INTERVIEW with ROBERT M. SAUNDERS

May 30, 1974

McCULLOCH: All right, Bob, the first question, what attracted you about coming to Irvine?

SAUNDERS: Well, Sam, I think the really overriding issue was that down here I had an opportunity to start an engineering program from scratch from no previous history and without the constraints of history which are, as you know, sometimes very devastatingly binding, and at the same time have the support of the whole University of California and the state of California behind me. Now I realized at the time that it was chancey because there'd been some rumblings that the state was not going to support education in the style it had been accustomed, but that was a calculated risk and I chose to take it, and I've never regretted it.

McCULLOCH: A lot of us didn't think that the cutbacks would come when they did. Now, I remember your picture being in the purple book. Were you down at any of the conferences where we set up the Irvine plan, which Jack Peltason chaired, and we put together the 6-3-3 requirement and the majors and so on? I don't recall your coming to some of them.

SAUNDERS: Oh, I first started coming to Irvine in the spring of '64. I think the first time I was down here was in March of '64, and by July of '64 the decision had been made that I would be on board at Irvine.

McCULLOCH: That's July of '64. So there's where you--

SAUNDERS: I actually came on board full-time on September 1.

McCULLOCH: September 1 of '64?

SAUNDERS: Right.

McCULLOCH: So, therefore, you did probably come to those conferences which Jack chaired, and we set up the program at Irvine which involved the 6-3-3 requirement?
SAUNDERS: Yes, I was a part of this.

McCULLOCH: Well, what recollections do you have, then, of those early planning sessions?

SAUNDERS: Well, they were very exhilarating, I thought, because they were freewheeling discussions in which people were not involved with the constraints I mentioned. I thought they were people with considerable vision about what they'd like to do, and they really said that, if we don't have any existing organization, what would be the ideal organization? And what I really liked coming out of that discussion, which never came to fruition, was the concept of an all-University course that would be required of all students, no matter what their major, at the undergraduate level, that would cut across all the bounds and disciplines on the campus and that we would simply devote 20 percent or 25 percent of the program of every student to this course, and he would enroll in it from freshman year to senior year.

We debated the issue, you may recall, of Western Civ until they brought up, well, there's more to the whole world than the Western civilization. But also we sort of landed on the concept of man and his relationship to his fellow man in all its dimensions, be it technology, be it humanities as we know it, fine arts, social science, what have you. And to me I thought that was extremely exciting, and I regret that it never came to pass. That whole discussion, I thought, was tremendous.

McCULLOCH: We put in the Conclave, and that was sort of, maybe, a compromise—I don't know. It was agreed that we would set aside one or two days each quarter and discuss some very important problem and have everybody hopefully in attendance. It, as you know, finally died in about the third year, fourth year.

SAUNDERS: Well, I think that, American education being what it is, the Conclave was doomed from the outset because it was not a required exercise either on the part of the faculty or on the part of the students.
McCULLOCH: Yes. Well, on the 6-3-3 and back to the planning and the purple book that we all got out which would be the original Irvine plan, how did you feel the 6-3-3 affected engineering? I say this because I remember very pleasantly my conferences with you about the humanities part in your program, and I was pleased that there was so much humanities permitted for them to take. What sort of general requirements started in your school in your program?

SAUNDERS: Well, we had to ask for a slight variance from the 6-3-3 program, partly because of national accreditation constraints under which we were functioning, or wanted to function, at least, so we asked that ours be a nine-course requirement instead of 12—or put it the other way, that courses taken in the physical sciences would be considered part of the package.

So we put in a nine-course requirement, but we restricted the 6-3 requirement. We had a little bit more, perhaps, than the other schools and said that they had to be in the School of Humanities, the School of Fine Arts, or the School of Social Sciences; in other words, we excluded the Biological Sciences, the Physical Sciences, and ICS; we would include, of course, Comparative Culture because, in our eyes, that was in essence a humanity and, in our eyes, Social Ecology was a social science. So even today we adhere to that package.

McCULLOCH: What does RI stand for? Did you say RI?

SAUNDERS: ICS, I thought I said.

McCULLOCH: Oh, I see.

SAUNDERS: I'm sorry. And we do require that there be both depth and breadth to the extent that they can be managed in a 6-3 combination. We do ask that our students take six courses in the School of Humanities or the School of Fine Arts or the School of Social Sciences and that the breadth
requirement of three courses be in one of the two schools they did not elect the best courses in. Admittedly in Humanities they couldn't range from history to English literature, which is a broad-gauge effort, indeed. But still it was our view that students ought to be involved in these programs, and we did make that restriction on it.

McCULLOCH: I remember these restrictions, which I thought made a lot of sense. And what I felt was, Bob, that you'd given your engineering students a very wide selection for breadth, and I know I was pleased about it.

SAUNDERS: I might say, also, the national requirement was only six courses, and we elected to go for nine.

McCULLOCH: Yes, I remember that.

SAUNDERS: I should say I elected! The first year was rather nice because I could count on 100 percent faculty and administrative support in anything I did!

McCULLOCH: Yes, you were by yourself, but I had four Chairmen, and I could talk. We still got along extremely well.

Now, on the question of your appointments, the question I want to raise with you is, did you find the Universitywide regulations reasonable, helpful, or obstructive? I ask this, knowing that you came from being the head of a department at Berkeley, and you knew the regulations very well, and therefore you probably found no obstructions in the appointment of your initial staff or subsequently, or did you?

SAUNDERS: Well, this is true. I spent 18 years at Berkeley before coming down here, and I headed the third largest department in the University.

McCULLOCH: In electrical engineering.

SAUNDERS: In electrical engineering at Berkeley. So I had worked with the system as it was functioning at Berkeley for long periods of time, both
as a faculty member and as an administrator. I think the only problem I had here with respect to appointments was that there was nobody that could review the qualifications of the ad hoc committees as there was at Berkeley. You see, at Berkeley I was the department Chairman, and between me and the Senate apparatus was the Dean of Engineering, and the Dean was privy to the appointments being recommended by the Senate to the Chancellor, and he would screen these appointments in terms of the man being considered by the department and so forth, both from the point of view of the committee member and the benefit of the department. So I didn't have that here, and, as a result, I think I had rather spotty committees appointed.

One of the difficulties, I think, in starting a new campus is also that the kinds of attitudes that outside people bring to the campus is that they try to create an atmosphere or feel the atmosphere should be in their own image, so the initial appointments for ad hoc review committees largely came from UCLA and from Berkeley. I didn't have too much objection to this, providing the people that were appointed were the kind that could think and detach themselves from their own ambiances on those campuses—and some did, and some didn't. But in the main I felt the structure served well, and when there were differences of opinion between me and the ad hoc review committee they somehow got sorted out. So I would say in answer to your question, I had no great difficulty. I had some, but no great difficulty. I think I had more difficulty here than I did at Berkeley, but it didn't really concern me.

McCULLOCH: Well, speaking of the regulations generally, now, my fourth question is, should any of these be changed, which is a question you've really answered. You say that in general the system works well, but that specifically at the beginning your ad hoc committees were often a little spotty or inconsistent?
SAUNDERS: I think I had better relations with the Senate review mechanisms in the early days than I did in the later days. There are some problems with respect to the Senate structure, and I should say I've reflected on this a good deal, and sometimes I feel that this imposing of a Senate structure that has worked well at Berkeley on UCLA, for example, was a mistake, and similarly imposing a Senate structure that worked for UCLA and for Berkeley on Irvine may have been a mistake also.

On the other hand, you had to have some sort of a governing system, and for it to evolve with all the stresses and strains that could have occurred coincidental with building a campus may have been too much.

Well, I did feel that in some respects the practices that were designed to, and were tested to, work well at Berkeley, say, did not work well at UCLA during the period when they were growing rapidly in the late '40s and early '50s. By the same token, they probably didn't work well for us, either.

I did feel that the structure was such that there was a limited opportunity to really manage your own affairs. And I've been in organizational structures, both in academic circles and in industrial circles, where there is more freedom to manage. I had more freedom to manage at Berkeley, for example, than I did here, even in the early days, partly because at Berkeley I had greater resources at my disposal, and there was more security, I suppose, on the part of the faculty at Berkeley--they didn't worry about being managed, and, by the same token, if you went off base, you heard about it a lot faster internally in the organizational structure. But I did feel that there was less opportunity, especially in the latter part of my term in office, to effectively manage the organization.

Now, I do feel that it might be that the Senate should consider using an _ex post facto_ review mechanism, rather than a _pre facto_ review technique.
This is basically what is done in industrial organizations; once you choose a manager, you give him the authority and responsibility, and you examine him from time to time, usually on the Profit and Loss Statement, and we have no comparable measurement. But we have developed measurement techniques, and we have developed measures of excellence of faculties and excellence of students and productivity of programs over the years, and maybe now is the time for us to think in terms of ex post facto reviews when we have problems of constraints on our financial structures and physical structures that we didn't have 10 years ago. But anyway these are mostly matters of reflection based on the Irvine experience, and whether they have any merit or not is another matter.

McCULLOCH: Well, I think we should think about them, Bob, and I have listed here questions four and five, how might we change or should we change any of our Senate procedures? We did set up a different system; we have more elections, for example, in our Academic Senate than any other that I know.

SAUNDERS: That's true.

McCULLOCH: How do you feel about this?

SAUNDERS: Well, I don't have any feeling one way or the other on the matter. The democratic process is served in many ways. I do feel that our own Senate structure was not geared to the faculty that we recruited. We largely recruited young people who wanted to come to Irvine because it was a kind of opportunity that drew us here, and we didn't recruit very many statesmen—academic statesmen, I mean. In a place like Berkeley, and I suppose UCLA (I don't know UCLA well—I just know the Engineering School up there)—a place like Berkeley had a wide spectrum of people and had some very outstanding academic statesmen, I would call them. They were people who are not swayed easily by spurious arguments, and they had the maturity
to take an idea and weigh it and judge whether it should be implemented or not. One of the characteristics of youth, as you know, is that they plunge in where more mature people would fear to tread. And this is what we did, sometimes to the disadvantage of the whole organization.

McCULLOCH: Well, I felt that, to follow up on what you're saying. I felt that the original cadre of the faculty that came—that is, the planners who were Deans, department Chairmen, and Directors—really had a wider vision than some of the younger people who really thought in terms of their own PhD experiences, their own graduate schools, and wanted to make changes. I felt that they weren't particularly innovative. I felt that they were constrained and being very young—we still have a young faculty, Bob. I'd say that the average age of our faculty right now is very young. Take, for instance, Berkeley; I think 80 percent of Berkeley is tenured, isn't it?

SAUNDERS: Very close to it, and when I was there (what is it now?—10 years ago) it was two thirds—60 percent, I guess.

McCULLOCH: Right. And you assume that these are mature and many of them statesmen, and we lag. You're quite right. That's a point that some others have pointed out. But I think the Senate procedures whereby we permit so many elections do cause problems, because some of the younger people, some very good but some not so good, are put on these committees, these key committees like the Budget Committee, the Committee on Educational Policy.

SAUNDERS: Yes.

McCULLOCH: And this is where we've got into trouble.

SAUNDERS: Let me just finish that particular point. Chancellor Aldrich always stressed the fact that the Budget Committee and all of the committee structure were advisory to him, particularly the Budget Committee, and many of the decisions that were made on his part were made with the Budget Committee being on the other side of the fence as far as my appointments and
promotions were concerned. And I always felt that, as long as he held the Budget Committee as an advisory committee, I wasn't overly concerned about it. Of course, another Chancellor and another time with the same Chancellor might be quite different, but I thought this was a wide decision on his part to take that particular posture.

McCULLOCH: I think that's a good point you made, Bob. Going on to your work and recruitment and your program, I have asked you in what areas do you think you have had the greatest successes at UCI, both in terms of recruitment and in terms of your program?

SAUNDERS: Well, since I got your note, Sam, I've thought a good deal about it, and it's very hard to identify some of these things. I remember when I came here I was struck by the magnitude of the job that had to be done. It just seemed utterly and totally impossible.

Number one, you had to design a curriculum for an engineering school that would be something that would be attractive to students and, at the same time, would be innovative and be the kind of clean-blackboard start that you'd like to make. That was number one.

Number two, you had to design a building. And we had to get started designing that building in 1964, to bring it on stream hopefully in 1969. Actually, we got in on stream in 1970.

And number three, we had to recruit a faculty. Well, at a place like Berkeley, you'd have 16 committees doing all these things, and you'd have a tremendous amount of support, but somehow or other the job got done.

And the curriculum that was designed is, even today, 10 years later—and I'm a little critical of the faculty for it—it is essentially the same curriculum that was designed in 1964; it hasn't changed appreciably. Certainly the fundamental principles haven't changed. And the building that was built, by all measures that I can find, is an outstanding building in
terms of utility and in terms of respect that the faculty has, or people on the campus have, for its architecture.

McCULLOCH: Yes, it's a beautiful building outside.

SAUNDERS: And internally it has tremendous utility; for example, we're accommodating people in that building that it was not designed for. We're accommodating biological sciences; their fundamental undergraduate laboratories are located on the seventh and eighth floors. We were able to accommodate the Instructional Media Department on the ninth floor. And these were not part of the design, and it didn't require more than five or ten thousand dollars in building modifications, and so it's been very useful.

I think probably if anything was given short shrift in that period of time, it was perhaps relations with the rest of the faculty on the campus. I tended to withdraw into my own shell and my problems, which had to do with those three things--developing the curriculum, recruiting the faculty, and getting the building under way--and, as a result, I don't think engineering was well understood across the campus. A large number of the faculty who came here came from schools in which engineering was not a strong dimension, and yet at Berkeley we just assumed that engineering was a strong dimension on the campus because the American Council on Education, when they came out rating Berkeley higher than Harvard, did so on the basis of the strength of the Engineering School at Berkeley, and all the departments at Berkeley were rated very highly on the American Council on Education graduate department standing. So I guess the one failing that I made in that respect was not being sure that engineering was well understood across the campus.

As far as the faculty was concerned, we all made mistakes. I don't know of anybody who can choose people to do jobs and do it with 100 percent (tape not clear) assurance.
McCULLOCH: The sign of a good administrator, Bob, is a person that has to take gambles, and we all took them, and once in a while they backfired.

SAUNDERS: They did backfire in a few cases, and fortunately I was able by a variety of devices to remove some of the mistakes I made, but still some remain. In the main at the present time I would say, of the faculty remaining, that well over 75 percent are those that I would choose again.

McCULLOCH: That's a good percentage.

SAUNDERS: People tell me that that's a pretty good batting average. I'd like it to be much higher, especially on a small faculty.

McCULLOCH: Well, you've really answered my next question, in what areas do you think you have had the least success? I think you've really covered that. Is there anything else you'd like to say about where you've run into real problems?

SAUNDERS: I think that the relationship of engineering with respect to the rest of the campus was probably the biggest failing on my part during my term as Dean.

McCULLOCH: Well, I feel as far as the Council of Deans is concerned, I know that I felt that I understood what you were doing and why you were doing it, and I'm sure the other Deans did too. I think what you're really referring to is communication with the faculty as a whole.

SAUNDERS: That's correct.

McCULLOCH: Yes.

SAUNDERS: I didn't feel uncomfortable in the collection of Deans and other administrators on the campus. I felt that in the Senate, for example, very often the debate that occurred showed a complete lack of understanding and appreciation for what professional schools, such as engineering, would do for the campus. And I perhaps wasn't as articulate as I might have been, describing the advantage of a strong School of Engineering.
McCULLOCH: Yes, I see what you mean. I understand what you're saying. Well, going on, Bob—you've answered some of these, but let's pinpoint a few—what problems are unique to Irvine, because it's new or because it was a particular campus? What problems arose? You've mentioned some of them, but what are some of the others—some of them good, and some of them not so good?

SAUNDERS: Well, the planning that was done in '64 and '65 had to be done in terms of what information we then had available. We planned an Engineering School that would grow very rapidly in the first five years and then begin to taper off after that. I felt that the Engineering School should double each of the five years and that it would be up to the neighborhood of about 35 or 36 faculty by 1970; in other words, it would be almost three times the size of its present faculty and also in terms of students, and we laid all our plans accordingly.

Now, the budget cuts, starting in '67 and then more seriously in '68, really hampered us a great deal. And at the same time, demographic information we had available in 1964 was proved to be quite inaccurate in terms of the number of students that would be available for engineering.

And one thing, I guess, in my planning that I didn't take into account was Fullerton. I did not know that Fullerton was authorized to put an Engineering School on stream the same time we were. I predicted a freshman class of 115, I think, for the fall of '65; we got 65, and Fullerton got 55, so between us we had the 115 students that I thought would come to Irvine.

But, at the same time, Fullerton doesn't draw the same students we do, but, be that as it may, starting two engineering schools in Orange County at the same instant was an error, I thought, on the part of the state authorities.

Incidentally, I commend to you a little book called *Malice in Blunderland*, by a colleague of mine at Southern Methodist University. It's
full of little amusing truisms about academic life, and it has, I think,
eleven Saunders' Laws in it. Saunders' Law Number Four is that it takes
approximately two million people to support, both in terms of students and
money, the viable engineering schools in the country. It stems from purely
horseback or the envelope-type computation. We have 200 million people in
the country; we have 200 engineering schools. And of the 200 engineering
schools, 40 of them are private, and of the 160 that are left, about a third
of them are between D and F constantly in the rating, and those come out of
my experience on the accreditation front. That leaves you with about a hun-
dred engineering schools in the country that are really sound and functional.
Please divide 100 into 200 million people, and you get two million, and that
is generally a pretty good rule of thumb. If you look around, you'll find
that's just about what's needed.

Now, California has 19 engineering schools for a population of 20 mil-
lion, and Orange County had a population at that time of a little over a
million. To have two engineering schools in Orange County reduced it to the
kind of people potential and resource potential of North Dakota, say, and we
know that North Dakota can't handle even one engineering school, let alone
two, which they now have. So that was a problem, and I think that perhaps
that was one of the most serious aspects because, if we had developed a
workload based on the demographic studies that had been made by the
President's Office and by me when I got here, we would have been pounding on
the table for additional support and FTE.

As it was, we did receive very generous support. Our building program
was not cut one bit. We did share the equipment to some extent with ICS,
but not abnormally so. The support budget in the form of dollars for FTE
faculty always remained the highest in the state as long as I was Dean, and
I appreciated that. And the student-faculty ratios—we voluntarily had them
up pretty close to 15 to one, when all the rest of the engineering schools in the University system were running down around 10 or 11 to one (I think Davis was the closest at 12), but we cut because of the cutback in graduate enrollments in '71-'72, I guess it was. We dropped back then to quite a bit lower than 10. But 10 seems to be the standard for engineering schools across the country, and that's a figure we probably ought to hang in on. So the resource picture, I think, which is a very complex one, was perhaps the most serious limitation we faced. And it wasn't just money, it wasn't just money.

McCULLOCH: That's something new, Bob. I've learned something now, and it's very interesting.

What would you do differently, if you had to do it all over again? I've asked that question because--you've already answered it.

SAUNDERS: Sam, I don't think I'd do a damn thing differently. As a historian, you know hindsight is 20/20.

McCULLOCH: Yes.

SAUNDERS: You know, there are certain things that you pinpoint that you'd do differently, but I have to back, and I have to say that, given 1964 and what I knew at that time, if this were 1964 I think I'd make the same decisions again.

McCULLOCH: With the exception of announcing more of a general campus--

SAUNDERS: Yes, I would certainly want to pay attention to that particular aspect, but history will not repeat, as you know, and, if you were starting up a campus in 1974, you'd do things much differently. After all, technology has moved on tremendously in 10 years. The teaching and the quality of instruction have moved forward immensely in that period of time, as well. There are many things you would do today that you would not do in 1964.
McCULLOCH: Yes, right. Have there been more changes in your discipline of engineering than, say, in the liberal arts and sciences, say, biology or chemistry or math?

SAUNDERS: Well, I don't know, Sam. Again, that's a hard comparison for me to make. I look at biological sciences here, and I was always struck by the tremendously innovative and pioneering approach they had to the teaching of the biological sciences, and this was particularly Ed Steinhaus's contribution to the campus. He really struck out on a bold new front, and he sold it, and it really is paying off.

I look at the physical sciences, on the other hand, and it looks like the same old thing; it's math, physics, and chemistry. Except for the subject matter being taught, it's the same structure that existed in the University in 1900.

And I look at fine arts, on the other hand, and I see a tremendous organizational structure there that is very different from what you'd see on many other campuses, and the emphasis on the performing arts here as contrasted with other campuses of the University is unique and really innovative.

And look at your own structure here, Sam, where you've got history, English, and so forth. And I'm sure that within the organizational structure it is very different from other places, but that, too, is what existed at the turn of the century.

What I'm getting at really is that true innovation is not geared to the structure, or quality is not geared to the structure; it's only remotely so, and it's really geared to the people in the structure, so the structure really is unimportant.

McCULLOCH: I've always heard that, Bob. I think that you can have the best curriculum in the world and the most interesting and innovative, but,
if you don't have good faculty, it won't work; and, conversely, you can have
what doesn't look like such an interesting program, but, if you have a
cracking good faculty, you may make it work.

SAUNDERS: Yes, that's correct, that's correct.

McCULLOCH: Well, now, this question of organization did come up in a
crucial way the first year we were here, should we have a liberal arts and
sciences college, a College of Arts, Letters, and Sciences, or should we
continue with the divisions and upgrade them to be called colleges or
schools? And we understood what the negative side would be; we might become
too professional. But how did you, as an engineer, look at that problem,
and how did you feel and even vote, because we brought it to the faculty
Senate? That was our first big policy decision that the Senate made.

SAUNDERS: Well, I supported it very strongly. I felt the monolith of
the Arts College was a terrible thing.

McCULLOCH: Of course, you had seen it at Berkeley, hadn't you?

SAUNDERS: Yes, I'd seen it at Berkeley, and I'd seen it at Los Angeles.
I saw it on almost every campus I had visited as a part of the accreditation
process for the engineering schools, and I thought that breaking up of the
Arts College was perhaps the most innovative administrative departure made
here, and I soundly supported it.

I know I wasn't supposed to support it, because it meant that the Dean
of Engineering, instead of being equal to the Dean of the College of Arts,
Letters, and Science, would then become coequal with the Deans of the sepa-
rate schools, which didn't bother me a bit. First of all, there's a very
sound political reasoning behind it. It's much easier to try to divide five
Deans than to divide one, and no Dean had sufficient strength unto himself
to say what was going to happen on this campus. Now, it turned out that the
Dean structure didn't become as strong a motivating force in the governance
of the University as I thought it might, so in the end that political aspect didn't really make a hell of a lot of difference, but it could have, it could have.

McCULLOCH: It still can, it still can.

SAUNDERS: It still can, that's correct.

McCULLOCH: I think, as we get bigger. I, of course, supported the whole change, and the Deans of the liberal arts were unanimous, but we renamed the divisions schools or colleges. And I think that when Kerr came down to our campus--Bob, maybe you recall, he came in the spring of '66, as I remember--he gave a little talk to our faculty, our Senate, and he said at the time, "Don't make the mistake we did at Berkeley of having this big monolithic Arts and Science College with about 68 departments," or whatever the figure he gave; he said, "I think your motion that you're debating now and discussing of dividing into schools will be the best thing you can do, particularly as you grow bigger." Do you remember Clark Kerr's saying that?

SAUNDERS: Yes, I do remember that, and I certainly applauded that particular viewpoint. I felt it was a very good thing to do. I still think so, and I would hope that the campus never feels it has to recombine--

McCULLOCH: I think what we need to do, what we pinpointed, is to have some kind of undergraduate Dean or somebody who will look at the curriculum and try to prevent separatism from developing.

SAUNDERS: Yes, an overlap.

McCULLOCH: An overlap, yes.

SAUNDERS: We don't have the mechanisms, and, if there is an administrative criticism on this campus, it has to do with communication across the school lines. Communication upward has always been very good, communication downward has never been very good, and communication across is almost non-existent.
McCULLOCH: Yes. That's where the Senate should play the part. In other words, Bob, where we all meet together to discuss a University problem—a curriculum problem, any problem at all—it should be in the Academic Senate, but right now you barely can get a quorum.

SAUNDERS: Well, I appreciate that, too, and I always am a great believer that the people who attend meetings are making a judgment on the value of so doing. For example, my Accreditation Committee, which consisted of 24 people, always had 100 percent attendance all the time I was associated with it—six years, seven years—it never failed, 100 percent attendance at its meetings. Now, why were they there? Because there was so much at stake. Here were Deans that would be fired because their schools were not accredited or were disaccredited, fortunes of schools would come and go. There was a tremendous amount at stake in this accreditation function, and that was why everybody came.

By the same token, attendance at faculty meetings will rise and fall, depending upon the issues that are being handled. And if you're discussing whether or not you should smoke in a Senate meeting, it isn't going to excite very many people; it may excite a few, but not very many. So the quality of the issues that come before the Senate are really going to determine participation. And it may well be that representative assembly is the way to go. We went through that routine at Berkeley, and it worked very well. I was a representative for, I don't know, 30 or 40 faculty members in the College of Engineering for a while, and, of course, as a representative you felt compelled to attend the meetings.

McCULLOCH: Does the Senate still operate that way?

SAUNDERS: It may have reverted to it, but, during the period of great inward examination at Berkeley, which was, I think, more profound than many of us understand or realize, it became again a town meeting.
McCULLOCH: That's very interesting.

SAUNDERS: I think that, if it isn't going to function for lack of a quorum, it's got to go the representative assembly route, and there's nothing wrong with that naturally--

McCULLOCH: And that's being talked about this very minute. We got a notice in yesterday's mail.

SAUNDERS: Yes, I know.

McCULLOCH: A final question, I'd like to ask are there any experiences in the early years that we've missed that you'd like to comment on?

SAUNDERS: There are a couple of things that I have in my notes I made here that we haven't touched on. You know, in my choice of a faculty at Irvine, I made the conscious decision that, because of the surroundings we were to have at Irvine--namely, a high technology industrial complex around us here--I decided that the faculty I recruited ought to be knowledgeable about the industrial practices, and I insisted that every faculty member that we recruited be what I call historically and currently qualified as a practitioner of engineering, and this does not mean teaching. I don't call that the practice of engineering, although that's a part of the dimension. What I really was looking for were people who had made a living as engineers, quite apart from their vocation or avocation of teaching, and, in so recruiting these people, a large number of the initial faculty came directly from industry or government laboratories where engineering was being practiced.

What I didn't realize in recruiting this faculty was that they would come in with no experience in academia, and, in a sense, I was recruiting Assistant Professors, but giving them the rank of Associate and full Professors in terms of their experience in academia. Now, I naively thought that they would pick it up very rapidly, but they didn't. It took them
about three to four years to really become geared to the academic structure and to develop the kind of stature that went with their rank, really.

Another aspect, and there was no way I could think of gauging this aspect, was that some of the people that I recruited were really fugitives from industry. They couldn't make their peace; they were definitely uncomfortable in industry. And those weren't the kind I wanted. And they came to the campus as a place of refuge, and I deeply resented that particular approach, because I felt it almost bordered on fraud, given the academic plan that we had, which was a public document and which every faculty member, potential and actual, received long before he came on board. So that aspect of recruiting a faculty I have not touched on before.

And, as you know, we started out this campus with the concept that we would do everything we possibly could to employ modern technology in the teaching of all our subjects, and computer-aided instruction was a big thing. Well, computer-aided instruction failed on this campus, and I think elsewhere in the United States for a very simple reason: the cost effectiveness was not good. The effectiveness of collegiate teaching using computers was so costly that it could not be afforded. With rare exceptions— I think Pete Fielding's course in geography and maybe some of the work that Al Bork has been doing recently—it really hasn't caught on and paid off. But, on the other hand, there were many other innovations in the use of modern technology; for example, the use of audio tapes for lectures and the use of video tapes for imparting information were never really embraced by the faculty in engineering. And the television system that I proposed to link the various parts of the community surrounding us here was not strongly supported in engineering. It was supported, but not strongly so, and I had hoped that 100 percent of the faculty would grasp on this modern technological aid. And that particular system does not exist today, not because of
faculty resistance, but because of industrial resistance. When I went to The Regents and said we were planning a television system, we wanted a loan from them, I told them we'd pay them five percent interest and retire it in 10 years. In other words, we put it on a very hard economic base. And industry was not prepared to support it on that base.

McCULLOCH: They weren't?

SAUNDERS: They were not. Of course, when I went to them in '69, I expected the presidents of local industries would be interested in that particular proposal. They already saw the handwriting on the wall, and they saw that in 1970 their business was going to drop quite materially and that economic conditions in Orange County would be very grave indeed and that the unemployment among professionals would be up between seven and 10 percent; they could see that coming, and I didn't see it. I wasn't privy to that particular piece of information.

However, that was the main reason why the television system didn't fly here and did fly at Stanford and at the University of Southern California and at Southern Methodist University. So modern technology really hasn't yet been embraced by the School of Engineering. There may be a good reason for it, but I deplore it to some extent.

McCULLOCH: Just continuing on with this work you think we've missed out and you'd like to touch on, Bob.

SAUNDERS: Well, those are the principal points; I guess that, if I were doing it again, I would perhaps infuse more people experienced in academia at the outset. It was an oversight on my part.

McCULLOCH: How do they do it in Berkeley? What do you do there?

SAUNDERS: Well, you see, at Berkeley people all were acquired more slowly. I should say this, in four years I appointed 40 percent of the faculty that were on board at that particular time. Each of my predecessors
appointed 40 percent, so between us we appointed 120 percent of the faculty, but you see there's some attrition and resignation and so forth.

McCULLOCH: Yes.

SAUNDERS: When you think about it, we were hiring primarily young Assistant Professors, and most of them, for a variety of reasons, had some industrial experience before they went after their PhDs or they acquired it during the course of getting their PhDs.

The pattern in engineering in the '50s and early '60s was, get a Bachelor's degree, go out and work for a while, perhaps simultaneously do a little work on a Master's degree or even complete a Master's degree while fully employed or do a little work on it and then come back full time. And, based on performance in the Master's level, make a decision whether to go on for a PhD or not. So many of our PhD students had a great deal of industrial experience.

McCULLOCH: Would you say that Berkeley worked out all right because when they came in they had a nucleus or a sufficient core of statesmen that they could train the others, whereas here you're saying they had to adjust to academic life, and it took them four years; it would take them less at Berkeley because they had colleagues who knew the ropes?

SAUNDERS: That's correct, and they were prepared to come in at Berkeley and sit under the umbrella and not have to go out and do their own thing. They were quite prepared to nestle up to a faculty member at Berkeley and accept his views, at least for the time being, and examine them carefully and perhaps in five or six years reject them and replace them with something better. It was a little more of a master-apprentice type relationship there, and I mean that in a very positive sense, rather than a negative one. But in the climate of the times at Irvine, we were caught up in odds.
McCULLOCH: Yes.

SAUNDERS: And in some respects I think we've come out of those times extremely well.

McCULLOCH: I think so.

SAUNDERS: We've a few scars hither and yon, but in the main we've come out fairly well.

McCULLOCH: Well, thank you, Bob. That's been a very helpful discussion, and I appreciate it very much, and unless you have anything more I'll shut the machine off.

SAUNDERS: No, I don't think so, Sam. It's been very interesting.