despite the best efforts of Dean Parks, I didn't think we had a program worthy of accreditation because of one glaring weakness. We didn't have the needed clinical relationship with the hospital pharmacy in University Hospitals. I tried when I came to work as diligently as I could on that issue. It was a very frustrating experience. The head of hospital pharmacy then was a very eminent person who was widely recognized for having developed a first-class graduate program, a masters in hospital pharmacy. It was a quality program. However, he was not very interested in helping the college develop a good clinical environment for professional pharmacy students. I felt this was a glaring weakness that had to be corrected if we were to move forward and have a fully accredited program. Dean Parks had recognized that fact because when I came onboard, four junior people had just been hired in this area. And I sat down with the head of hospital pharmacy and asked him what he felt we needed to develop a high quality clinical

program. His suggestion was that we recruit a chair for this developing division. I quickly agreed to that request. I asked him to serve on that search committee because I wanted to bring to the college someone for whom he had respect and rapport. After that search process had gone forward, I asked him whom he would select. He mentioned a particular person and I quickly acquiesced saying we would offer that person the position. Well, when that person arrived on campus, there began a period of internecine warfare between the director of hospital pharmacy and the new chair of this division.

Q. And the division was called Clinical Pharmacy?

A. I think it was called the Division of Clinical Pharmacy. This was an extraordinarily frustrating time for me. We had recruited the person that the Director of Hospital Pharmacy wanted and now they weren't getting along. The difficulty in getting our students educated in a hospital, in a clinical setting, were very, very troubling. In contrast with Northeastern University, where there was no medical school or university hospital, here we had a first class medical school and clinical environment. It seemed to me critical that our pharmacy students should be educated in the hospital very much like medical students. In order to achieve that, I had to have the full support of the director of hospital pharmacy and I didn't. His antagonism to assisting us became very apparent following a conversation with one of the staff members in the hospital pharmacy, and the person volunteered to give a course on intravenous admixtures. For our students as an elective it was an important area. I was just overjoyed at this. And he said it would be easy for him to do during the regular academic period, from 8:00 to

5:00. He said there would be no reason he couldn't take off some time off from his hospital activity to teach our students. I was delighted because that course was one we wanted. Of course, he needed to discuss this with the director. The director of hospital pharmacy said to him, "You can't do it during the 8:00 to 5:00 period. You have to do it after 5:00 and you should go to Soloway and ask him for money in order for you to offer that course." At that point, I realized the director was going to be a continual impediment for our students to access the hospital. I determined I could no longer gain his support for our clinical program and I had to have him removed from his position of responsibility. Well that was a very tall order. Here I was, not a pharmacist, and besides, not as imminent on the national and international educational stage as this director of hospital pharmacy was, and I was asking for his removal from his administrative role. That was not a simple task. In order to do that, I sat with the provost, explained the situation and as we were nearing some means of accomplishing that goal, the provost left. A new provost came and the educational process began again. Rotating chairs of new provosts was very frustrating. Finally, a committee was appointed, an external one, to review the functions and the operation of the hospital pharmacy. Its recommendation was, that the director be removed from that position and a new director assume that position. It was a bittersweet conclusion because I wasn't happy to be destructive of someone else's career, but that person was standing in the doorway, preventing access of our students to the hospital. The director had tenure in our college and I was willing to have him return to our college as a tenured full professor. It was at that point that he retired

and went into consulting. A new director was appointed who knew at the outset that access of our students to university hospitals was an important function of his too. So it was an accomplishment, not a pleasant one, but it had to be done.

Q. But I would say that that would certainly count as one of your greatest successes.

A. I would say so.

Q. And you overcame your disappointments.

A. That was not the greatest disappointment for me, though it took six years to accomplish. The greatest disappointment I'll outline shortly. There was a move at the time nationally from a B.S. to a Pharm. D., to transform pharmacy education from a bachelors to a doctorate. Though I opposed that direction of increasing the duration of education for pharmacists from five to six years, my feeling was it was likely to occur. The only reason for that change was that the pharmacist would be called doctor. I saw no clear advantage for further academics for pharmacists to have their academic program increased in duration. So the title of the future practitioner remained the same, there would have been no movement to increase the length of education. After all, pharmacy had increased from, I think it was three years at one time, to four, and then ultimately to five. The functions of the pharmacist in the society had not radically changed. And even though there was the feeling that the pharmacist should be a greater consultant on drug utilization for patients in the community and professionals in the hospital, the pharmacist was not going to be reimbursed for this knowledge. He/she was reimbursed for the drugs dispensed only. In other words, there was no consulting fee for the professional expertise as would be the case if the remuneration were

broken down based on, here is the drug and here is your professional contribution. Remuneration to the pharmacist was all wrapped up into the drug itself. So the pharmacist in the community and in the hospital was not going to be compensated based upon he/she being a drug consultant. That has not developed. And unfortunately, it's still only developed very tangentially. When people go into the pharmacist, they don't pay him or her for the time spent counseling them; they pay the pharmacist for the drug – period. I felt that until the costs were actually separated; here is a consulting fee, here is a drug fee, pharmacists would be selling a product and not a service. I decried the fact that, in contrast with the plumber, the TV repairman and the automobile mechanic who give you a list noting the cost of parts and labor, in pharmacy, all are wrapped into one charge. I felt we were deluding pharmacy students to think they were going to be the drug advisor when there was no charge for their advice. Unfortunately it hasn't occurred today as yet. So I didn't feel we should increase education if there was no professional justification. And I fought that while I was dean. People were very dissatisfied with me and said, "Don't you see where the future is going?" My feeling was, the only reason for doing this was to give a title to the person but without changing the person's functions. I did not endear myself to my colleagues at some of the major pharmacy schools because I opposed what they were trying to do and they didn't like that. On the other hand, I saw that pharmacy education was going to move in this direction and I wanted to prepare our college for that transition. My way of dealing with it was to have set up a four year Bachelor of Science in Pharmaceutical Sciences as an entry into completing

a program in pharmacy. I felt the four year Bachelor of Science in Pharmaceutical Sciences should have been the entry into the professional program. I wanted a four year course, feeling that it would serve multiple purposes for the student. The student who completed the four year program could at that point decide whether he or she wanted to go into pharmacy, medicine, patent law, a program in graduate education in the pharmaceutical sciences. In other words, I felt the B.S. in Pharmaceutical Sciences would have been the jumping off point for students to opt for different career pathways. I felt it would have made life a lot simpler for the student. Everybody had to finish that four year B.S. in Pharmaceutical Sciences before going into a two-year program if that was where we were heading, that might lead to a Doctor of Pharmacy, if that's what they wanted. Or four years into medical school or three years into law that would lead to patent law, or embark upon Ph.D programs in various specialties. I felt the four year B.S. in Pharmaceutical Sciences was the desirable way of going to prepare the college for what I saw as coming down the path. I was totally unsuccessful in persuading the faculty that this is what we should have done. It was my greatest disappointment at OSU. It was only subsequently, after I left administration, that now they have a B.S. in Pharmaceutical Sciences. I felt every student should have been required to take that B.S. in Pharmaceutical Sciences, which would have encompassed medicinal chemistry, pharmacology, pharmaceuticals, all of the things in pharmaceutical sciences that would prepare someone to go on for graduate work if they wanted to, or professional practice. Unfortunately, the

faculty wasn't prepared to do that and so that was probably my greatest failure. I wasn't able to be as persuasive as I thought we should have been.

Q. Do I understand now that the program giving the pharmacist a doctorate degree is in effect?

A. Yes, it is. And the program is in effect now and I think they've graduated their last class in the Bachelor's program, or at least that's my understanding. I haven't been as closely involved recently. I haven't felt that it's important for me to intrude in what is going on. I've finished my professional career.

Q. You have answered a lot of the questions that I had. It's a wonderful account. But during these years, did you see a transformation of the University? And what was its impact on the faculty, administration and students, and indeed the entire educational environment? You served under President Harold Enarson until 1981 and then under President Edward Jennings until you stepped down in 1988. Could you compare the relationship of the college to these two different administrations?

A. Well, I think there was a beginning during my period and it's accelerated since then. And I think it accelerated specifically under President Gee. The movement toward what I would call, for want of a better term, the corporatization of higher education. The whole concept that the University is a business and should function as a business. And by that I mean, the concept that each unit sits on its own financial bottom. I think it's wrong. I think it's a great mistake. I think the universities, in my judgment, are losing their way. And it isn't just Ohio State. It's nationally. And I've talked to people at other institutions. The University, my

feeling, is to educate the next generation. That is its *raison d'être*. I think in the current climate that isn't voiced as the primary purpose of universities. Much as they give lip service to teaching, the primary focus is generating money, entrepreneurship is the coin of the realm. President Gee had said at one stage that we should model ourselves after Ford. There's one big difference. Ford is producing widgets and we're producing people. And in order to produce quality students, the faculty need to be intimately involved with their education. I didn't see Gee's vision under Dr. Enarson, he was concerned with the education and not money generation. I remember President Jennings once said to us, "Colleges not infrequently have certain amounts of money they keep for "a rainy day." They don't spend every penny. They use it for emergency. The responsibility is for the administrator to decide when you use the money you've accumulated." And I guess he was at one time concerned that the state legislature would look at the balances the University had. And so he said to us (I have respect for President Jennings), "Spend down your balances. Don't worry about keeping balances. In fact, it's better to spend them down." And he said, "I will be your banker." There's only one trouble with that concept. When President Jennings left, Gee had no memory of that commitment. And universities, if you have responsible administration in your colleges, they should decide how these balances are used, when they are used to buy additional computer equipment, when they're used to provide support to faculty, when they're used to provide support for students. There are a whole host of things that the administrator needs. As Dean Parks would say to me, "Various pockets of money to use effectively and ethically." So

I think we've moved from that kind of environment to every academic unit is on its own bottom. And so there's no consideration that different programs have different structures, have different needs. Everyone's should be based on how much income programs are generating and how much income is going out. I think that is wrong. And that's why I've written this book, not for self aggrandizement, but I think universities have lost their way. It used to be people would laughingly say, "Publish or perish." Now the word is, "Show me the money." We have recruited entrepreneurial faculty who want to teach less and less. That is a sorry state we're in. We don't recruit faculty in major universities who want to spend time with my students to educate them and show them the enjoyment of a particular field. Faculty members are selected who can generate money and they're valued based on how much external funding they get. And so faculty are not really evaluated by their peers. We've turned over to government agencies through allocating the decision on who should and who should not get tenure. It's a sorry state.

Q. It's a frightening concept.

A. Right. And my feeling is, we're not attracting the best people to upper administration positions. One of our failed provosts became president at two eminent universities. That says a great deal about the selection process. .

Q. One of my questions was, the relationship to the provost and I have a list of five that were in office while you were there. Would you like for me to run through those and you can say something about each one?

A. Sure. I will be happy to.

Q. Albert Kuhn was the first one.

A. Well, I'm very biased. Dr. Kuhn recruited me as Dean. The relationship with Albert Kuhn was the easiest of any I can imagine. I didn't have to have an agenda to see him. I could call his office and within a couple of days, I could and did get in to see him. He was a very open person whose objectives were high academic standards. I applauded that atmosphere. He and Dr. Enarson were a very good team. They trusted one another. And I think that that's an important element, although I'll come back and tell you how I think the provost should be selected.

Q. Ann Reynolds is the next one.

A. She was a very bright person but very abrasive. She had high standards but her treatment of people was not optimal. I had no problem with her. But she would run rough shod over people. And was not a very, in that regard, was not very effective. I don't think you can run rough shod over people and you can't do it, you certainly shouldn't do it publicly. And if you do it privately, it should be a give and take. She was a little more dictatorial than was desirable for that kind of position. She was not a collegial person in the sense of what you need in the role.

Q. Diether Haenicke.

A. Well, Diether I found very easy to deal with. We had been colleagues. He was dean of humanities when I was dean of pharmacy and I could talk to him openly. And I had respect for him. I think he was a capable provost.

Q. Francille Firebaugh.

A. I also got along reasonably well. But she was there for a very brief period of time.

Q. Miles Brand was the last one.

A. I didn't have difficulty with Miles Brand. But I thought of the provosts I've known, he was the most opaque. I felt when I was talking with Miles Brand I was dealing with a poker player. He was not a very successful provost here. When he came, the understanding was he was going to stay for a long period of time. And that's one of the problems that I see, has occurred in academia now. Many of these people who come in as provosts are already angling for their next position as president at some other institution. (I also reported to Henry Cramblett when he was Vice President of Health Sciences. I enjoyed working with him. He was a fine person.) The provost and the president are functioning now in a corporate environment. The decisions that are made by the provost are not subject to transparency. And so you can get a provost who can increase the length of time for tenure in a clinical program. There's no real discussion and all disagreements are muted. The provost makes pronouncements that are then carried forward. I would say in the current environment the provost is very much like the chief operating officer of a company and the president is very much like the chief executive officer of a company. What has really depressed me is corporatization of our colleges and universities has occurred without any national discussion as to its merits.

Q. You have a wonderful point.

A. I shared this book that I've written with former Provost Kuhn and several faculty.

Q. During your tenure as dean, did the faculty-student relationship or the faculty-faculty relationship change in any way? And did the nature of the student body change?

A. I would say the major changes in faculty-faculty relationships and faculty-student relationships have become more pronounced since I retired as dean and subsequently as a faculty member. The emphasis on faculty as entrepreneurs, as fundraisers, has become more pronounced since I was active in the University. And those signs are very apparent. Right now, in some of the entry-level sciences, faculty are provided significant “start-up” packages of several hundreds of thousands of dollars. And maybe some in more cases, especially at higher faculty levels. What that instills is the feeling of entrepreneurship. And by that I don’t mean desirable entrepreneurship. Here’s what I mean by that. The faculty are given large amounts of money with the full understanding that their major role is generating more money through grants. These are used to pay part of their salary and to generate overhead money for university administration. Universities have become addicted to this overhead money. It’s almost like one large slush fund that administrators can use as they please. There’s been very little oversight as to how overhead money is being expended. The faculty member is more an entrepreneur than a teacher. Teaching takes time from being an entrepreneur. And so, you have more and more faculty who want to teach less and less because entrepreneurship is rewarded and teaching is not. It’s outrageous. That is the environment that has been created by administrators. So when you give a young person, an assistant professor \$300,000, he or she knows ...

Q. Did you say \$300,000?

A. Yes, \$300,000.

Q. \$300,000?

A. Yes. These start-up packages are obscene. And yet they are given easily because the objective is for that person to write grants and generate more and more money. So despite the fact that universities give lip service to teaching being important, it's very low on the academic totem pole. They might give teaching awards, but if you look in the sciences, a person who is doing a superb job of teaching but has no funding, he or she doesn't get tenure. That's the bottom line.

Q How sad.

A. So we're creating an environment of entrepreneurship in which our universities are becoming like research institutes. The student is just a necessary nuisance in the whole scope of things. I heard one faculty member who was recruited here and brought his own company with him. And if you ask me what are going to be his priorities? Is it going to be educating students or the development of his company? The universities have lost their way.

Q. Dean Soloway, this is fascinating. There were to gifts to the college which I think perhaps we should mention. In 1985, the Plough Foundation of Memphis, Tennessee that gave \$500,000. And the Foreign Endowed Scholarship Fund and the Merrell Dow Pharmaceuticals gift of \$250,000 to endow a professorship in pharmaceutical administration, which was something new.

A. Yes. There was a third one that came after I left. But I had spent a fair bit of time encouraging it. The Millers gave a significant amount of money and Dean Cassidy was dean at the time that contribution came through. I think part of the job of an administrator is to help generate the funding that one thinks necessary

for education. I think the endowment money generated has to have an educational purpose. Right now, the whole approach is to generate money for the sake of money. It may or may not be targeted for education. It just amazes me that a place like Harvard has \$16 billion and yet they want their president to generate more and more money. Well, these two programs, the Plough Foundation Scholarship Program and the Merrell Dow Professorship, Mr. Plough, who was not a pharmacist, wanted to contribute to pharmacists for what they had done for his company. He set up a program that was initially a matching program and the monies were invested and gradually grew. Ultimately I don't remember fully all the details, but by the time it was fully operational, there would be over \$2.3 million to be used for student scholarship funds. He felt that the function of a university is to provide opportunity for those bright students who are not as financially well off. And I was fortunate being in the right place and right time to take advantage of Mr. Plough's generosity. And I'm happy that we do have that for our students. The Merrell Dow professorship came about by my contacts with a person named David Sharrock, who ultimately became president of Merrell Dow. I felt one of the major limitations of pharmacy and the pharmaceutical industry was to focus on this issue of the justification of drug prices. We needed a center. Dr. Pathak, who in my judgement, was one of the brightest faculty I've met, was interested in that area was chair of the Division of Pharmaceutical Administration. Together we met with the people at Merrell Dow and showed them why it was important for them to set up a professorship that would be able to focus on pharmaceutical administration. I think in the final analysis you have to

be able to justify what you're doing. Dr. Pathak is an outstanding person who is now largely in the medical school and school of public health, and before that he became the Merrell-Dow professor.

Q. Now we haven't talked much about your research. Would you like to describe it for us?

A. Let me try as best I can. When I was working at the Massachusetts General Hospital, the chief of neurosurgery was very discouraged by the fact that, skilled as he was a surgeon, he could not treat effectively malignant brain tumors. And so he recruited me as a chemist from Kodak to try to develop better compounds that would localize in brain tumors. The technique is this: there are certain isotopes and one of the isotopes of boron, boron-10, which is non-radioactive, has a propensity to absorb what are called thermal neutrons. These are not fast neutrons. These are slow neutrons. And these neutrons themselves are not ionizing, don't destroy tissue, but they are captured by this boron-10 isotope, producing an activated boron eleven that immediately disintegrates into two large particles that share between them 2.4 million electron volts. So essentially this is a radiation therapy procedure relying on the ability of boron-10 to absorb slow neutrons that have very low energy, 0.025 electron volts, becoming a very activated system that disintegrates and provides intense ionizing radiation that is confined to a cell. So the whole approach is, can boron compounds be developed that will localize in brain tumor cells and not a normal brain, and can we use that localization as a means of destroying the tumor selectively. It sounds simple, but it's very complicated. Because how do you develop compounds that are going to

localize in tumor and not normal brain tissue. One of the advantages for treating brain tumors is there's a barrier called the blood-brain barrier. And that barrier excludes materials from normal brain but in brain tumors that barrier is broken down. So here is a potential mechanism for getting compounds into the tumor and not into the brain. Unfortunately, you need a fairly large amount of compound and by that I mean you need of the order of micrograms of boron per gram of tissue for the therapy to work. And that's a large amount of material. A large number of boron compounds have been synthesized and screened. Unfortunately, this therapy has not worked as effectively as it should. And that's been a failure of the chemist, to design compounds that will concentrate at a suitable level in tumor tissue. I've worked on that for many years. I have been asked to give a plenary lecture in Moscow this year on this area though I've been retired for four years. It's going to be a formidable task for me to prepare a lecture identifying the problems. But theoretically, the concept is very intriguing. It is what one would call a two component process. One needs both boron and neutrons. Most of the drugs that are used in the treatment of cancer, so-called cancer chemotherapy, are by and large toxic compounds. They are cellular poisons. And so the limitation that one has is how can you give enough of a toxic compound to kill the tumor cell and not kill normal tissue? And that's been an awesome problem. This technique of using two components, each innocuous by itself, but its combination produces intense destructive ionizing radiation, is very desirable. The problem in developing this form of therapy is dependent on support from external agencies. They don't always look and say, "Well, this is a

good idea.” They look and say, ”How many people are working on it? Should we spend any money on this? Scientists and clinicians haven’t succeeded yet; will they?” I remember when I was working at the Mass. General Hospital, every year people from Washington would come out to review our program. They would ask us this simplistic question, “Well, have you cured brain tumors yet?” This is not like sending a man to the moon. We don’t know how to do it as effectively as we would like to and you need the money in order to develop it. Yet, if you don’t have immediate success you’re not going to get the money you need. I’ve often felt if Einstein were trying to get tenured today, he would not get it because proof of his ideas came much later. And yet the granting agencies are made up of people with bureaucratic simplicity. Unfortunately they say, “Well, when are going to accomplish goal?” And not, “Is the process reasonable? Are the ideas reasonable? Maybe we should support it.” But I can’t complain. I had two grants, one from the National Cancer Institute and one from the Department of Energy when I was in my early 70’s. So I can’t really complain.

Q. Well that’s very interesting. I hope success will be soon.

A. Well I think one thing you can be sure. That if you don’t do something, it won’t get done.

Q. You won’t have any success.

A. Exactly. You won’t have success.

Q. Well now, finally, are there any other topics you would like to discuss? We’re going to talk about your book for a few minutes.

A. Okay. I would say if you looked at the medical research budget nationally, it's not really done in a reasonable way. For example, I've worked in cancer research all my life. But if you asked me, "What is the most serious health care problem in society today?" I would say without any question it's drug addiction. And the reason I say that, is it has profound effect on the criminal justice system. It has a devastating effect on the health care of the individuals who abuse drugs and their children. And the government, in my judgment, has been very stupid. We're giving three billion dollars to Colombia to try to prevent them from producing cocaine and sending it here. The problem is not cocaine production. The problem is we don't understand what addiction is all about and why people lose control of their brains once they become addicts. We've looked at addiction as a sign of weakness. We've looked at it from a moral standpoint whereas in reality these compounds physically alter the brain. It has such a serious impact on society. Prisons are the big growth industry. We should put a good part of the medical research budget to exploring the basis of alcohol and drug addiction and can we come up with ways to prevent it or to reverse the effects. This is the most critical health care problem facing society. It's not Alzheimer's, it's not AIDS or cancer, it's addiction. And yet, if you look at the budget for research trying to probe the mechanisms, the biochemical mechanisms of addiction. The budget is very small compared with interdiction and preventing drugs from coming into this country. Shouldn't we know why people become addicts? And if we knew that, maybe we could develop drugs to reverse that process. But people who are addicts are viewed by society as throw-a-way people. They don't have the clout that people

with cancer or heart disease or AIDS have. And I feel that the medical research budget should be more rational than it really is right now. It's subject to tremendous political manipulation. So that's my criticism of where we're at today.

Q. Is there any way that you could get all this before people who matter? Before the people who decide how to dispense?

A. Well, I think the problem is that, the government functions based on pressure groups, not based on logic. So we are willing to spend three billion dollars to give to Columbia to prevent cocaine from being produced and marketed. And it will just move to Peru or Bolivia or some place else. There's a demand for it.

Q. It seems such an important concept. It seems a pity that you can't move government, if that's too general a word, to consider your concept.

A. Well I think we should look and say, "What are the most critical health care issues facing Americans today?" And without question it's addiction or drug dependence. Alcohol accounts for 50,000 deaths on the highway through abuse of alcohol. If we legalized drugs we would have more carnage on the highway because we'd make it legal. I think we need to have a more rational medical research budget at the national level. But I'm probably asking for too much. The politicians are not scientists. People say, "Well drugs are bad. Let's try to prevent them from coming into this country." We need to appreciate that the problem is a health care problem and not a law enforcement problem. And if we realized it's a health care problem, then you would say I don't care if I have a bad image of drug addicts. That isn't the issue. We need to come up with a way of

understanding the biochemical mechanisms of addiction more than trying to treat cancer. Even though I've worked in the area and I'm very sympathetic to that, my feeling is, that fortunately cancer by and large is a disease of old age. But drug addiction is not a problem of old age. It's impacting the young people in our society. They think they can take a drug affecting their brain and it will have no long term effect on them. I think it was poignant for me, when I saw this person on TV saying, "I'm addicted to cocaine and it's going to kill me I know and I can't help myself." So I think the medical research budget, in my judgment, needs to be more rational than it has been. It's been driven by pressure groups. And so people who have AIDS push the government to spend more money on AIDS research. And people who have cancer push the government to cure cancer. Or people who have heart disease, want money spent on that. Or people who have Alzheimer's, largely older people, say, "You have to provide money for Alzheimer's research." We don't have a pressure lobby from drug addicts.

Q. I think you should create one.

A. I think in my old age I don't think I'll be able to do that. But I would say, that's the most urgent problem in society. We're spending tremendous amounts of money trying to interdict drugs coming into this country. We provide large amounts of money to incarcerate drug addicts. We provide money to try to counsel people to stay off drugs, when they've lost control of their brain. That's my soap box.

Q. It's wonderful. I think we should take this tape and ... Is there anything more that you would like to say about your book? We did discuss it a little but is something more?

A. I've written it because my concern is that higher education is going to emulate the problems that we're seeing in primary and secondary education. It occurred at least 20-30 years ago. And it occurred when teachers in our school systems lost academic and environmental control of their classrooms to the political establishment. When the teachers lost that control, it began the downhill spiral that we've had since. And the political establishment, through school boards, wanted things kept quiet. You can't fail students. Everybody has to pass. Well as soon as you create that kind of atmosphere, we now have people who finish our high schools who can be illiterate. The politicians who caused the environment now rush to the ramparts and say, "We'll solve the problem for you." They created it. And they have the gall to say they will solve the problem they created in the first place. Now higher education is in a similar environment as occurred 25-30 years ago. The teachers, our professors are losing control over the environment in their classrooms. Students are increasingly looked upon as consumers. Everybody has a right to graduate college. They have a right to a degree, a license. And my feeling is, we're on a downhill trajectory that will only become apparent in 20-25 years. We will see social promotion in our universities as has already occurred in primary and secondary schools. Professors increasingly want to spend more time doing their scholarly work than being involved in setting academic requirements that need to be adhered to and in

having any input into how university budgets are being expended. They're withdrawing and doing their own thing. We will see, unfortunately, more unionization in our universities as a result of the loss of faculty control that used to be operative at a previous time. That's my concern. And because of that concern, I've written this book. I think it's a matter of leadership. We aren't getting the best and the brightest people desiring to be academic leaders. We're setting up an administrative class and a faculty class. The administrative class is able to get large salaries for themselves, very much like the corporate executives. And faculty are retreating into doing their own thing. It's a prescription for a reduction in the quality in our academic institutions, unfortunately. Shouldn't there be some discussion of the change from a collegial structure, with shared governance between faculty and administrators to a corporate culture, in which everything is from the top down by administrators? You would think with this kind of transformation there would be wide-spread national discussion. There isn't. There is grouching among the faculty but that's about all that's occurred. And so I felt I had a responsibility to raise this issue. And that's why I've done it.

Q. Very good. Very good. Well thank you, Dean Soloway, for taking the time to give us your ideas and your thoughts. It's fascinating. I'm very fortunate to be the one to conduct the interview.

A. Thank you. Thank you for taking your time to do this.