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Interview with Dr. Roger Revelle
May 15, 1985 — Dr. Revelle's office, Warren College campus, UCSD
Interviewer, Dr. Kathryn Ringrose

RINGROSE: In his interview. Clark Kerr describes the Scripps Institution as a "little jewel". He's very flattering about it. And it is certainly a graduate level scientific institute of superb quality and worldwide status. When you became acting director of the Scripps Institution in 1950. What were your immediate plans for the development of the educational side of the Institution?

REVELLE: The University Directory here half the time calls it the Scripps Institute, and half the time the Scripps Institution. I used to say it was the only *institution* run by its inmates.

Well, we had traditionally had graduate students at the Scripps Institution ever since the early 1920s. Not very many, but in the early days, it was quite a small place. When I came down here in 1931, as a graduate student, I was one of five graduate students, not of very distinguished quality either, for the most part. We had five faculty members, quite a small budget, and a small staff. I think our total budget was something like $100,000 a year. Of course, professors in those days got $3,000 per year. So, you could have quite a few professors for $100,000. Of course, you had to have janitors, and engineers, and building superintendents, and grounds people, secretaries—a secretary at least. By 1950 this had changed very much because of Harald Sverdrup, who had been director from 1936 to 1948, was a famous and world class oceanographer. He was probably the leading oceanographer of his time. He came from Norway, from the Institute of Geophysics in Bergen. [*Phone call*.]

RINGROSE: We were talking about your ideas about education as you began your tenure running Scripps.

REVELLE: I was saying that during Sverdrup's time, he taught during World War II, he offered a course here for Army and Navy meteorologists on wave forecasting for amphibious operations—for example, wave forecasting for Normandy and for the invasion of Sicily and the various amphibious operations in the Pacific. That brought in some quite good young men who had already taken a course in meteorology for the Army or for the Navy, and some of them stayed on after the war and took a Ph.D. in physical oceanography. From that time on we had many more graduate students, and a much better grade of graduate student, I would say, than we had in 1931 or 1936.

RINGROSE: Did you actively go out and look for good graduate students, or did they just come to you in those early days?

REVELLE: They just applied. And the reason they applied was this wartime course in wave forecasting. Walter Munk was involved in that, too. Walter can give you the names of some of

those early post-war graduate students. Bob Arthur (Robert S. Arthur) was one. He's on this list as a faculty member at Scripps. Chip Cox (Charles S. Cox) was another. He's also here, and Melvin Traynor, Townsend Cromwell, Paul Rorrer, Wayne Burt, Don Pritchard I remember, and Dale Leipper. Bob Reed was still another one I remember. And just after that time we enrolled a whole group of very good students: Warren Wooster was one, Art Maxwell was another, Bill van Dorn, and Gifford Ewing. Both Warren and Giff were later on our staff. We hired several of these young men as research oceanographers and some of them became faculty members—both Arthur and Cox became faculty members. Johnny Knauss was still another. In the late 1940s and early 1950s we seemed to sort of specialize in people who later became directors of newly founded or expanded oceanographic institutions, including Knauss, Maxwell, Burt, Leipper and Don Pritchard. Warren Wooster became the head of the Rosenstiel Marine Laboratory of the University of Miami and so forth. So, that seemed to be our specialty—producing directors, not necessarily great scientists, but good organizers and promoters.

RINGROSE: But the institute still didn't see its mission as teaching.

REVELLE: No, it never did. It was primarily—was and is—primarily a research institution even though it now has 180 graduate students and has very high admission standards. It produces about thirty Ph.D.s a year, a fantastic number of Ph.D.s. In the 1950's we had a few dedicated teachers, including Bob Arthur and Norris Rakestraw.

What I noticed about this group of graduate students, the ones who came in during the early 1950s, was that they didn't do very well on their doctoral exams, particularly their qualifying exams. By 1950 we had become part of the Academic Senate at UCLA. When I was a graduate student, we were part of the Academic Senate at Berkeley—somehow during the war that changed to UCLA.

RINGROSE: The southern section was spun off.

REVELLE: The southern section of the Academic Senate. We usually had people like Louis Slichter and Lee Kinsey, and members of the Physics, Chemistry, Mathematics, and Biology Departments from UCLA on these doctoral committees. There were always at least two of them. Our students were clearly very rusty about their basic science and had had no graduate work in basic science. Their graduate courses had all been oceanography courses, and of course the people at UCLA didn't know anything about oceanography, but they knew a lot about physics and chemistry and mathematics.

RINGROSE: And they asked questions about what they knew about. I can see how that would happen.

REVELLE: I always thought our guys were primarily good as sailors. They were very good seagoing scientists, but not very good physicists. So, I decided that one thing we could do here that would improve the education of our graduate students was to start a graduate school of science and technology. I thought of it as a kind of publicly supported Caltech. This idea got a

lot of support from the establishment in San Diego, because they had companies like Convair that had lots of young engineers who needed more graduate training and upgrading.

RINGROSE: Was it about this time that General Dynamics came to you and made the million-dollar gift offer? They did that about 1955, I believe.

REVELLE: Yes, it was in 1955.

RINGROSE: The first installment on the money came in 1956. But I'm sure there had been discussion about that.

REVELLE: That was when General Atomics was being started here. General Dynamics was also Convair, of course. Convair was a division of General Dynamics. We had half a dozen high tech—relatively high-tech companies: Solar, Rohr, Cubic, Cohn Corporation, General Dynamics with Convair, and Ryan. It was about that time that Freddy deHoffmann showed up with his idea of building an atomic energy research laboratory.

RINGROSE: Yes, it was deHoffmann and Bob Biron who generated this offer.

REVELLE: Which offer?

RINGROSE: The million-dollar offer.

REVELLE: I see. I didn't know that Bob had much to do with it. John J. Hopkins was the president of General Dynamics. He was a great talker and promoter. One of the new roads here was called John J. Hopkins drive.

RINGROSE: So, you felt that you had community support for this high-level technical institute?

REVELLE: We built up a lot of community support for the proposed graduate school of science and engineering. Then we brought a delegation to a Regents meeting. It included O. W. Campbell, the City Manager, the President of the Chamber of Commerce, and the Executive Officer of the Chamber of Commerce—his name was Arnold Klaus—and Pat Hyndman, and Jim Archer.

RINGROSE: Jim Archer continued to be very active, isn't that correct? In the development of the of the campus?

REVELLE: I wouldn't exactly say in the development of the campus.

RINGROSE: Well, in the promotion of the campus.

REVELLE: He was active in the promotion of it. I had a friend named Rawson Bennett who had been here before the war as a sonar officer for a squadron of destroyers that was testing sonar gear, and it turned out that the range of the sonar was very much affected by oceanographic conditions. So, he got in touch with us at Scripps—particularly three of us—Harald Sverdrup, Dick Fleming, and me. We wrote a paper on the refraction of sound in sea

water, how it would affect sonar performance. Then later Rawson Bennett became head of the electronics design division of the Bureau of Ships, and he brought me back to Washington. I spent nearly seven years in the Navy wearing a sailor suit. Five of those years were in Washington, first in the Bureau of Ships under Rawson Bennett and then in the Office of Naval Research. After the war, Rawson became the director of the Navy Electronics Laboratory here in San Diego, and then he became an Admiral and Chief of Naval Research. So, he came out here and gave a talk to the San Diego people about how important the Navy thought it was to have this graduate school of science and engineering here, and how much they would support it. That helped a lot, too. This delegation of prominent San Diegans presented their case at the Regents meeting at about the same time, I guess. I don't remember the exact sequence of events, but Bob Sproul appointed a committee to look into it.

RINGROSE: That would be about 1956.

REVELLE: As late as that?

RINGROSE: Well, in 1956 I have noted that you came before the regents—'55 is the Citizens Committee, and in '56 you presented a plan for this institute to the Board of Regents.

REVELLE: For a school of science and engineering?

RINGROSE: Yes, and there was a special committee appointed to look into it.

REVELLE: After I presented the plan. I first presented it to the Board. I had forgotten that. But this committee consisted of several people from UCLA, and some people from Berkeley, too. The UCLA people of course were "agin it".

RINGROSE: You had a lot of problems with the Academic Senate on that. That's very clear in the records.

REVELLE: One of the reasons they were "agin it" was that they ran an extension program down here.

RINGROSE: Oh, I didn't know that.

REVELLE: The college of engineering at UCLA, the head of which was a guy named Lew Boelter—L.M.K. Boelter, ran it. He was a good friend of mine. I had known him during the war when he was at Berkeley working with M.P. O'Brien, the Dean of Engineering at Berkeley. So, he was kind of ambivalent. Because we were good friends, he didn't want to hurt my feelings.

RINGROSE: That wasn't listed as a reason in their report. I guess it's understandable that it wouldn't be. And I can understand that this would be an important underlying reason for their hostility—the competition with their extension program.

REVELLE: Well, they didn't think it was competition—obviously, it wasn't competition. They thought they were fulfilling the needs of San Diego.

RINGROSE: There was no need. This is what they said.

REVELLE: There was a committee chaired by Glenn Seaborg. Ernest Lawrence was on that, too. The Berkeley guys thought our proposed graduate school was a good idea. They were enthusiastic about it. I had worked with Glenn quite closely for years on the Council of Chief Campus Officers. We always agreed on everything, and disagreed with the other campus officers, who were a pretty sorry lot, guys like Stan Freeborn, and I've forgotten the name of the man at UCLA before Franklin Murphy. (It was Raymond B. Allen.)

RINGROSE: It appears that there was a level of professionalism in what you were doing that perhaps they didn't always share in terms of standards for high level scientific study.

REVELLE: They were mostly dull people. As I say, Glenn and I always agreed about everything. We had the same ideas and the same ideals. So, when he was appointed as the chairman of the committee, I knew that we were in.

RINGROSE: The Berkeley people then were supportive. Did the UCLA people continued to oppose what you were trying to do?

REVELLE: That's right. There was one man at Berkeley who was not supportive, and that was Bob Brode in Physics. He was a real bureaucrat. There were two Brodes, Wallace Brode, his twin brother, and Bob Brode. Both were people concerned entirely with form and not with substance. Brode thought we should start with an undergraduate college in San Diego—that's the way everybody started.

RINGROSE: Build from the bottom. That's the way it had always been done.

REVELLE: I don't remember which committee was which. Brode was on one committee and was completely negative. Seaborg and Lawrence were on a different committee, I guess. Maybe it was even the same, I was never very sure.

RINGROSE: Well, I do have reference to the Regents Committee on Educational Pol-icy, which seems to have been quite supportive of this idea in 1956.

REVELLE: I guess Ed Carter was on that.

RINGROSE: Well, the Regents weren't all supportive. I want to talk later about Regent Pauley and the reasons why he kept throwing up roadblocks.

REVELLE: That was a different problem altogether. As I remember it, the Regents' Educational Policy Committee had Ed Carter on it, and I don't remember who else. got to know him quite well, and we liked each other a lot. So, as far as the school of science and engineering was concerned, I don't think there was any problem with the Regents.

RINGROSE: No, the major problem as I have seen in the papers about it was with the southern section and the feeling that the faculty here wouldn't pull its weight because it wouldn't

be training undergraduates. As a result, the other faculties felt that this would become an elitist institution and would have too soft a berth in the system compared to...

REVELLE: A what?

RINGROSE: Too soft a berth in the system compared to what they had at UCLA. It's that kind of carping.

REVELLE: All of which was true. But you see, that is what Scripps was, an elitist institution—entirely a graduate school.

RINGROSE: And you were hoping to make essentially a major expansion in this kind of an institution.

REVELLE: But it would be separate from Scripps. We wouldn't just expand Scripps. We would start a separate institution.

RINGROSE: But a similar one.

REVELLE: Yes, similar to Caltech, up here on top of the hill. If you look at Caltech, it's essentially a graduate institution. They have 500 undergraduates, but about 1000 graduates.

One of the problems was to get some land, so we got a proposition on the San Diego municipal ballot—the City Council put a proposition on the ballot to give us 50 acres of land. This is the land on which Revelle College is now sitting.

RINGROSE: The corner piece.

REVELLE: The southernmost part of the new campus.

RINGROSE: And indeed, the siting of Revelle College where it is, is really because that's the piece you had full title to at the time you started building, isn't that correct?

REVELLE: I think we got title to the whole 500 acres of city land by the time we started building. I'm pretty sure we did, because the regents insisted that they would not put a major campus here unless they got a thousand acres of land, and they did get a thousand acres.

RINGROSE: Putting together that property is a very interesting issue. But let me go back to the educational developments for a moment, and a little later I'd like to talk about the land issues, because they created a certain amount of difficulties with the regents.

At some point it became clear that this new institute would become an institution that would also train undergraduates. When Kerr gets into the picture, he claims that it was his intention that this would be a full-service campus.

REVELLE: Yes, but that was the major campus. That's a separate development altogether.

RINGROSE: Let's trace through that and see how that shift takes place.

REVELLE: The graduate school of science and engineering never actually existed. We got the land. I was actually appointed dean of it. But just about that time the California Commission on Higher Education said that California was going to have fifty million people by the year 2000. That's what the demographers said. In the 1950s, the United States was right in the middle of the baby boom—birth rates in America as a whole were about 24 or 25 per thousand. The population of the United States was growing at nearly two percent a year, and there was a lot of immigration to California. So, they said we've got to have more institutions of higher education in California. One part of that expansion should be in the University of California, and the University should establish three new campuses to meet the needs of the burgeoning population. The Commission thought that throughout the whole educational system there should be more community colleges, more state colleges, more private institutions—but nobody could count on new private institutions getting started or older ones developing. There should be a major expansion of the University of California—and I've forgotten whether the Commission said it, or whether the Regents later decided, that each new campus should have 27,500—all campuses should have 27,500 students.

RINGROSE: Everyone is a little bit unclear about that, how they figured out that magic number. Even Dr. Kerr is fuzzy about how they came up with that number.

REVELLE: I think the reason they arrived at that number is that already that was about the size of Berkeley. And I think UCLA was about that size, too.

RINGROSE: There are wry comments about a remark Regent Pauley made—you decide how large the campus is by how many people will fit in the stadium for graduation.

REVELLE: Yes, but I think the basic reason was that that was about the size the two big campuses were already, although I may be wrong about that. But, as you say, as soon as Clark came on the scene, this idea of the three major new campuses had appeared. So, the regents then never really agreed to—and none of us agreed to—starting the school of science and engineering because we were going to start a major campus instead.

RINGROSE: How did you feel about starting a full university here? After all, you had invested a great deal in the idea of this graduate institute. Did you resent having—?

REVELLE: No, I thought it was a great idea.

RINGROSE: How about the Scripps people? Did they....

REVELLE: They didn't like it so well. They don't like it very well yet.

RINGROSE: I suspected that. So, you essentially had some people you were working with at Scripps who were not supportive. Did they try to pressure you into kicking the university across town to some other location, and just keeping the institute?

REVELLE: No, I don't think so. They were very ambivalent about it, very mixed in their emotions about it. There was never any overt opposition. There was just a kind of a general feeling of nostalgia for the good old days, and....

RINGROSE: We should talk about this more tomorrow in terms of faculty, but did this mean you had to mentally sort your Scripps faculty into those who would be willing to work with undergraduates, and those who would not?

REVELLE: No, we didn't. We never did. You see, the Scripps Institution is an oceanographic institution. Oceanography is not an undergraduate subject. We never thought of our Scripps faculty as being part of the new university undergraduate faculty—not even of the basic science components of the new university, let alone the humanities and the social sciences.

RINGROSE: No, not the humanities. I've seen examples of science faculty from Scripps who, at least for a while served I think of Ed Goldberg, for example, and Jim Arnold.

REVELLE: Well, Jim Arnold has always been part of the general campus.

RINGROSE: So, he was hired—he was actually hired for the general campus.

REVELLE: Appointed.

RINGROSE: Yes, of course.

REVELLE: But in any case. because of the idea of a general campus the school of science and engineering sort of went into limbo. I was dean of it. I had been appointed dean by the regents, and I was appointed as Chief Campus Officer, but all my energies were devoted to trying to think about the major—the general campus.

I started thinking very hard about how we could build a general campus. You see, the nice thing about being a director is that you can really direct, because you can spend most of your time thinking about plans and programs. Some of the faculty are really—simply because they only think about it once every two weeks—pretty much malleable in the hands of the man who is the director, the chief guy, or whoever it is who runs the show.

RINGROSE: Well, Dr. Kerr was very flattering about your abilities to do this kind of larger long-range planning, and I get the impression that he just left things to you down here and was very happy with the results. He let you run your own show. I'm not sure he did that everywhere in the system, but down here he did.

REVELLE: That's right because we had such good ideas.

RINGROSE: Yes, he liked your ideas.

REVELLE: So, he thought he'd let us develop them the best we could. There was, at the same time, although we're sort of jumping back and forth, there was a man named Dean

McHenry who had the idea that we ought to start a university like Cambridge or Oxford—a series of small. residential colleges. He became Chancellor of Santa Cruz and did just that. I thought that was a bad idea, that in the modern world graduate education was at least as important as undergraduate education and you couldn't really have a small college give a graduate education. You wouldn't have enough people in it—enough faculty members. I had been in Princeton several times visiting my friend Harry Hess, who was Professor of Geology there, and I lectured there and things like that. I thought what we ought to do was to have a group of little universities side by side, somewhat like Princeton, each with about 2500 students.

RINGROSE: They offer a superb undergraduate education.

REVELLE: They have only 500 graduate students, and about 2500 undergraduates. I thought we ought to have about a third graduates, and two-thirds undergraduates. That hasn't really worked out, but it would have been much easier to work it out then, because academic positions were so abundant.

RINGROSE: There was more money.

REVELLE: Well, more particularly, the country was growing, and universities were expanding, and there were lots of jobs for academics, Ph.D.s specifically. That's no longer true. It hasn't been true in the last few years. So, I thought that we ought to have colleges large enough to be little universities, each of them able to give a complete general education, and also have several graduate professional schools, not part of the colleges, but attached to them—related to the colleges. Having been very familiar with Berkeley for a long time, and also with UCLA, I felt the faculties there were so large that they could never act, but only react. They were always "agin" things, but very rarely for things simply because there were too many faculty members. So, I thought if you had a smaller number, like 200, in the faculty of a college, they could all know each other, and that would be a number with which you could do some experimentation and get some agreement about educational innovation, educational policy.

RINGROSE: What was your original idea about the colleges? Would each have a unifying theme?

REVELLE: I thought that each would have enough departments, about twelve departments, to offer a good liberal education for undergraduates, and that each department would be big enough to give the Ph.D. Different colleges would have different departments. I looked at Berkeley and they had about fifty departments. That would be enough for at least four colleges, and I really didn't go much beyond four colleges.

RINGROSE: So, for example, would Biology be entirely housed in one college?

REVELLE: No, different colleges would house different kinds of biology. The first college was sort of a hangover from the school of science and engineering—I thought of it as primarily focused on producing undergraduates who would go on to get a Ph.D. Another college would be focused on people who would practice art, let's say, including architecture and urban design. Another would prepare undergraduates for the graduate professional school associated with it,

which might be a school of law, or a school of medicine, or a school of public administration. You could think of enough professional schools to go around, although it was hard to think of enough departments to go around. But in any case, for example, in the college that was focused on the arts and architecture, the biological science departments would be zoology and botany, essentially, the sciences that deal with the beauties of nature, the shapes of living things, and the taxonomy of living things. In the college that was preparing students for graduate work leading to Ph.D.s, the biology would be primarily molecular biology and genetics. The college that dealt with public administration might very well have an emphasis on ecology, and environmental biology, and so forth.

RINGROSE: It's an excellent plan, although it did not work out. How far did you feel you got with it?

REVELLE: It never worked out. And the reason it didn't work out is that college professors, university professors, are essentially journeymen professionals. They're not very much interested in the university they are attached to at any particular time. They're interested in their discipline. You're an historian. Your kudos, your recognition, your very life depends not upon what the people in physics think about you, but what the people in history think—.

RINGROSE: It's what your colleagues think, that's right. You want to be with them, and to interact with them.

REVELLE: So, the college idea really never caught on very well. It didn't take hold very much from the standpoint of the faculty. Their loyalties were to their departments, and to their disciplines. They didn't want relatively small departments as units of the colleges, but large, free-standing departments, covering all the relevant sub-disciplines.

RINGROSE: This is exactly what John Stewart said when I talked with him about the development of the college system and why it didn't work out. He said precisely the thing that you have just said, and he mourns the plan, because he saw it as an excellent idea.

REVELLE: It is a wonderful idea. But it isn't realistic.

RINGROSE: It’s something the faculty would not allow to happen.

REVELLE: It goes against the grain of the American academic and the academic reward system. But nevertheless, it turns out that the colleges do have a function, not a very big function, but an important function which I didn't really—which I realized would happen, but I thought it would be secondary. That is, they give the students a sense of identity. I am most familiar with Revelle College; they give a lot of tender loving care to their students and have a lot of student committees and a lot of participation in college affairs by the students.

RINGROSE: It also breaks the institution down into a manageable sized unit from the students' point of view.

REVELLE: As I said, it gives them a sense of identity. They're a part of an organization—an institution, if you will—which they can comprehend, which is not so big, like Berkeley, that for a student it's like living in a huge city. And at least in Revelle College, I think the students are proud of it and get something out of it. I'm not sure about the others. It could be true of Muir, too, because of John Stewart's personality.

RINGROSE: I see many Muir students. They're very happy. I don't see many Revelle students, but since I'm on the Muir campus, I have a little group that comes and sits in my office and cries on my shoulder. But, in general, they're happy and contented. They do well by their students at Muir.

REVELLE: I think that's also true of Third College, but in a somewhat different way. And Warren College has a romantic aspect that lies in this collection of shacks.

RINGROSE: So, what other kinds of innovations did you bring to this new enterprise?

REVELLE: Well, basically, I guess we had four different ideas. Maybe they weren't very basic, but they were important ideas. One was to start with graduate departments. Not a graduate school, but graduate departments. This meant that you had to assemble enough people in a department to be able to give the Ph.D.

RINGROSE: So, this meant you targeted particular disciplines to work on first. Is that correct?

REVELLE: Yes, we did that. We started with natural sciences and the reason we did was that we didn't have a library. Not having a library made it very difficult to start with history, or literature, or maybe philosophy. I don't understand philosophy very well, but certainly history and literature require a huge library for research. To a somewhat lesser extent, but still quite important, that's also true of political science, sociology, and anthropology. It's much less true of the natural sciences—physics, chemistry, biology, mathematics. and earth sciences. Psychology really fits into this category too. You don't really need a big library for psychology. So that was where we started. That was easy. That's one of the great lessons of life. Always do things that are easy if you possibly can. It wasn't very easy, but it was infinitely easier than starting a Department of History! I think the most important appointment I was involved in was the appointment of Mel Voigt.

RINGROSE: Our first Librarian.

REVELLE: Our first Librarian. He was a genius of a librarian. This library, I think, is the best library I've ever been involved in, the UCSD library. It isn't very big, but it's very helpful.

RINGROSE: It's very well run.

REVELLE: It's marvelously run. And it was Mel Voigt who did this. He had a wonderful idea. His idea was that since they were going to start with three new campuses, he offered to Clark Kerr and to the Regents to collect an undergraduate library—an identical undergraduate library for each of these three campuses of 75,000 volumes. He showed that if you did that you could

save a lot of money in accessioning. About half the cost of books is getting them into the library and cataloguing them, so he could save a lot by accessioning three identical books.

RINGROSE: He also published a list of what those books would be, and many smaller institutions made use of those lists as standards for developing their own collections.

REVELLE: I didn't know that, but I can well believe it. Because after all a list of 75,000 volumes is something, you can get into a book. That was a wonderful idea, and it worked so well that for about ten years after that Mel Voigt was the darling of the Regents and of the central administration in University Hall. Consequently, our library got plenty of resources to build itself up, particularly when John Galbraith was Chancellor. He thought the library was the most important thing on the campus, so he helped a lot to build it up. In fact, he resigned because the library's importance was disappearing after Clark left. Well, that's a little bit off the subject, but in any case, that's why we started with the basic sciences.

RINGROSE: So, it was a practical decision, and also a decision that must have been comfortable, given the nature of the Scripps Institution and its faculty, and the nature of your original plans for the science and engineering school.

REVELLE: The main reason was the library. The second basic idea we had—the first being starting with graduate departments in the sciences, and then building up other graduate departments as soon as we could, as soon as Mel got some books. The second idea was to have genuine artists and not art historians, or art critics.

RINGROSE: People who do things.

REVELLE: People who do things, like scientists. Again, this came naturally out of our scientific background.

RINGROSE: John Stewart was very attracted by this part of your plan, and he talks about this at great length in the interview I did with him. This was why he came.

REVELLE: Is that right? I didn't know that.

RINGROSE: Yes, that was one of the important reasons why he came.

REVELLE: Of course, Dartmouth, where John came from, did more or less the same thing. They have an art collection there, and they emphasize creative art rather than art history and art criticism. So, all three of our arts departments are just that. They are not very popular with the community because they're so radical, but that's what you have to be if you're in the forefront of a field, which they should be. I guess the Drama Department is rather popular, perhaps because they're not very experimental. But again, they produce genuine theater people.

RINGROSE: Well, John Stewart said that he was very taken with this idea. But he agreed that in the long run— the problem was that San Diego, until very recently, was quite isolated. It's very hard to take creative people who live on the excitement of the Los Angeles and New York

arts community and put them here, no matter how idyllic the setting. It was hard to build enough critical mass to keep them.

[END PART ONE, BEGIN PART TWO]

REVELLE: That's right. It certainly was. It was hard to assemble a critical mass in one field after another, building three art departments on the basis of creative art rather than criticism and history worked rather well. However, I have heard some discussions recently from people in the humanities that we have neglected the humanistic side of the arts their meaning for literature and history as well as for the social sciences.

Two other ideas didn't work so well. One of them was the idea of the medical school being intimately involved with the campus. That's turned out more or less all right as far as the basic sciences are concerned. Our basic sciences in the School of Medicine are taught by the biology department. The medical school and the biology department are essentially one big department. David Bonner felt very strongly about this. I had the same idea quite independently, and that's one of the reasons we brought David here, because he did have this idea. The fourth idea was the colleges, these little universities side by side that I have described. They didn't really work out very well at all, at least not in the way we thought they would. They do work, but essentially for the undergraduate students, not for the graduates, and not for the faculty.

RINGROSE: We are much closer, then, to the Santa Cruz model in some ways than was originally envisioned.

REVELLE: Only in the sense that their colleges are primarily for the undergraduates.

RINGROSE: Right. They're undergraduate residential units.

REVELLE: Yes, but of course our colleges are an awful lot bigger. The result of their being a lot bigger is that they don't interfere with the scholarly life and the scientific life of the campus, as do the small colleges in Santa Cruz. I don't know if you've ever been to Santa Cruz—

RINGROSE: No, I've never visited Santa Cruz.

REVELLE: One of the problems there is that the students are in your lap all the time. There are such small units, you see. The students feel that they're pals of the professors and the result is that you never get away from them.

RINGROSE: It must be very hard to get research or scholarly work done under circumstances like that.

REVELLE: It is, plus the fact that they didn't have any real departments. They had committees, program committees. But they've changed much more to the conventional system, too, in the sense that they now do have departments. In terms of their academic organization, I think they're much more orthodox than they used to be. As we are, too.

RINGROSE: I wonder if we could talk about some of the people that were involved outside of the faculty—we'll talk about faculty people tomorrow—but locally the names that for me immediately come to mind are Jim Archer and Jim Copley, and Freddy deHoffmann, Bob Biron—some of those people. Are there particular individuals in the community that you would like to say a little more about their contribution and what you felt was motivating them to be so interested in the university?

REVELLE: Well, it's hard for me to say a kind word about Jim Archer. I'll show you a clipping from "The El Cajon Times." You don't have to read that into the record.

[Break while Dr. Revelle gets clipping]

RINGROSE: That's all right. It's clear that he was a very political individual.

REVELLE: He was a real son of a bitch, an awful man, I thought.

RINGROSE: Was it after—had you already left when he started promoting moving the whole campus to Peñasquitos? To the Los Peñasquitos property?

REVELLE: I never heard of that.

RINGROSE: He brought Herb York a plan to pack the whole campus off to the east county—it looks like it was something resembling the Irvine ranch project. A land developer had a really big piece of property, and—

REVELLE: I never heard that. I never knew that at all.

RINGROSE: York didn't buy it, but he certainly got a lot of pressure about it.

REVELLE: Really? And that was from Jim Archer?

RINGROSE: He was the one that was representing the owners of the property.

REVELLE: I'll be damned. I never knew that. That just confirms my opinion.

RINGROSE: That was in '61. It puzzled me when I saw that he seems to have been so much involved in negotiations for the land here—no, you talk. Don't make me talk. He's a puzzling figure in all this.

REVELLE: I don't think he was involved with negotiations for the land here at all.

RINGROSE: Well, periodically his name surfaces as somebody who claims to be helping to get things through the military, and grease the wheels, but you never know how much truth is in that.

REVELLE: I think I'm being objective in saying that he didn't ever do anything for UCSD that was worth doing. But Clark would have a better idea about this. Jim Archer was President of the

Alumni Association, and as such he was an ex-officio member of the Board of Regents for a year. And he was in some way part of the power structure in San Diego, a member of the law firm of Grey, Cary, Ames, and Frye, so he may very well have helped in getting support among the bosses in San Diego. But the land came to us on a vote of the people of San Diego—the Pueblo Land.

RINGROSE: There were some difficulties with the Navy over getting the Camp Mathews property, isn't that correct? There was some heel dragging about moving the rifle range facility up to Pendleton, and some reluctance to give it up.

REVELLE: The Marines had always wanted to move to Pendleton. Not always, but I mean for several years before they actually moved, they had wanted to move to Pendleton. So, I think the problem with getting this land from the Navy was actually in the Congress, not in the Navy Department. There was never any problem there.

RINGROSE: They seemed to be having trouble getting the money to make the move. Ultimately Jim Copley, for example, takes credit for having interceded and gotten things through so that the money was allocated, then they could move out, and the university could move in.

REVELLE: He helped with the appropriation for the move? That's very possible. I had a friend named Jim Wakelin who was Assistant Secretary of the Navy for Research and Development, we had been together during the war, and he was quite supportive in our getting the land. I thought the problem was basically in Congress, and it clearly was from what you say, too. Two problems—one was, I guess, getting the appropriation for the move to Camp Pendleton. The other was that there were several congressmen who thought that the Federal Government ought to get some money out of it, and the Navy ought to be paid for the land.

RINGROSE: Even though it was originally Pueblo Land.

REVELLE: I suppose it was.

RINGROSE: It was. I always assumed it had been lent to the Navy.

REVELLE: Oh, really? I see. It was just a lease. It was not actually owned by the Navy.

RINGROSE: I believe so. I believe that it was originally City of San Diego Pueblo land.

REVELLE: I'm sure it was, but it was probably transferred to the Navy.

RINGROSE: I don't know what the terms were—whether it was leased, or the Navy felt it owned it, like the piece in Balboa Park.

REVELLE: Yes, they did own a piece in Balboa Park. I thought maybe they owned this, too.

RINGROSE: Well, there were strong feelings in town that the Navy ought to be willing to give it up, since it had originally belonged to the community, and they had taken it over.

REVELLE: Another reason is that the rifle range was so damned noisy.

RINGROSE: Let's go back to Jim Archer for a minute, if you would, and talk more about him. His name always comes up as someone very much involved in the founding of the campus, and yet, I sense that perhaps he was not the great friend of the campus that he is sometimes presented as being.

REVELLE: Well, I think he was a loyal alumnus of the University of California, and clearly was active in the Alumni Association. He wouldn't have been elected President otherwise. We also, of course, got help from every quarter—in building the place we got whatever support we could from everybody. The Alumni Association here in San Diego was certainly supportive. Pat Hindman, I remember, was another alumnus who had pull. Bob Biron was not an alumnus. He was a Vice President of Convair. But he was very supportive, too. In fact, so much so that they actually made him Vice Chancellor.

RINGROSE: Right. I know he worked on the campus for a while. He was very much involved with the campus. This was a pretty politically conservative group. Is that correct? Archer, and Biron, and those people.

REVELLE: Very. Yes.

RINGROSE: It must have been difficult for you, because in political matters, like the loyalty oath controversy and so on, you always tended to take a good solid liberal stand about things.

REVELLE: That's right. I remember very well one terrible night at our house, where we still live, in 1950, in the middle of the loyalty oath controversy, Jim Archer drank a whole quart of my whiskey—got drunker and drunker. I drank some of it, of course, too. But he drank most of it. We were arguing about the loyalty oath problem, and he said that these professors should certainly be willing to sign an oath saying they weren't communists.

RINGROSE: Well, there's also a point when you are reported in the press, and clearly had been backed into a corner by these people, and said, "Look, I have never hired a communist for the new campus". Were you harassed into a corner by some group over this issue?

REVELLE: That's very possible. I don't remember that, but as you know, memory is quite selective. As a matter of fact, I do remember saying that particular thing. But of course, it was probably not even true, because how do you know if you're appointing a communist or not?

RINGROSE: But it does reflect the fact that there was a conservative group that was interested in the campus, and probably had its own agenda for the kind of campus it was going to be.

REVELLE: They had a very hazy notion of what a university is, of course. They thought of it primarily as a technical school. The school of science and engineering was—there was no problem about that at all, of course, because science and technical engineering in those days were rated very high.

RINGROSE: Of course. And it supports industry and industrial growth, and the Navy—.

REVELLE: Everything good.

RINGROSE: And you see pieces of this well, it's this same group, I suspect, that gets involved with the theater project, and of course runs into all kinds of difficulties with the avant garde music and theater people that John Stewart is bringing to the campus, who really aren't interested in providing a—

REVELLE: Starlight opera.

RINGROSE: Starlight opera. Straw hat theater. There really is a conflict of goals for the institution that's never adequately resolved.

REVELLE: That's right. But don't you think it's adequately resolved now? Maybe not entirely resolved, but ...

RINGROSE: Well, I think things are much better. We have mellowed, and the community has become more sophisticated. Does that seem possible?

REVELLE: Sure, well it had to of course, partly because of the university.

RINGROSE: But it's a process that takes time.

REVELLE: I remember several other things that are not too much related to this problem of selecting faculty. You say you want to talk about that tomorrow, but I can talk about a couple of conflicts—three conflicts. The first one was the anti-Semitic covenant in La Jolla. I said, and consistently said it, always from 1950 on, you can't have a university without having Jewish professors. The Real Estate Brokers Association and their supporters in La Jolla had to make up their minds whether they wanted a university or an anti-Semitic covenant. You couldn't have both. In fact, we lost one very good man, Aaron Novick, who had actually signed an appointment form to come here, because he was so unhappy about what he thought was anti-Semitic prejudice in La Jolla. One of the reasons we established our SEA subdivision was because we had Jewish members on our faculty at Scripps, like Leonard Liebermann and Ed Goldberg. This way they could own their own homes right near the university. But the Real Estate Broker's Association of La Jolla—what they call REBA had a rule that they wouldn't even show a house for rental or for sale to a Jewish family. Fortunately, the Supreme Court just about that time came along and said such covenants were not kosher—were illegal as well as immoral. So anyhow, that worked itself out more or less. In fact, there's no problem now about Jewish people m La Jolla that I can see. But you wouldn't believe how much there was in 1950.

RINGROSE: Many of the long-term faculty who are Jewish are still very sensitive about the issue. It's not something they like to discuss. One of the faculty wives that I thought I knew well, when I brought it up very carefully about six months ago, just burst into tears and didn't wish to discuss it. So, it's a very sore point with many of these people still, and that's twenty years ago. I can also see that it must have created problems for you with the community, especially the

conservative part of the community, and the part that was involved with real estate development. Was this issue in any way connected with Mr. Black selling out his properties?

REVELLE: No, not that I know of at all.

RINGROSE: I wondered why he sold the property. We wanted the property, obviously. Was that being discussed while you were here?

REVELLE: Clark strongly advocated it while I was still here, and I think that he pushed it through from the university point of view on the basis of—some parts of it could contribute to the development of the university. The Regents, the university administration, and particularly the administration here, never really took advantage of that in any sensible way. The Regents kept on subdividing it into expensive lots and big expensive houses.

RINGROSE: What would you have done with it, had you continued to be actively involved?

REVELLE: I would have tried my darndest to have it as a place for faculty housing with smaller lots, less expensive construction, like SEA. SEA was a great success. Do you know about that?

RINGROSE: Yes, I have heard that the properties are very lovely, and of course now very valuable, and yet it's clear that at the time their owners came they were also affordable. I gather many people built their own homes there, and there was a certain amount of communal work on the properties.

REVELLE: Everybody built his own house that is he hired his own builder, although some of the houses had essentially the same design and the same builder.

RINGROSE: Can this property be sold outside the Scripps community?

REVELLE: Well. it can be sold, provided you build a house on it, any house. Anybody who builds a house can sell it to anybody he wants, and over the years that's been done quite often. But the provision was that unless you did build a house, you couldn't sell it for more than a fixed price, which was related to the price you paid for it. We had, I think, a 6% interest clause—every year the price appreciated by 6%—6% interest plus inflation.

RINGROSE: So, people then wouldn't be using it for speculation.

REVELLE: My daughter Mary Ellen owns a vacant lot there, which is probably worth about $350,000, maybe more now. It's a front lot, unbuilt, but she can't sell it for more than about $100,000. I mean, after thirty years at 6% interest, the amount does mount up. And then there is inflation on top of that. She paid about $6,000 for it or perhaps $5,000. The back lots we sold for about $2,000. The front lots were about $5 or $6,000. We had a lottery, so everybody got a certain number chance, one through forty. Then you could select whichever lot you wanted, if you were number one, then the next would be number two, and so forth. Then you had to pay

the price that had been set on that lot. So, some people chose cheap lots, and some chose more expensive lots.

RINGROSE: You said that in part you set this up because of the problem of your Jewish faculty. But did you also do it because you recognized that ultimately it would become very expensive for faculty to live here, and wanted them near the campus?

REVELLE: I'm not bright enough to think that far ahead.

RINGROSE: Well, you just have to look at UCLA and you can see the problem.

REVELLE: Sure, but you see at that time, there was nothing but the Scripps Institution. And the idea of even a school of science and engineering may not have even arisen. This was in 1950. The principal reason I had in my mind was that I wanted our people to be citizens of the community. They lived in little cottages on the grounds of the Scripps Institution which they rented for $12.00 a month or some incredible figure like that. They were generally regarded as eccentric outcasts, but when they could buy and build their own homes, they became respectable members of the community. And I remember very well that the general opinion in La Jolla was that those professors were going to fall flat on their face doing this job. It cost about a million dollars to subdivide the property and build houses on it.

RINGROSE: How many lots are out there?

REVELLE: Forty. And of course, we did very well. It worked beautifully, largely because of a wonderful man named Jeff Frautschy.

RINGROSE: Now that's a name I've not ever heard.

REVELLE: Well, he was assistant director—or assistant to the director. He was an engineer and a geologist, and he was marvelously conscientious, a wonderful man. He spent enough time on this subdivision to make it work. We had to put in roads and water, and sewer, and power lines. One of the things that I regret is that the power lines were all overhead. They could have been underground. but it would have cost a thousand dollars more per lot.

RINGROSE: That was a lot then. What year was it you subdivided?

REVELLE: In 1950.

RINGROSE: Did you get any resistance from La Jolla—from the city about that?

REVELLE: No.

RINGROSE: No? They didn't give you any problems about it?

REVELLE: We had no problems of any kind that I can remember. The property belonged to a man named John Poole. There's a Poole Street subdivision across the street. He kept the front property, the front five acres, and sold the rest of it to us for $50,000—for about fifty acres.

It was wonderful. And of course, we have that canyon still as a wild nature preserve. Bill Wurster, the Dean of the School of Architecture at Berkeley, helped us design the subdivision so we could get as many lots as possible looking toward the ocean, or toward the view. It's only the very back lots that don't have a view. All the rest look at something nice to look at. It's matured by this time, so it's really very nice.

Let me tell you about some other things. The second conflict was about the purchase of some land south of the Scripps campus. In about 1905, or 1906, somewhere in there, E.W. Scripps managed to con the city into selling a Pueblo lot to the Marine Biological Association of San Diego. A Pueblo lot is 180 acres. And this is the campus of the Scripps Institution of Oceanography, although of course now it's part of the general university campus. Nearly all the Scripps Institution buildings were built down there by the seashore. By 1955 or thereabouts, we needed to expand on the lower campus, that area right near the beach. The land up on the hill we didn't think we could use very well.

RINGROSE: It's very steep.

REVELLE: It wasn't so much steep, but it was quite a distance, and one of the essential rules of a good academic institution is that everything should be as close together as possible so that the professors will actually walk from one building to another and see each other. So, I felt that we had to buy some land south of the Scripps campus, or the then Scripps campus. This ran into a lot of opposition in La Jolla, particularly from people who lived in La Jolla Shores. They thought of the university as a monster, the Scripps Institution as a—.

RINGROSE: I read some of the paper on that. It really generated a lot of difficulty with some of those neighbors.

REVELLE: It did indeed. There were some people who were just bitter about it, for reasons that I never understood. But what it meant in terms of actual development was that we never developed that property as a site for buildings. We developed it entirely essentially as a garden, and an approach to the institution. So, although I wanted to build some buildings there, we did not.

RINGROSE: You protected the people's views, that's clear. That seemed to be what was on their minds.

REVELLE: That's right. I got into a lot of hot water about that. And then finally, the third thing over which I got into hot water was after the people had voted to give 500 acres to the University or whatever the number was. I think it was 500 acres. They had already given 50 acres in the previous vote, and we had the 180 acres of Scripps, and we were trying hard to get the Camp Mathews property. But, in addition, we had this vote for 500 acres of Pueblo land. Then along came Jonas Salk, who was a popular hero at that time and still is. In my opinion he's not very bright, but he did produce a polio vaccine which saved a lot of kids. The mayor of San Diego was a man named Charles Dail who was a victim of infantile paralysis. He had a pronounced limp.

RINGROSE: I knew he was a very strong supporter of Salk's, but I didn't know there was this kind of personal thing.

REVELLE: It was clear that he had had a severely crippling attack of polio. And so, when Salk came along, he just slathered with enthusiasm to give Salk anything he wanted, and what Salk wanted was some of the land that the people had voted to give to the University. I took a very dim view of that.

RINGROSE: There was a very interesting meeting, and quite complete records on that—a public meeting about it.

REVELLE: I had forgotten that.

RINGROSE: It was in 1960. It sounded like it was a pretty tough meeting. Wheelock worked for you at the time, and he took notes on the meeting, and those are sitting in the archives.

REVELLE: Was I there too?

RINGROSE: Yes, you were there. You spoke out.

REVELLE: Anyhow, Jonas decided that he wanted the best piece of land that we had. Of course, it was much more important to get Salk here than to get the University here, according to a lot of people, like Dail. He is a folk hero, even though he is, as I say, not very bright. He got pretty much frozen out of the Salk Institute.

RINGROSE: It must have been very hard when so much planning had gone on to have someone like Salk dive right into the middle of it and move in on the operation.

REVELLE: Yes, it was. There was a man named Basil O'Connor who was a very hard-boiled character who backed him up. He was quite unscrupulous. Basil O'Connor was the head of the March of Dimes.

RINGROSE: Did you feel that he had his own agenda? Did O'Connor have some other agenda with regard to this, other than simply getting a good piece of free land for Salk?

REVELLE: I think that was all. That was his whole agenda. That was enough thought it was bad faith on the part of the City Council, although I guess it was legal, since the people had authorized the City Council to transfer the land.

RINGROSE: But the deed had not been transferred, right? The negotiation was not complete.

REVELLE: That's right. But it was after the Regents had decided to put the campus here. And that was, I think, the most traumatic aspect of the beginning of the campus. You probably have heard this story but let me tell it again.

Ed Pauley was a very powerful regent, essentially by sheer force of personality. He was a big, tough man and sort of a buccaneer. He had gotten very rich primarily with oil properties in

Mexico, and he also had very strong opinions. One of his opinions was that there shouldn't be a campus in San Diego. What they should do was simply expand UCLA and Berkeley, make them bigger and bigger.

RINGROSE: So, you would attribute much of his hostility to the fact that he was such a good alumnus of UCLA? (Regent Pauley was actually an alumnus of Berkeley.)

REVELLE: That's right. Or maybe Berkeley, I don't know.

RINGROSE: As opposed to something personal.

REVELLE: I think he was actually an alumnus of Berkeley. I may be wrong about that, but I think so.

RINGROSE: He gave an awful lot of money to UCLA.

REVELLE: I know he did. He was very enthusiastic about UCLA. But I think he's an alumnus of Berkeley. Anyhow, his idea about how to stop a campus down here was to have it in Balboa Park.

RINGROSE: Guaranteed failure.

REVELLE: That's right. That idea never got very far, of course, but in the process, he became completely hostile to putting the campus where it is here. I felt on the contrary, this was the only place to have it, because of the Scripps Institution being here. You could start running—you had a real chance to make a great place, whereas if you built it in East San Diego, or anywhere, it would have been just a San Diego State College type thing.

RINGROSE: It was also a very congenial location in terms of San Diego State, because—Kerr makes a comment that he didn't want to settle the campus right on top of San Diego State.

REVELLE: That was another reason, of course, for not having it in that east part of San Diego. But the principal reason as far as I was concerned were: (a.) It was a beautiful site, a marvelous site, and (b.) it was right next to Scripps and therefore we could start with a great institution as a nucleus. If we had it somewhere in East San Diego it would be a completely different sort of thing. Pauley got the idea that the way to kill the campus here was to say that aircraft noise would be a bloody nuisance, and it would cost a lot more money to build it here because we would need noise insulation. So, we had a problem of convincing people that that wasn't so. Jeff Frautschy got a noise meter and measured noise all over the campus. Charles Wheelock, my wonderful Associate Director, who was an Admiral, went over to see the Commanders at Miramar and got them to change their flight patterns.

RINGROSE: Oh, he's the one that did it. I knew they moved the flight path. He's the one that talked them into that.

REVELLE: So, they could fly down Sorrento Valley, instead of due west as they had before that. And we looked at a lot of other campuses that were close to airports, like U.C. Riverside, for example, let alone the University of Minnesota, and the University of Arizona. None of them were bothered by airport noise, so we thought we had a pretty good case for saying that noise wouldn't be a serious problem, particularly after Charles got them to change the flight pattern. It was a serious problem before that! Not as serious as the noise from the rifle range, but still kind of serious.

RINGROSE: But Regent Pauley kept bringing up the problem at every regents meeting. Why?

REVELLE: One of the things he did—he owned an island, Coconut Island, in Kaneohe Bay on the east side of Oahu. Just east of there is a Marine Corps Air Station. He invited about half the Regents to come out to Coconut Island, and he arranged with the commandant of the Marine base to fly jets at low altitude over the island—his island—and for the planes to turn on their afterburners just as they got over the island. The sudden loud noise scared the Regents half to death, quiet elderly men, and this awful noise. So, he felt pretty confident that they wouldn't put the campus here, I guess. Then there was a famous Regents meeting at Davis.

RINGROSE: I wanted to ask you about that. Yes, I've heard about that one. That must have been a great meeting.

REVELLE: It was a wonderful meeting—it was sort of a Pyrrhic victory for me personally—but it was a great meeting for the University of California, San Diego. What had happened was, well, Charles Luckman was there.

RINGROSE: Of Pereira and Luckman?

REVELLE: Yes, at one time the firm was Pereira and Luckman, but Pereira had left the firm and it was just Luckman. Pereira is a wonderful guy and a great architect. He designed our central library.

RINGROSE: Yes. What about Luckman?

REVELLE: Luckman was a soap salesman. Literally. He had an architectural degree, but he made his reputation and his fortune as president of Lever Bros., the soap people. As far as I could make out, he was a guy without very high moral standards. He wrote a letter to the manager—the administrator of Scripps Memorial Hospital, which was thinking of moving to its present site, two miles closer to Miramar and much more in the flight pattern than we were, saying that they wouldn't have any problem with aircraft noise at all. Believe it or not. And at this Regents meeting Luckman got up and said it would cost $20,000,000 more to put the campus here because of the noise from Miramar. I was, of course, a good friend of the hospital administrator—not a good friend, but a friend—and he gave me a copy of Luckman's letter to Scripps Hospital.

RINGROSE: Had he actually done studies? Had Luckman actually done two noise studies?

REVELLE: He hadn't done any noise studies at all. All the noise studies were made by Jeff Frautschy.

RINGROSE: But he was expressing his opinion as a professional? As a consultant?

REVELLE: That's right. And the letter to the administrator said there would be no noise problem for the new location of the Scripps Hospital. I gave this letter to Clark Kerr. Clark said. "I have a letter here I would like to read. It is addressed to the Trustees of the Scripps Hospital." After he had read it, one of the Regents said, "Who wrote that letter?" And Clark said, "Charles Luckman it was signed by Charles Luckman." Whereupon, very shortly thereafter, maybe within the next breath—again memory isn't quite good—some Regent said, "We've kept those people in La Jolla waiting long enough. I move that we decide now to put the campus in La Jolla." The vote was taken, and it was twenty-one to one.

RINGROSE: And who was opposed?

REVELLE: The one was, of course, Pauley. They, however, put several conditions on it, as they should have. One condition was that they obtain a thousand acres of free land. Another condition, which was never really lived up to, was that the university and the city would jointly plan a university community. That was lived up to for a few years, and the result is what is now called University City. But by the time Bill McElroy became chancellor, they had forgotten completely about it. That's why we have this "Golden Triangle" development.

RINGROSE: It got totally out of control?

REVELLE: Part of the reason was that we had a very new chancellor.

RINGROSE: I have asked this of other people, and no one seems to know. Potentially, how much control did the university have over the land surrounding it?

REVELLE: Well, only this agreement. But, politically of course, no City Council could commit the next one, which is what it comes down to. It was just one of the conditions for putting the campus here, which was accepted by the City Council, and accepted by the Planning Department of the city. And at first, they did work with the university, remember the planning for University City. I was involved in that.

RINGROSE: When I talked with Roy Pearce about this, he described sitting on the later planning committee. It was clear that ultimately, he became very frustrated because they talked and talked, and nobody listened. They had no way to force the city to live up to its prior agreements.

REVELLE: And Bill McElroy never supported it at all. That is, in fact, why he is no longer chancellor. Not because of Paul Saltman, but because Walter Munk and Judy Munk and Russell Doolittle and several other people took such a dim view of his actions about the planning of a university community. They felt that he completely kowtowed to the people in the city. Walter

was just implacably opposed to that. I wanted to be a peacemaker. I thought that maybe they could work with Bill, but Walter would have none of it. He wanted him out.

RINGROSE: The Scripps community can be a powerful force.

REVELLE: You mean the Scripps Institution community.

RINGROSE: Right, the people from there. The older people.

REVELLE: Well, of course it was also guys like Roy Harvey Pearce and Doolittle and many others. They were very angry and antagonistic toward McElroy.

RINGROSE: Well, do you feel that in the long run the development of the area around the campus is going to create serious problems for the university?

REVELLE: I think so. Sure. It's going to be like Westwood. However, thank God for the foresight of the Regents, who insisted on a thousand acres of land. In fact, we have more than a thousand acres, and so we have a chance to develop faculty housing at least, and other amenities for the students on more or less our own property. I was very unhappy about the La Jolla Farms—what do they call it?

RINGROSE: Black Horse Farms.

REVELLE: I thought that would be an ideal place for students.

RINGROSE: Isn't that the only piece—virtually the only piece that the university controls on which they can legally put commercial development? (After 1986 this will no longer be true) I believe there are deed restrictions to the Camp Mathews properties, aren't there, that say they can only be used for educational purposes?

REVELLE: I wouldn't be surprised.

RINGROSE: I believe it is the only piece they can now develop to make money.

REVELLE: I believe there are restrictions on the use of the Pueblo Land, by vote of the people. [*Break for telephone call*]

REVELLE: The La Jolla Farms property was, of course, part of the land that the university purchased. It has no deed restrictions.

RINGROSE: I looked at the property maps and the deed restrictions. I believe that it is the only piece that we have abutting the main campus without deed restrictions.

REVELLE: What they're going to do with it is build a convention center. We need a convention center like a hole in the head. What we do need is faculty housing and stores for the students—beer stores, clothing stores, restaurants....

RINGROSE: That is exactly what Dr. Kerr said when he was down, and we drove around the campus one afternoon. He was very concerned about that for the long term.

REVELLE: I am too. I often feel that maybe I made a mistake putting this campus here.

RINGROSE: Don't you think that this problem would have arisen wherever you put the campus? For a long time, the university was the second or third largest employer in San Diego. It would have become a magnet for development anywhere, wouldn't it?

REVELLE: Yes, but perhaps Pauley was right.

[END PART TWO, BEGIN PART THREE]

RINGROSE: Now the last thing you said just as the tape finished was "perhaps Pauley was right." (Regent Pauley was eager for the UCSD campus to be placed in an urban setting and often suggested Balboa Park).

REVELLE: Yes.

RINGROSE: We shouldn't have put the campus here. I wanted to catch that.

REVELLE: Well, I'd been a graduate student at Berkeley, and I love Berkeley. It's a marvelous place. It's one of the world's greatest places. And one of the great things about it is Telegraph and Bancroft, the area around the campus where the students can be themselves. There are restaurants, and beer joints, and clothing stores, and bookstores, and record shops and everything to make students happy. And that's why they are happy at Berkeley, in fact, one of the reasons, at least.

After Herb York had been appointed chancellor here, the Board of Trustees at Washington University at St. Louis asked me to become chancellor there. I spent the summer deciding not to be chancellor there. Certain things really turned me off—well, two things, really. One was the medical school which was far more powerful than the rest of the campus and was not under the control of the chancellor. It was several miles away from the campus. It was, of course, a great medical school. The other thing was that they had no Telegraph and Bancroft. They had no place for the students. It was a commuter university, with no real campus life, and it seemed to me that was impossible. And so, I hoped that something here—at that time it was still possible—that something could have happened here that would have been appropriate for the students. Either there in La Jolla Farms, or just south of here—just southeast of here. But it has never happened here, either.

RINGROSE: Has it been a problem for many of the new campuses, getting something of that feel going?

REVELLE: I believe so, but I don't know. I also taught at Harvard, of course, and exactly the same thing is true of Harvard. Harvard Square is primarily a place for students, a wonderful place. Or as they call it back there, "Haavad Sqaar".

RINGROSE: But Pauley's reasons for wanting to move the campus to another site had nothing to do with those kinds of issues as far as I can tell.

REVELLE: No. Except I think he really felt it would be better to have it in an old part of town, where there was cheap housing, inexpensive housing for students and faculty. We said here, and it was right, we could build the housing, and a lot of it has been built, the residence halls, the dormitories, and we're building more and more all the time. But what's going to happen when we have 27,500 students?

RINGROSE: Well, this is another thing I wanted to ask you. You know—and of course this is after your time here—but at this point people sort of smile at the Alexander master plan for 27,000 students. It was done during York's time, and indeed the Regents never approved the study. I asked Kerr where the specs came from for that study, and he said, "Certainly not from me. I had no intention of that being such a big campus down there." So, they must have been generated internally, presumably not by you. I've wondered what got the momentum going on this campus that they were visualizing something of this size.

REVELLE: I had thought in terms of nearly 30,000, including graduate schools. And I feel—what I feel now is that the principal need the campus has is for professional schools. That's why I've been so enthusiastic about the School of Pacific Relations.

RINGROSE: Right. Now the first professional school that was decided upon here was the Medical School, and you were still very much involved in planning when the Medical School was launched.

REVELLE: Yes, that's maybe the only one. That's right.

RINGROSE: Were there any other kinds of professional schools that were discussed at that time?

REVELLE: Well, we thought of a School of Public Administration.

RINGROSE: Why did you abandon that?

REVELLE: We didn't abandon it. It's just that you have to start with one thing at a time. And the Medical School is a big enough adventure in itself. What happened with the Medical School, I think, is an example of penny wise and pound foolish. They had the offer of the County Hospital in San Diego, and that was cheap, they thought. Instead of building a hospital here, which David Bonner and I wanted to do, on the campus, they put it down there instead because it was less expensive. But of course, it's a handicap for the Medical School, a serious handicap.

RINGROSE: It looks as though by the time you really got into planning for the Medical School, which would have been in the late 50s—

REVELLE: Very late. And early 60s.

RINGROSE: And early 60s. It's right before you left. Perhaps money was already beginning to get tight. When you look at the discussions at the Regents Meetings, it's very clear that what the Regents are talking about is very different from what the campus is talking about.

REVELLE: Is that right?

RINGROSE: The Regents are talking about a much less expensive school, and one that would produce clinicians. The people down here are talking about a very elite institution that will not have such a strong clinical orientation, although as Bob Hamburger pointed out to me, even if they had concentrated on training people to teach and do research, they still would have turned out a considerable number of clinicians. There's quite a failure of communication that seems to have arisen, especially about money.

REVELLE: I think Clark felt, quite sensibly, that we had to have a place to produce practicing physicians.

RINGROSE: That was his charge.

REVELLE: And medical research was an essential component of that, but unless you produced practicing physicians, you wouldn't be able to justify it. The one thing here that worked very well, was that they got a faculty from all over the country and the world. They didn't depend on local physicians. The local physicians thought that somehow, they would be attached to the Medical School, and of course, that was just impossible, really, if you were going to have a first-rate place.

RINGROSE: So suddenly these new people became competition for the local medical community.

REVELLE: Yes, of course. Very much so. And they're so darn good, they really are competition! David Bonner and I at least always felt strongly that we would have been much better off had we built a new hospital out here, and now eventually it's going to happen. The people out here feel they have to have one.

RINGROSE: Well, I chuckled the first time I read the minutes of a Regents Meeting where they said that the county hospital was only four minutes by freeway from the campus.

REVELLE: Who said that?

RINGROSE: Well, someone who—well, obviously, with a brand-new freeway, and a very fast car, you can get down there very quickly, at a time when there was no traffic.

REVELLE: It takes about twenty minutes, though. It's fifteen miles away. That was one of the great exaggerations by some advocate.

RINGROSE: The whole period when the Medical School is beginning to evolve, and especially after you left, is very interesting. Just the escalation in cost went from $29,000,000 to well over $100,000,000.

REVELLE: Is that right? I never knew those figures.

RINGROSE: The increase in cost was almost fourfold. Kerr made the comment to me when I interviewed him, "You know, how do you go to the Regents with a price tag that's four times what they're expecting? You just can't do that and keep your credibility." Especially at a time when things are beginning to feel tighter and tighter.

REVELLE: There was a man named Stull—I think his name was Richard Stull.

RINGROSE: Right. He did a big study of California's need for additional medical education facilities.

REVELLE: I guess he was the guy with the $29,000,000 price tag.

RINGROSE: Yes, that was set early, as an appropriate figure. There was a certain amount of horse trading involved in that, because what Regent Pauley wanted was to put the money into a big expansion of the UCLA Medical School. They all managed to convince him it would be cheaper to start from scratch down here, because what they needed to do up at UCLA was build a mammoth hospital. They convinced him that down here they had a hospital already, and all they had to do was build some classrooms.

REVELLE: Yeah. I see. Did he live long enough to rub that in?

RINGROSE: Oh, yes. I'm sure he did.

REVELLE: He did have some trouble in the last few years, I think. Physical and mental trouble. He wasn't anywhere near as sharp as he was when he and I were fighting. One man who claims that he started the campus is a guy named Sheridan Hegland. He was an Assemblyman.

RINGROSE: I saw that article. He sponsored the 1955 legislation to begin the campus.

REVELLE: That was really the bill for the School of Science and Engineering, as far as I can make out.

RINGROSE: There were lots of bills like that at that time all over the state.

REVELLE: But he certainly did introduce a bill, which helped in starting this imaginary school of science and engineering. I don't think he had much to do with the general campus, though.

RINGROSE: No, I don't have a lot of sense of him with regard to anything other than that bill.

REVELLE: The bill was about 1955.

RINGROSE: It was '55. That's correct.

REVELLE: However, I would like to see that he gets some credit, because he was certainly on the side of the angels.

RINGROSE: Well, did you see the nice piece about him?

REVELLE: By Lionel Van Deerlin, yes. I thought it was too nice, though. It had very little to do with reality. Even the real story also seems to me romantic enough. He did have the vision of having a place down here.

RINGROSE: Well, now the romantic tale that I enjoy is the one that Clark Kerr tells. He says that you once told him that you used to come up on moonlight nights and stand up here on the mesa and dream about your campus.

REVELLE: Well, I used to do more than that. That's part of the recruiting story. There was a chimney up on—this used to be an old Army base called Camp Callan—where we're sitting. Not where we're sitting now, because that was Camp Mathews, but where Revelle and Muir and Third College are. And there were a lot of relics, sort of wrecks of the old buildings up there, and some of the foundations are still there. You can go up and see them sometime. And there was an old chimney up there. I guess it had been the chimney for the heating plant. And it had fallen over on its side. It was about five feet high—the brickworks of the part of the chimney. And it was right on the highest point on the beach ridge, which is the highest part of this part of the mesa. And I used to take people up there when I was trying to recruit them and show them what the campus was going to be. I don't remember having gone up there on moonlight nights to dream by myself.

RINGROSE: Well, that's how the story came out. I thought that was a nice story.

REVELLE: A very nice story. But I did tell people, "Well, can't you see it all over the place? This wonderful campus we're going to have here." And some people could see it, and some people couldn't. I remember particularly S. Chandrasakar, was one of the guys I was trying to recruit, who later won a Nobel Prize a great astrophysicist—he was very skeptical and didn't come.

RINGROSE: Well, I want to talk about that tomorrow, because that's a really important part of the story.

REVELLE: They’re having a 25th Anniversary of the Physics Department at which they want to particularly honor Keith Brueckner, who's the father and founder and soul of the Physics Department, and they've asked me to make a little speech, which I can't do, because I'm going to be at my granddaughter’s wedding. But I've been trying to write something for them, and in writing it I made a list of the people we brought, and a list of the people we didn't bring.

RINGROSE: I hope you'll share some of that tomorrow, because I don't know who the people were that you didn't bring.

REVELLE: Well, I think in some ways they were a better list than the people we did. The people we did bring were good enough, but there were also some great people who were able to resist our blandishments and our siren ways!

RINGROSE: Well, would you like to call it quits until tomorrow?

REVELLE: I think so. Except I would like to recall one romantic thing I did. There were many beautiful trees on what is now the Revelle campus, and I was afraid the contractors would just mindlessly cut them down when they started building. So, I spent two afternoons up there, wrapping colored ribbons around the trees I thought should be saved, and I believe many of them were.

RINGROSE: I'll turn the tape off, and we can just start it tomorrow when we're ready to go.

REVELLE: I may think of a lot of other things, but I've talked myself out for this afternoon.

[Day 2, May 16, 1985]

RINGROSE: We are continuing with an interview with Dr. Roger Revelle. This is now May 16th, Thursday afternoon in his office. Today we will be talking about the development of the faculty for the new campus at the University of California, San Diego.

REVELLE: I think we could do this discussion of the faculty today first in terms of the people who were part of the team of recruiters, assessors, and appraisers, and second in terms of the people we persuaded to come here, and those we didn't persuade to come here.

There were really four or five areas where we were building up a faculty—Physics, Chemistry, Biology, Earth Sciences, including Geophysics, well, really Geochemistry and Geophysics. Then later we started in Mathematics, and then, after Herb York came, in Literature, and Linguistics, and Philosophy. I used to say that UCSD was built by a team and not by any individual. Three of the members of that team were Keith Brueckner, Jim Arnold, and David Bonner. The others were people at Scripps, including Carl Eckart, Leonard Liebermann, Walter Munk, Ed Goldberg, Al Engel, and Harmon Craig. We started out with Physics—but today perhaps we'd better start with Chemistry, because the first man to come here of the new faculty was Jim Arnold in Chemistry. He came, I think, even before Harold Urey did. He had a double mandate. One was to do research in geochemistry, and the other was to build up a Chemistry Department. He was an Associate Professor at Princeton when he came here, and John Simpson and Harmon Craig really found him. We went to a conference on Carbon 14, as I remember, and there I had a chance to talk to Jim at this conference on Carbon 14—I don't remember where it was. It was somewhere in the East—I think it was at—in fact, I do remember where it was. It was at Philips Andover Academy near Boston. Jim was rather difficult to catch. I guess we discussed what the best way would be to do so—we thought quite a bit about him. Hans Suess and Harmon Craig had already come here. They were the first really non-oceanographers—well, there were quite a few non-oceanographers, but the first who were even less oceanographers than the other people were. And they thought that Jim might be a good addition to our staff—to our faculty. He

was one of the University of Chicago people. I'm not certain if he was a student of Harold Urey's, but he certainly was very close to Harold Urey.

RINGROSE: There's a whole group that came here from Chicago, isn't that correct?

REVELLE: Yes. Chicago was a patsy to get people from because the neighborhood had deteriorated so much that people were scared to walk around the streets. Jim came here with a couple of postdocs, essentially, or young colleagues. He built a lab down in the Scripps Building—that wooden structure that is part of the George H. Scripps Building.

RINGROSE: What was it about him that attracted you?

REVELLE: Well, mainly (a.) that he was bright, (b.) he was sophisticated.

RINGROSE: Tell me what you mean by sophisticated.

REVELLE: He understood about universities.

RINGROSE: About universities in general in addition to his own field?

REVELLE: In other words, he was very much—had a lot of awareness of the nature of a university.

RINGROSE: Not all faculty do.

REVELLE: Not at all. Quite the other way, in fact. But he did, I think his father was a scholarly man—a Jewish family—although his father was not a professor. I think he was a stockbroker, but nevertheless, he was very much interested in intellectual things, and Jim had been brought up in an atmosphere of intellectual excitement and interest. He was a very broad-gauge guy. He was probably in some ways the most all-around person we had on our faculty at the time, more so than even Dave (Bonner) or (Keith Brueckner). And so, he undertook the job of building up a faculty in Chemistry.

I had met Harold Urey at two or three conferences, including one out at Rancho Santa Fe on the origins of the solar system, about 1950. There Harold had presented his new theories on the origin of the solar system. And then we met at several others—one I remember was in Monaco at an International Oceanographic Commission meeting and I remember also seeing him at a general assembly of the International Union of Geodesy and Geophysics. I'm not quite certain if he was there, but I think he was. Harmon Craig suggested that we could persuade Urey to come here. So, I went to Chicago and visited him—spent the evening with Harold and Freida.

RINGROSE: How old would he have been, then?

REVELLE: He was probably around 63 or 64.

RINGROSE: Was he as yet retired?

REVELLE: No, he hadn't retired. And it turned out that he was just scared to death of living in Chicago.

RINGROSE: Those were bad times there.

REVELLE: He was really quite willing to come. I'm not sure Freida was quite so willing because they had been in Chicago for many years, and they had moved two or three times before; they had been at Columbia, and before that I think it was Johns Hopkins. He was not only a famous scientist, but also a very imaginative creative scientist—after the war he got as far away from military research as he could and started working on the planets and the meteorites. He invented the Oxygen 18 thermometer, for measuring paleotemperatures. He was part of the Fermi Institute—the Fermi Institute at the University of Chicago.

So, they agreed to come, and that was a great coup on my part, or on our part. It was such a great coup, in fact, that Louis Slichter practically had fits about it. He wrote to President Sproul and insisted that it was ridiculous to have a great man like Urey come to a little place like Scripps. He should come to UCLA, believe it or not.

RINGROSE: Is that why he ended up appointed as Professor-at-Large? University Professor-at-Large, isn't that the title?

REVELLE: Yes. That was Sproul's device for getting around that problem.

RINGROSE: I see.

REVELLE: He was called Professor-at-Large. I guess he was not a University Professor. He was Professor-at-Large. Of course, he never went to UCLA. He never spent any time there at all. He set up his mass spectrometer, and brought several young people with him, and started doing research as vigorously as he could.

RINGROSE: Did you have to provide a lot of laboratory space and so on for him? Did you have to make a big investment in him?

REVELLE: Not very much. He brought a lot of grant money. All these guys brought their own money.

RINGROSE: Yes, I was amazed at the level of grant money that you were pulling in during those earliest days. We were almost equal to Berkeley one year.

REVELLE: The Scripps Institution did, you mean?

RINGROSE: Yes, and the new campus down here.

REVELLE: I thought in the later years we were ahead of both Berkeley and UCLA.

RINGROSE: Well, I'm talking about the very early period.

REVELLE: The Scripps Institution period. Probably that's true. But as I remember it, we didn't spend very much at all of university funds on Harold. It all came out of his grant. He had to set up his mass spectrometer. We did provide space for him and that was in the old Scripps Building. He didn't want to have a view of the ocean. He said it would distract him. He had an interior room where he couldn't see anything. It is now where the Public Relations people are down at Scripps.

RINGROSE: He brought students with him, you said. Two or three ...

REVELLE: Yes, who didn't stay, though. One of them was a man named Ramamunthy, who's now a professor at the University of Minnesota, I believe. Both Jim and Harold brought several postdocs with them, and Jim particularly had a wonderful young colleague named Devendra Lal, who's an Indian. Unlike Indians are supposed to be, he's a very good experimenter. He made counters—radioactive counters that were so well shielded that you could measure one count a week with them, utterly incredible. In other words, he got the cosmic waves completely out of them. Devendra Lal is now a professor at Scripps, but only half time. Half the time he's a professor at the Physical Research Laboratory at Ahmedabad in India. And he was Director of that Laboratory. He's one of the great Indian scientists, a foreign member of the National Academy of Sciences, fellow of the Royal Society, president of the International Union of Geodesy and Geophysics, you name it. He's a great man. At that time, he was quite a young man and was working on Beryllium 10, if I remember. In those days, in order to measure Beryllium 10, which is radioactive, you had to get several tons of sea water, like 50 tons of sea water, and get enough precipitated out so you could count its radioactive disintegrations. It has a half-life of about a million years, and a very low concentration. That's not a very long half-life, but long compared to Carbon-14.

When Jim got really going on developing the Chemistry Department, the first three people that he brought here, as I remember, were Joe Mayer, who was also at Chicago, and equally unhappy about Chicago, Bruno Zimm, who was a polymer specialist, a very quiet, and very famous, polymer chemist, and Martin Kamen, the biochemist, who was the co-discover of Carbon-14, with a man named Rubin, who died during World War II.

RINGROSE: Now, where these people were concerned, did you just turn this over to Professor Arnold and let him build his department, or was this something you continued to be actively involved in, the choice of people?

REVELLE: I was very actively involved, but just in a supporting role to Jim. For example, Joe Mayer—I spent a morning in my office with Joe Mayer talking about what our new University was going to be like. I used to do that with all these guys. And that was very important in bringing Joe and Maria here. I was so convincing, plus the fact that they were scared of Chicago—

RINGROSE: But still, especially for people like the Mayers, this must have looked like a very provincial place. How did you deal with that?

REVELLE: Well, I told them that we were going to have a great university, and this is the way we were going to do it. We were going to build it up from the top down. We were going to have these colleges. We were going to have the artists be artists, you know—have as good a faculty as we could possibly get. We were going to build up a library, all the things that would be part of a university. And I used to draw pictures on the black board, and things like that about the twelve colleges we were going to have, well, we thought about twelve, though I only thought seriously about four at the time. So, I remember specifically sitting in my office with Joe a whole morning. I don't remember sitting in the office with Martin Kamen, or with Bruno Zimm. I probably did with Bruno, but I don't really remember sitting with Bruno, either.

RINGROSE: Now, you made the comment earlier that one of the things that attracted you to Jim Arnold was his breadth of intellectual sophistication. And indeed, Clark Kerr says the same thing about you—that he considered you one of the broadest intellects in the system. And so, I can see why Jim Arnold would appeal to you, because you were seeing someone who was like you. Did this continue to be a concern as you appointed people, or did you begin to look for people with very specific specialties?

REVELLE: No, we never thought about that. What we wanted was the best people, and if they all did the same thing, that was ok. We never tried to get breadth, but depth. If you were not only good but excellent—that was one of the interesting things about it, that we did not try to cover the waterfront, in any department. Most of the departments are still rather narrow.

RINGROSE: And don't you think that's fairly unusual, where building campuses is concerned?

REVELLE: That was one thing with building a graduate institution—starting from the top down with the graduate school. Your graduate department just has to be good. It doesn't have to cover the waterfront.

RINGROSE: Right, because you'll only attract students who are interested in what you do well. And otherwise, it's not a problem.

REVELLE: That's right. So those were the three, as I remember, that came with Jim Arnold—four, one other person he recruited, also. And we probably recruited several others, but I don't remember them. The fourth one was Stanley Miller. He was one of Harold Urey's students, and was famous because he had created amino acids out of methane and ammonia, using electrical discharges. He's an excellent, outstanding chemist. He's a member of the National Academy, too. All these guys are. But I don't think he has ever done anything as spectacular as his creation of amino acids when he was a graduate student.

You can undoubtedly get more out of Jim on the building of the chemistry department. He will remember those four people—Martin, and Bruno, and Joe, and Stanley. And of course, along with Joe came his wife, Maria. That was something that I was sort of puritanical about, at first. We had had a nepotism rule, that you couldn't have two people on the same campus who were married to each other. But that rule quickly got relaxed. And she did go into a different

department. She was in Physics, and he was in Chemistry. It was after she came here that she got the Nobel Prize, but for work that she had done before she came.

RINGROSE: Had she also taught at Chicago? Did they have a double appointment?

REVELLE: They had never really given her a faculty position. She had some kind of an adjunct professorship. That is one of the interesting things about universities, even today. It's hard for women to get appointed to professorships. Here was this wonderful woman, one of the world's great physicists, and she essentially had just a research appointment in Chicago.

RINGROSE: But you were willing to offer her more.

REVELLE: Oh, sure. We wanted to have her as a professor.

RINGROSE: So, I would assume that also made the offer very appealing.

REVELLE: Yes. I'm sure it did. But we didn't pay a higher salary than they were getting where they were. That was one of my principles. I tried not to increase people's salaries.

RINGROSE: This was one of the things that I have found very interesting about your recruiting efforts. Some people in the system thought that you got people here by paying them a lot of money, but I realize from what I've seen in the records and from what Dr. Kerr has said that this was not necessarily the case.

REVELLE: It was not the case, period.

RINGROSE: He commented that you got a fair number of overscale appointments, but these people merited that.

REVELLE: Well, they were overscale appointments in the sense that they were higher than the UC salaries, but not higher than the salary the person was getting where he was—where he or she was—mostly he, I'm sorry to say. There was another great woman—at least one other, and I'll tell you a little more about that in physics in a minute, but in any case, the two professorial appointments had a lot to do with the Mayers coming, even though they did not get a raise—neither of them got a higher salary than they were getting. I felt that we shouldn't buy people with money, because then they might be bought away by some other university with more money. On the contrary, if they wanted to come here because they would be in at the beginning of a great university, they would be more likely to stay and see it through.

Then, the next department that really got under way was physics, and this happened in the following way. Leonard Liebermann had met a young physicist from the University of Pennsylvania, named Keith Brueckner, who was out here visiting General Atomics. I've forgotten why, but it had something to do with the development of their gas-cooled reactor. I think at that time they hadn't decided what they were going to do with it. They were going to have a summer study of what kind of atomic power plants they were going to concentrate on. Keith was here—I don't think for the summer study, but before the summer study. Well, I'm not

quite sure about that. I don't quite remember about that. Leonard said, "I think I've found somebody who could be chairman of our Physics Department". And so, he said, "Why don't you and Carl and I have lunch with him at the Valencia," and we did. And, of course, Keith was—once you see him, you want to grab onto him! At least in those days. He was so vigorous, and so bright, and so enthusiastic, and at the same time had such good taste. He was just obviously, in my non-physicist perspective, the ideal candidate. Leonard and Carl—Carl Eckart—were both good physicists, and Carl was a great physicist. They had good sense about physics.

RINGROSE: Now, where was Brueckner at the time?

REVELLE: The University of Pennsylvania. But he was out here visiting at the time. We had lunch, and I talked—we talked. All three of us talked about the new university and asked him to be the chairman of our Physics Department. Right then and there, I remember. Though he didn't say yes then, he was pretty well committed, even then. And I went back—I remember specifically visiting them outside of Philadelphia where they lived. I don't think, however, it was to persuade him to come. I think he had already decided to come. I think we were planning strategy for getting other people. He was still teaching there at Penn. He really went to town. I've got a list of the people he brought here, or that we brought here, with Keith leading—Bernd Matthias, George Feher, Margaret Burbidge, Geoffrey Burbidge, Norman Kroll, Oreste Piccioni, Harry Suhl, Keith himself, of course, Walter Kohn, Marshall Rosenbluth, and then of course, Maria and Joe were here. The interesting thing about these people, with the exception of Maria, was that none of them were members of the National Academy of Sciences, and almost all of them later became members of the National Academy of Sciences. They were all about forty years old at the time.

RINGROSE: They became quite a stellar group.

REVELLE: And some of them I worked harder on than I did on others. I remember I spent a night with the Matthiases in New Jersey. He was at Bell Labs, then. He had a rather blowsy wife named Joan, a nice woman, but nobody would describe her as an intellectual giant. And he was a—did you ever know him? He was a very attractive man and a very different man. He never said anything in quite the same way that anybody else said it. I liked him very much. He was in some ways a genius. He was a genius, I guess. And certainly, if he hadn't died, I'm almost certain he would have gotten a Nobel Prize. What he was good at was determination of the properties of substances at very low temperatures, for example superconductivities, superfluidity, hyperfluidity, or whatever they call things like that. And what he was famous for doing was going to the shelf and picking out a bottle of something off the shelf, and saying, "I think this is going to be superconductive at the right temperature." And he cultivated this kind of mysticism. He implied it was just intuition. He "intuited" that the stuff in the bottle would be superconductive and it always turned out he was right.

Carl Eckart, who was a very rigorous theoretician, said that this was just complete nonsense. In fact, Bernd Matthias had such a thorough grasp of physics and understood the basis of physics so well, that there was no intuition to it at all. He just knew! A remarkable man.

Carl Eckart had no use for intuition. He thought that you had to do everything by rigorous mathematical analysis, which he did. The result was that he never did very well in oceanography because oceanography is a heuristic science, where you just catch as catch can. You do the best you can, without knowing very much about it. That gave Carl Eckart the willies. He wrote a book on hydrodynamics of oceans and atmospheres which is full of profound insights, but hardly anyone uses it very much.

Well, in any case, Bernd did come here. He did set up his laboratory. He did continue to do great things. He, George Feher and Harry Suhl and Walter Kohn, I think, were all from Bell Labs. You'd better check on who exactly was at Bell Labs, but I think it was Matthias, Feher, Suhl, and Kohn.

RINGROSE: So, they knew each other previously.

REVELLE: Yes, they were all solid-state physicists. What Keith decided to do was to build in a field that didn't involve expensive equipment. Basically, they concentrated on theoretical physics and solid state and condensed matter physics which required only small, rather cheap apparatus. They decided not to move into high energy physics, where other things were required—expensive accelerators, and things like that. Astrophysics was one of their interests, and plasma physics was another. So, Keith brought Margaret Burbidge here. I don't know where she came from before she was here. He brought Margaret Burbidge, and Geoffrey Burbidge, too, both of them. They had been visiting at Caltech, I know. But I don't think they had positions at Caltech.

RINGROSE: At the time they were appointed, they are listed as being at the Yerkes Observatory—

REVELLE: Of the University of Chicago.

RINGROSE: Yes.

REVELLE: Well, that's probably where they were. But that's again a Chicago connection. She is a beautiful woman, and she was even more beautiful twenty years ago. We used to call her and Geoff "Beauty and the Beast." He's one of the world's homeliest men. He's essentially a theoretical astrophysicist, and she's an observational astronomer, one of the best observational astronomers in the business, and she has, of course, been widely recognized for her work in astronomy.

One interesting story about her was that a few years ago she became director of the Greenwich Observatory in England, but she was not appointed the Astronomer Royal. For hundreds of years, the director of the Greenwich Observatory has been the Astronomer Royal. But not Margaret, because she was a woman, and the British couldn't think of having the Astronomer Royal being a woman. And moreover, the British group were very backward, according to Geoff and Margaret both, in their optical astronomy. In the cloudy British skies, they can't see anything!

[END PART THREE, BEGIN PART FOUR]

REVELLE: When we appointed Feher, Suhl, and Kohn we paid them what they were getting at the Bell Labs, but I was so naive that I didn't realize that just about doubled their incomes because here they were paid on a nine-month basis, and they were paid on a twelve-month basis at Bell Labs. Here they could consult in the summertime, and they were so good that they could get fabulous salaries in the summer. So, they got twice as much here as they were getting at Bell Labs. This was just—I wouldn't say it was stupid on my part, but it was naive on my part not to realize this. However, we probably would have done it anyhow.

RINGROSE: Well, it's hard to ask anybody to take a cut in base salary. They can be offended if you even suggest that. It would have been something very difficult to get around.

REVELLE: Exactly. They were really—I think maybe Walter Kohn had done some teaching. Feher and Suhl and Matthias had not, so far as I know. They were entirely research physicists.

RINGROSE: Did they have any interest in teaching? Was this a problem?

REVELLE: I don't think so. I don't think they had any problem about teaching. I never heard that.

RINGROSE: And they were successful at it when they tried it?

REVELLE: Yes, that's right. I think so.

RINGROSE: Most people who enjoy doing what they're doing are good at teaching it.

REVELLE: I think that was true of all of them. Marshall Rosenbluth was also not a professional professor. He was a plasma physicist, and I think he was on the staff of General Atomic. He's probably the leading plasma physicist in the country, and he didn't stay here very long. After a few years he went to Princeton, to the Forrestal Laboratory, and then he went to Texas. But according to rumors that I hear, he'd like to come back.

Norman Kroll is primarily a theoretician, and I'm not sure—I think he's in solid state, but I'm not positive about that. Then at some later time they brought John Wheatley out. I don't remember much about him. He was not one of the original group, and also Sheldon Schultz, and William Frazer, and David Wong.

RINGROSE: They were fairly young when they came.

REVELLE: Yes, they were very young. They were essentially postdocs. They have grown up here, and never have done as well as the first-generation people. Leonard and Carl also joined the Physics Department. They were all about forty years old, except for Carl, who was older—much older. I've written down the times when they became members of the NAS—Matthias-'65, Feher-'75, Burbidge-'78, Margaret, not Geoffrey, he's not a citizen, Norman Kroll-'74, Harry Suhl-'76, Keith-'69, Walter Kohn-'69, John Wheatly-'75, Marshall Rosenbluth-'69, Maria Meyer-

she was a member when she came here. Carl Eckard of course was a member in '53. And there was a whole bunch of people we didn't get. I've listed several of those. Nearly every one of them is a member of the National Academy. And most of them became members after we tried to get them.

RINGROSE: Are you going to share why we didn't get them?

REVELLE: Oh, one reason or another, different reasons for different people. Edward Frieman now lives in La Jolla. He's head of Science Applications, Inc. (and became Director of the Scripps Institution of Oceanography in the spring of 1986). He was then at Princeton. I don't really remember why we didn't get him. I think he was quite tempted about coming. Rudolph Mossbauer was a German, whom we tried very hard to recruit. He later won the Nobel Prize for something called the Mossbauer effect. Valentine Telegdi was at Chicago. I don't think he ever actually showed up here. Neither did Mossbauer. Robert Schrieffer did show up here. He was a consultant with General Atomic and was here quite a bit. I think he finally went to Santa Barbara. Chandrasekhar, I remember specifically trying my damnedest to interest him. I took him up to my chimney and showed him this imaginary campus.

RINGROSE: It didn't do it?

REVELLE: It didn't do it.

RINGROSE: Where was he at that time?

REVELLE: He was at Yerkes Observatory. He's probably the greatest of all these people in terms of sheer intellectual power. He's a nephew of Raman, the great Indian physicist.

David Pines was sort of a tragedy as far as I was concerned. I spent some time with him in Illinois and I made him an offer, a tentative offer. He agreed to come, and then the Physics Department—Keith and his group—turned him down. David, of course, later became a member of the Academy, too.

RINGROSE: But that's very embarrassing when it happens.

REVELLE: Yes. it was very embarrassing, for me, particularly. I had to go back and tell him that this was the way it had worked out.

RINGROSE: It sounds like your Physics Department is beginning to go off on its own tack.

REVELLE: Yes, oh sure. After these people came that was very much so. Francis Low was at MIT and Keith tried hard to get him, but he didn't succeed. Murray Gell-Mann was a Caltech man. He did come down here and he was quite tempted. I spent a lot of time talking to him and so did Keith, but he finally decided not to come. He stayed at Caltech. Murph Goldberger was at Princeton, and later became President of Caltech. He was strongly tempted, too, but finally decided against it, as did Edward Salpeter and Donald Glaser. Goldberger and Salpeter would have been great additions to the faculty. That is not so true of Donald Glaser. Glaser was the

inventor of the cloud chamber, for which he got the Nobel Prize. He's never done much since. Jimmy Van Allen was a friend of mine, and I tried hard to get him. He was the discoverer of the Van Allen radiation belts. He was at the University of Iowa at Iowa City.

RINGROSE: You should have been able to pry him out of Iowa.

REVELLE: You've never seen Iowa City, particularly in the middle of the winter. It's just like a picture postcard, one of the loveliest places you can imagine. Nobody's ever been able to pry Jimmy out of Iowa. He's been there all his life. I went there and spent a weekend with him, and I must say, by the time I left, I was convinced that I wouldn't leave either. It was such a nice place, just ideal for a nice modest professor, which he is, a wonderful man.

RINGROSE: What percentage of the people that you hired would you say were professors in the traditional way that we think of professors—I mean, people who have spent most of their lives in institutional, academic institutional settings doing teaching and research?

REVELLE: Well, in Physics, I think the only one was Keith. One other person that we brought here was Oreste Piccioni, in high energy physics, particle physics. He's been a disappointment to me and Keith. He's the only particle physicist we've got or had at that time. He's still pretty isolated. John Wheatley, who was one of the leading members of the department—he came after my time, I think. I don't remember him. And I think all of these guys came as full professors. They were only about forty years old. No, not all of them—Schultz, Fraser and Wong did not. But most of them did. And so, we had—we were stuck with a senior faculty for essentially twenty-five years. Now they're all about to retire.

RINGROSE: If the bulk of this physics faculty was made up of people who came from areas outside of university settings, it must have been difficult to build a university. You're starting a senate, there are all kinds of things that you're beginning to do that traditionally are done on a campus. Was it hard for these people to adjust their thinking to the setting?

REVELLE: I don't think it was hard at all. I don't think it was hard at all for them. They took to it like ducks to water, as far as I could make out. But the one thing that did happen was that the Physics Department itself was a center of dissension. Not with the rest of the campus, but with each other. At least that's what Bernd told me when I talked to him about it one time. They couldn't ever make up their minds about new appointments. Each was fighting for his area, or something. I'm not quite sure what. Several of them left. Bernd died. Walter Kohn got divorced and went to Santa Barbara. Marshall Rosenbluth wanted to work in a purely research environment, so he went to Princeton to the Forrestal Labs. He's probably, as I said, the best plasma physicist there is. Maria Mayer died. Carl Eckart died. Geoffrey Burbidge, I think, has come back here now. He was on leave for several years as head of the Kitts Peak Observatory. There are still a lot of them who are still here.

Keith, of course, at first was a great power on the campus. He was Dean of the Graduate Division. He was very highly regarded. He's gradually gotten away from the university. He has two main problems. One of them is that every now and again he gets another wife. He leaves

the last wife and gets a new one. He is on his third now, I think. Every one of these women costs him money, and he's very much interested in money. He always has been very interested in money. So, he spent a couple of years at an outfit in Michigan working on a new way of producing fusion by laser—laser-induced fusion—which he thought was going to make him rich, but it didn't. He has never really become rich, although he always wanted to become rich. So, he got gradually sort of bored with the academic life, and he—also, people didn't like it that he left one wife and took another one every now and then. All of his wives—his first two wives—are very nice people.

RINGROSE: University communities can appear to be very liberal, and yet they can be very conservative in some ways.

REVELLE: This is the kind of thing we probably don't want to publicize, what I've just been saying.

RINGROSE: We can get rid of anything you don't like.

REVELLE: I'm not saying get rid of it, but at least we don't put it on the radio.

RINGROSE: No, that's fine. Don't worry about it.

REVELLE: One of the problems that we didn't take seriously at the time, but now it is a serious problem, is that all these people are about to retire. They're all about the same age. They were about forty then, and now they're about sixty-five.

RINGROSE: Since Physics was such a divided department, did they have difficulty getting together on a crop of new people to bring up through the ranks?

REVELLE: I think they've never made very spectacular appointments since. It's a much bigger department now than it was then, but it's not anywhere near as distinguished a department now as it was twenty years ago. I don't quite know why. I don't understand that. My impression is that they could never agree on who they should go for.

RINGROSE: And if you have a divided department, good young people will leave. It's too dangerous to stay in that situation.

REVELLE: Well, that's really about all I can think of to say about the Physics Department, except that Keith Brueckner is quite a remarkable character. You know, he's a rock climber, a mountain climber as well as a physicist. He responds to every kind of challenge. I don't think he's very introspective, but he's a very vital, and vigorous kind of person.

RINGROSE: I get the sense of someone who got to feeling impatient with the University of California—it just didn't operate fast enough to suit him. And it takes a great deal of patience to deal with the University of California, especially as an administrator.

REVELLE: Of course, it doesn't operate fast, but no university acts very fast. I think perhaps this university, and this campus, is perhaps more conservative than, say, Harvard would be conservative in the sense of not acting fast. You see, we have faculty self-government, Academic Senate Committees, which I think is one of the greatest strengths of the University of California.

RINGROSE: The senate is all at the University of California. It's a powerful group, the faculty.

REVELLE: Even though it works mostly through committees, and the committees are pretty good, nevertheless it slows things down.

RINGROSE: This is why I keep coming back to the fact that so many of these people were not from an academic environment and wondering how they related to this whole setting.

REVELLE: I don't know. You'd have to ask somebody else about that—I left at just the wrong time to really know the answer to that question.

Now, the third department was the Department of Biology. Well, there are two others I want to talk about. Biology and a non-department, Earth Sciences. But Biology was the creation of David Bonner. And I don't remember how we persuaded him to come here in the first place, I'm sorry to say.

RINGROSE: Well, I discussed that with Bob Hamburger, who was in on the decision making, and he talks about the reasons that David Bonner left Yale, or his perceptions of the reasons why he left Yale.

REVELLE: He brought Bob Hamburger with him.

RINGROSE: Yes, they were close friends. He was Bonner's student.

REVELLE: He was his student?

RINGROSE: Yes, and also his pediatrician. So, Hamburger says that the joke used to be that Bonner was afraid that he wouldn't find a good pediatrician in La Jolla, so he brought one along.

REVELLE: What I don't remember is how he came here in the first place.

RINGROSE: Well, the sense I get from Hamburger is that he never fit in very well at Yale—

REVELLE: No, I don't mean that. What was the initial contact? It could have been Martin Kamen.

(According to Robert Hamburger, the contact was made by Dr. Revelle. "Roger Revelle had him out two or three times.")

REVELLE: Anyhow, when he came, we got along. He and I got along.

RINGROSE: That's what Hamburger said—that you got along very well.

REVELLE: There were no problems at all. He wanted to do exactly what I thought should be done about biology, namely, not have botany /zoology /microbiology, but rather deal with fundamental biological entities, genes, and cells, and what went on inside of them, molecular biology. That is exactly what Dave thought should be done, too. And then he and I also agreed completely about the Medical School. It should be part of the campus, and not a separate entity. That was after he came. We didn't talk so much about the Medical School at first. He brought John Singer here, and I don't remember who else in Biology, actually.

(According to Dr. Hamburger, Dr. Bonner brought John Singer, Stanley Mills and John DeMoss.)

RINGROSE: How about John DeMoss? He seems to have come at about this time.

REVELLE: I don't remember DeMoss at all.

RINGROSE: When did Stanley Mills come?

REVELLE: I think he was one that Jim Arnold brought, in the very early days. But he was in Chemistry, not in Biology, I think.

RINGROSE: Well, there's Stanley Miller and Stanley Mills.

REVELLE: Yes, Stanley Miller was in Chemistry. I don't really remember Stanley Mills. In fact, the only person that I really remember in Biology besides David was John Singer, who was one of the greatest scholars at Yale, and Bob Hamburger, of course.

RINGROSE: Bob Hamburger indicated that Bonner was quite a character—a very unusual person, and that he tended to attract people who were a bit iconoclastic, rather the way he was. Hamburger made the comment that Bonner was the one who hired Roy Pearce.

REVELLE: David was?

RINGROSE: Or, who pushed for Roy Pearce, and that he liked Roy Pearce very much. Pearce is a bit that way, too. He's rather outspoken and very iconoclastic in the way he goes about things. There's a kind of a personality thing. You either got on with David Bonner, or you didn't.

REVELLE: He was one of three famous Bonner brothers. One was Tom, and one was Jim Bonner. One is at Caltech. I think that's Jim. Tom Bonner is also a great biologist at another university. I think the University of Utah.

RINGROSE: Oh, I didn't know that. Very possibly, because the family came from Utah originally, but they were not Mormons. Hamburger said that Bonner always said that he

understood what discrimination was like because he'd been raised in Utah and was not a Mormon.

REVELLE: Sure! That's very interesting, and undoubtedly true. In fact, I remember him saying the same thing.

RINGROSE: One senses someone who has spent a lot of his life as an outsider. And in fact, when I talked with Hamburger, I wondered if perhaps this new campus and what was going on here and the idea of starting a campus from scratch and looking for raw talent instead of superficialities meant that perhaps you attracted a fair number of people who, wherever they were, were perhaps outsiders. This may be especially true of people from traditional institutions, like Yale. Perhaps Yale was overly preoccupied with how people behaved and how they dressed and whether they fit into the academic community. Is there anything to this, or is this just a perception that's built on a very limited number of cases?

REVELLE: Well, I lectured at Yale when I was at Harvard, and the impression I had about Yale was that it was not an awfully good place. The faculty didn't strike me—the scientific faculty—didn't strike me as really first-rate. That's obviously not true in the social sciences.

RINGROSE: No, they've fine departments in the social sciences.

REVELLE: They're wonderful in the humanities, and they're wonderful in some aspects of economics, I know particularly, and political science, too.

RINGROSE: For graduate training it's probably the strongest history department in the country right now.

REVELLE: I would think that in the social sciences and the humanities they're as good as they come, but in the natural sciences they've never been very strong, at least that was my impression of the people I talked to. They have some good people. They have a man named Carl Turekian in geochemistry. He's very good. And they have had some very good geologists. Yale has been famous for its geology, ever since the days of Dana—James Dwight Dana. And then later Bill Rubey graduated from there. Most of the great geologists of the last generation took their Ph.D.s at Yale, either Yale or Berkeley. So, it was quite a first-rate place. By the way, Berkeley's role was also very large in Physical Chemistry. All over, everywhere you went in the country, the Professors of Physical Chemistry got their Ph.D.s at Berkeley, including Joe Mayer, Harold Urey and Frank Long. But in Geology, they were mostly Yale. In Physics Yale has never been outstanding. In Chemistry they had Lars Onsager. They did have some great men. Certainly, Onsager was first-rate. And they had another man at Yale who died of cancer. He was a great theoretical chemist. So, I take that back. At least the ones I saw I didn't think much of.

RINGROSE: Well, the other reason that Hamburger—the other comment that Hamburger made to me was that evidently Bonner had felt that he had been cheated out of his chance at a Nobel Prize. I believe he was a graduate student working on a project, so he was not recognized. Since he had had cancer for so long, his life span was obviously limited.

REVELLE: Because of his Hodgkin's Disease ....

RINGROSE: Yes. He perhaps felt that he had had this opportunity and been cheated of it.

REVELLE: I didn't know that. I didn't know about what you're just telling me. I knew, of course, that he had Hodgkin's Disease.

RINGROSE: Evidently, he had it when he came here.

REVELLE: That's right, he had had it for quite a while. And he was always aware of the imminence—of the presence of death just around the corner. Always.

RINGROSE: Trying to do as much as he could.

REVELLE: That's right. Always doing as much as he could every minute. But unfortunately, I don't really remember many of the biologists he brought here. I think Martin Kamen ended up sort of in Biology. And they had this very good man, John Abelson, who's now been lured away to Caltech. But I'm sorry to say that I'm not really very helpful on that.

RINGROSE: Well, that's all right. I have a certain amount of information from Hamburger, and I can pursue that with some other people. What about Earth Sciences?

REVELLE: Well, let me just first say that one of the people whom David wanted to bring here was Bill McElroy as a researcher and teacher. Bill McElroy later became director of the National Science Foundation, and eventually became chancellor of UCSD, and now is here among all the other former chancellors. But we wanted him to come as a professor, and I spent some time trying to talk him into it but didn't succeed. Bill's specialty was luminescence—the lights that organisms themselves make.

RINGROSE: Biological luminescence.

REVELLE: A very interesting subject to study. It always seemed to me it was somewhat out of the mainstream of what David was interested in.

RINGROSE: Would he have fit in well with Scripps?

REVELLE: That's what David thought. It would be sort of a link with the Scripps Institution. Anyhow, he didn't come at that time.

Now, as far as Earth Sciences are concerned, we probably have as good a group in Earth Sciences as there is anywhere. It consists of two kinds of people, first geophysicists—theoretical geophysicists, and theoretical and experimental geophysicists, of whom one of the outstanding ones is Walter Munk who has been here ever since he was a boy, ever since he was a graduate student, like me. He's one of my oldest friends.

We first met in 1937 when he was an undergraduate at Caltech. He came down here with a summer fellowship. He was the first of our summer fellows, and we've never had another one

like him! Scripps has had the summer fellowship program ever since, hoping to get another Walter Munk, but we never did. I remember that Walter and I spent several days together, with a project of Fran Shepard's, measuring currents in the La Jolla Canyon, which consisted of pulling up and reading a current meter, and lowering it and then winding it up again and reading it and then lowering it again for six hours at a stretch. And then off for six hours, then on again for six hours for several days. It was quite an exhausting experience. I was a young instructor in those days. Walter, as I say, was an undergraduate. We've been involved with many different things together for the last nearly fifty years. I always think of him as a boy, but he's clearly—he's 67 or 68—and loaded with honors of all kinds. He is a foreign member of the Royal Society and a winner of the National Medal of Science.

RINGROSE: He has also been very supportive of the campus. I think back when I was doing work for McGill's book, and Walter Munk's name kept coming up as somebody who was in there trying to help hold things together.

REVELLE: He was one of the saviors of this place during the Vietnam war.

RINGROSE: Many of the Scripps faculty retired to their boats during that period. But he did not.

REVELLE: That's right. He did not. He was Chairman of the Academic Senate. He did a wonderful job. A wonderful man, in every way. He is thoroughly conscientious, a decent citizen. But anyhow, he wanted to organize—he was very unhappy about the growth of the Scripps Institution. It got so damned big that he didn't feel there was the collegiality that he wanted and missed. He thought he might go to Woods Hole or some other place where there would be more—which wasn't so big and so complicated. This would have been impossible, by the way, the reason that he has never left is because of Judy's polio.

RINGROSE: Oh, I didn't know that.

REVELLE: She can't exist really in icy places because she falls down and breaks her legs. She did it one time at Harvard. She had a fellowship at Radcliff, and Walter took a sabbatical, and she broke her leg. So, this is really the only place that they could have been. And of course, Walter is a great romanticist, and thought about all the other places he might have been, but he never left. Anyhow, what he felt was that he could perhaps organize a little enclave of his own that would be small enough so that he'd know everybody and could work with them, and that would make it possible for him to be happy and stay here. So, he organized a branch of the Institute of Geophysics—at that time it was called the Institute of Geophysics—just about that time it became the Institute of Geophysics and Planetary Physics.

RINGROSE: Now, what year would that have been?

REVELLE: It was about 1960.

RINGROSE: So, in 1960 he felt that Scripps was getting too large.

REVELLE: And it was. It's not much larger now than it was then. The way we solved the problem was breaking it down into a lot of separate laboratories. The Institute of Geophysics, the Marine Physiological Laboratory with Pete Scholander, another one of these guys who wanted his own group, the Visibility Laboratory, the Marine Physical Laboratory, the Marine Life Research Program, and the Institute of Marine Resources. I guess those were the principal ones. Anyhow, these were little laboratories within the Institution. And he did just that. His wife, Judy was sort of an architect. She got polio when she was just starting in the Harvard School of Design as a graduate of Bennington. But she still kept on studying and learning about architecture. She's very artistic and creative, and she pretty much designed the Institute of Geophysics building, at least the basic notion, building it across the canyon, down into the canyon, making it out of redwood, and the wonderful location in terms of the view of the ocean and the setting of the town from the Institution. All of this was her idea.

And so, Walter became director of the Institute, and started to build up his staff. He brought George Backus and Freeman Gilbert, and Bob Parker, and Hugh Bradner and several others whom I don't remember now. They were quite a group of first-rate geophysicists. For example, Freeman Gilbert is the inventor of something called the inverse method, where you look from the surface at something and tell what it's like on the inside. George Backus has been a tremendous theoretical contributor.

And then our other great group was in geochemistry, particularly Hans Suess and Harmon Craig in radioactivity and mass spectrometry, and Al Engel in petrological chemistry, and his wife, Celeste Engel. All of these are outstanding people.

We tried to organize a department of Earth Sciences, but that never worked, because these guys are such individualists—Ed Goldberg and Harmon Craig never got along at all, let alone Al Engel. They are very strong minded, very outspoken, very tactless, very shortsighted, I would say. Anyhow, it never worked. We never had a Department of Earth Sciences, and we don't teach earth sciences at UCSD, except as a specialty within physics or chemistry or biology.

RINGROSE: What relation to the emerging campus, as opposed to Scripps, did you originally hope that this group would have?

REVELLE: Well, I thought of them as the earth sciences group of the campus.

RINGROSE: But now essentially, they are an institute as part of Scripps. Is that right?

REVELLE: They're all part of Scripps. They don't do very much teaching. When Chia Wei Wu was here (former provost, Revelle College), he pushed hard to get a Geology major, or an Earth Sciences major, but it turned out to be very difficult to do. The Scripps people do teach some courses in geology, several of them are geologists, but it's by no means an orthodox or conventional geology department or a geophysics department, either. Geophysics should probably be a graduate subject anyhow. Earth sciences could be an undergraduate study.

RINGROSE: So, it seems that what you're telling me is that you have this large group of really very. very fine people, who train graduate students, but they're not particularly useful in terms of the undergraduate curriculum.

REVELLE: That's right. Another one is Gustaf Arrhenius. Wolfgang Berger is another. They have probably the best earth sciences faculty in the world at the Scripps Institution in terms of sheer creativity. Harmon Craig particularly is tremendous. Hans Suess is now retired, but he was remarkable. So is Walter Munk, and Freeman Gilbert, and Al Engel.

RINGROSE: I can understand they're not wanting to take the time to work with undergraduates, because frequently, for people like them, this is the case. But did they take any interest in the development of an undergraduate scientific curriculum?

REVELLE: Not that I could see. Ed Goldberg is another great man.

RINGROSE: Well, he did work for a while on the upper campus.

REVELLE: Yes, he did. He was Provost of Revelle College, and he really took it seriously.

RINGROSE: Yes, and I think it was unfortunate the way things worked out for him.

REVELLE: I don't know. How did it work out?

RINGROSE: Well, he had a very bad experience with some of our early radicals on campus and resigned and went back to Scripps and has pretty much stayed there.

REVELLE: Yes. That happened to George Backus, too. He just couldn't take the undergraduates, not only their radicalism, but their dirty pool. They were just nasty.

RINGROSE: Was there a cleavage between Scripps and the upper campus during the late sixties? I've been curious to know how much of that existed before the difficulties with students. Perhaps there was a certain barrier already there and the problems of the late sixties just made it worse.

REVELLE: Oh, yes, that's right. Bill Nierenberg was always determined to keep Scripps as independent as possible and as little involved in the rest of the campus as possible, in spite of the fact that he was Vice Chancellor of Marine Sciences. He's a right-wing conservative. He thinks that the whole New Deal was a mistake, no kidding. George Backus is like this now, too.

RINGROSE: Are a number of people at Scripps quite conservative politically?

REVELLE: I don't know whether they are, but I know that Bill is, and Backus is. I'm not sure about the rest of them, but there may be others, too. Hans Suess was never politically active at all. I don't think Harmon was politically active. Most of them have not been. And Walter Munk, as we were saying, was a very important force for good during those bad days in the sixties. That was the time Bill McGill was chancellor.

RINGROSE: Well, Roy Pearce talked a great deal about that, and his difficulties as an upper campus person relating to the Scripps people.

REVELLE: Who talked about it?

RINGROSE: Roy Pearce. When I talked with him as part of this project. Of course, he has become more conservative, but at that point he was pretty taken with left wing ideas and very hurt at the feelings of the Scripps people, and their—

REVELLE: Really? He didn't say what Scripps people?

RINGROSE: Yes, he is fairly specific. I think a campus faculty has a way of trying to bring people into line, and campus faculties of the old conservative kind knew how to do that, and they did, perhaps rightly, I don't know, but especially in interviewing Pearce you can see the hurt is still with him, and the division between the Scripps faculty and the upper campus.

REVELLE: I never knew that. That's interesting.

RINGROSE: But then, he's a very sensitive person. It was interesting to me that this was still with him after all these years.

REVELLE: Yes, it certainly is. He is an elephant-like person. He never forgets.

RINGROSE: Well, you can see where some of the problems with building the university community come from. It is interesting to see how the social community develops within the university—universities all take on a kind of a shape and tone. They're all subtly different.

REVELLE: Yes, they are. And that's one of the things that having come back from Harvard I must say I'm quite disappointed about with this university. I wonder if it had anything to do with the people we brought here to begin with. I don't think so but having been on the faculty of Arts and Sciences at Harvard, even though I was primarily on the faculty of Public Health, I'm very much aware of the collegiality of that faculty of Arts and Sciences—the FAS as they call it. They all support each other. They all help each other. For example, when I was Director of the Harvard Center for Population Studies, I had an advisory committee from different departments, mostly of the faculty of Arts and Sciences. You know, they were just very supportive, and very much interested. They wanted me to succeed. They wanted to help me succeed. They'd do anything to help with it. I don't get that feeling here at all. Some people here say it's because we're lacking a faculty club.

RINGROSE: I think there are many people who are very concerned about the lack of faculty community here, and it's come up frequently in these kinds of discussions. And of course, as the campus becomes more and more scattered, as the faculty becomes more and more scattered, the—

REVELLE: Geographically speaking?

RINGROSE: Geographically, right.

REVELLE: I hope that if we can get a faculty club this will help a lot. It helps quite a bit at UCLA, I think, and that's even more of a factory than this place is. UCLA has become a great institution, but it's a tremendously big institution. It has an enormous medical school.

RINGROSE: Well, I think in a successful institution you have to face the fact that lots of things are settled in an informal context outside of meetings. People need to share ideas and work through ideas. And there has to be a place where that can happen.

REVELLE: Of course. Yes. Absolutely.

[END PART FOUR, BEGIN PART FIVE]

RINGROSE: What do you think has become of the university over the years?

REVELLE: It's not as good, it seems to me, on the whole the distinction of the faculty is not as great as it used to be. Maybe that's inevitable, but it's not entirely just because of lack of money. It's because of lack of—well—I guess lack of ability to choose good people, for whatever reason, partly lack of leadership in the departments. You see the University of California in general says that being a department chairman is just a chore, not an opportunity. It is also partly due to lack of money, of course, because they haven't been able to offer very high salaries.

RINGROSE: It has interested me that when you describe recruiting when you were starting the campus, you could go to someone and offer him a job, right now. You didn't have to wait four months while all the paperwork ran around in the University Senate. Today that can be a real problem. It's harder. Appointing a faculty member is a kind of a romance, and people get out of the mood! You have to sign the marriage papers as quickly as possible.

REVELLE: I don't think that's very much of a problem. It's certainly something. It is a problem, but not a Class A problem.

Let me talk a little bit about two people. We talked about Mel Voigt already. Another person I think should be remembered is Charles Wheelock.

RINGROSE: He was your—he's referred to as your assistant, but that's probably not an accurate term for him.

REVELLE: He was associate director of the Scripps Institution, never an assistant, always associate director. He was an Admiral who had been Deputy Chief of the Bureau of Ships—a Rear Admiral—what they used to call a Naval Constructor—a person who was primarily trained as a Naval architect, and not a seagoing type admiral. He belonged in the Bureau of Ships, which was a combination of two bureaus, one of which had been previously called the Bureau of Construction and Repair. Those were the Naval constructors. He got deathly seasick even looking at the ocean, let alone being on it. I got to know him when I was in the Bureau of Ships. I

spent five years in the Bureau of Ships. He was not Deputy Chief at that time—he became Deputy Chief after I came back here. I spent a couple of years getting him out of the Navy, he and I together working on the problem of getting him out. He eventually did come out—about 1954, I guess, something like that. He was an absolute godsend as far as I was concerned, a wonderful man.

RINGROSE: How old was he then?

REVELLE: He was about 55, I guess. Maybe 50. Between 50 and 55.

RINGROSE: So then did he retire? Take early retirement?

REVELLE: He retired from the Navy. You can't retire so early if you're an Admiral. It's up and out until you get to be an Admiral. But once you're an Admiral, they like to keep you. But they finally let him go because they thought we were an important—Scripps was an important asset to the Navy. I think Rawson Bennett helped on that, too, although I'm not quite sure about that. Wheelock was quite interesting. He had a master's degree from MIT, and he'd had quite a bit of familiarity—he was a Naval Academy graduate—but he had some familiarity with academic things. He was determined to be as academic as possible when he came here. He thought everything should be done by committees. That was the democratic way to do it. The University of California is famous for being a democratic place, so we had one God damned committee after another that Charles thought we should have for making different kinds of decisions. One of them I remember specifically was the Space Committee. They could never make up their mind how to assign space for anybody.

I learned from that experience that you have three reasons for committees in an academic institution. In the first case you want the faculty on the committee because they are genuinely involved. For example, the Library Committee. They're the ones who should decide on the books for the library because they're the ones who use them. The second reason is to appoint a committee to make decisions that you don't want to make. You know, like not appointing somebody, for example.

RINGROSE: Right. Getting rid of people. Disciplining people.

REVELLE: Yes, various things, where you hide behind a committee. And the third case involves appointing a committee for a non-reason, namely the committee is to do what a committee cannot do, like assigning space. You just don't want to have a committee for that. The director has to take the onus, the blame, the criticism, the responsibility for giving some people more space than other people, or better space than other people. And Charles never—Charles was not here long enough to learn that.

But he did some wonderful things for us. One of them was, as I said, to get the flight pattern changed by the Miramar Naval Air Station. Another was to ease the way for getting Camp Mathews, using his contacts with the Navy. He became Director of the university-wide Institute of Marine Resources, when we started it, and he was very good at that. He was very good at

everything he did, even though he was not a professional professor in any sense of the term. We made him a professor.

RINGROSE: Did he do research ever?

REVELLE: No.

RINGROSE: He was strictly an administrator.

REVELLE: That's right, but such a kindly, virtuous, man. He was a great help to me because he was just so nice! And I was sort of ornery, not very nice, losing my temper occasionally.

RINGROSE: You need a facilitator in any institution.

REVELLE: And we had a Business Manager, who was not responsible to me, but to Jim Corley, the Vice President for Business Affairs of the University, so our whole business staff was really outside of my control. This was very bad, and Charles helped a lot with that, too. We finally got a first-rate accountant, named Herman Johnson, who was the first accountant we ever had who said, "I can figure out a way to do this," instead of a way not to do it, which is the way most accountants are. And of course, as a result, he has now become the UCSD Vice Chancellor for Business Affairs, just because of his wonderful ability to say yes, rather than no, and to mean it.

RINGROSE: Well, you must have been in a very difficult situation starting the new campus up here, because—how did you run the money? Did you run it out of Scripps, or did you set up a whole new financial establishment?

REVELLE: We ran everything out of Scripps. I had two wonderful secretaries. One of them was Priscilla Duffield, who had been Bob Oppenheimer's secretary. The other one was Pauline Wyckoff, who just appeared somehow down here. She was a graduate of UCLA and Santa Barbara—undergraduate from Santa Barbara. And later she was my assistant at Harvard. So, we—I was never very good at answering correspondence or doing the things that administrators are supposed to do in the time they're supposed to do them. I was famous for being a poor administrator, but Priscilla and Pauline helped a lot here, and so did Charles help a great deal, and so did Herman Johnson.

But let's get back to this other real problem. How are we going to make the place come back to being a first-rate place? It seems to me it's possible that it's having a kind of mid-life crisis. It may get over it after a while. Nothing becomes a university more than age. The older they are the better they are, usually, and that may happen here, too. We have a wonderful physical environment, but not a very good intellectual environment in San Diego. I used to say that San Diego could be the Boston of California eventually, but it doesn't seem to be happening very fast. Boston is a wonderful city, and a place that we would do well to emulate, full of educational institutions, full of high ideals—quite liberal politically. We're doing very well in terms of research support, particularly in the sciences, although probably not as well as we used to. We're doing

very well in terms of bringing high tech industry to San Diego. I don't think we're doing so well in the humanities. Maybe we are in history. What do you think about history?

RINGROSE: History has been very fortunate in the last few years in that they've been given the opportunity for growth. We did have some terrible losses, like Jim Scoby, and Armin Rappaport, who were very good people. Scoby's death was very unfortunate, because he was young and really at the peak of his career when he died. But there's a new crop of very, very good people, if you judge in terms of awards and production and so on. I feel very optimistic for that department.

REVELLE: That's wonderful.

RINGROSE: But partly they've been able to appoint—there are an awful lot of people available—they've been able to pick and choose, and generally get their first choice. But they're banking on young people. They're not making very many senior appointments these days.

REVELLE: That's what Political Science has done, too. They've got a bunch of very good young people.

RINGROSE: That's becoming a very strong department.

REVELLE: Anthropology is too, I suppose—how is that?

RINGROSE: You know, I would rather not have an opinion about some of those other departments, because they're not departments I know really well, and not disciplines that are mine. I think the very structure of the Literature Department has long created problems for them that has little to do with the quality of their people.

REVELLE: They don't get along very well at all. The Literature Department has always been a hotbed of dissension. Not only from the academic, but also from the political point of view.

RINGROSE: Though it could be they thrive on political upheaval and unrest.

REVELLE: I just wonder if there's anything we could have done differently to begin with to make it better now.

RINGROSE: Well, the humanities departments are interesting as I've worked my way through these various interviews and talked to various people. They're pretty homogeneous—when you start a literature department, for example, quickly and from scratch, it tends to have the stamp of one person.

REVELLE: Roy Harvey Pearce.

RINGROSE: The interesting thing about Political Science is that it's such a late department and seems to have developed perhaps differently. And History—they must have started History a couple of times and had to start it over. The people in History now are very different people

from the ones who came here originally. And it seems to me that it developed in a fashion that's much more conventional—much more analogous to the way some of the Eastern departments have developed—more slowly, with people coming and going.

REVELLE: And with lots of different specialties. People appointed for a specialty rather than because they were just first rate or outstanding.

RINGROSE: That's right.

REVELLE: Maybe that's the way to do it, but it doesn't seem to me that it is.

RINGROSE: Well, it depends on what your goals are, and in your science departments where' your goal is to really make your mark and train graduate students, the "build from the top down'' scheme is the way to do it. A medium size department in the humanities these days, like History, can't really count on having large numbers of graduate students. It's hard to justify large numbers of graduate students. You have to have a faculty that is going to teach undergraduates, and so you have to look at coverage.

REVELLE: It’s hard to justify large numbers of graduate students because there are no jobs for them?

RINGROSE: They continue to want to come and study, but it's just not fair to train people and then have them not be employed.

REVELLE: I think it probably is, but maybe not. Because it's a good education, and it's fun. It should be fun. If you know a lot of history, you know a lot.

RINGROSE: Well, we're grateful for a small number of people who are community people, and very bright, and who don't aspire—we have a couple of older graduate students I can think of—who don't aspire to an academic career. And in fact, the best Ph.D. they've turned out in recent years in History is an older lady from the community who's turned into a marvelous medieval historian. She is a model for the graduate students. She keeps them all on their toes. She's wonderful. But the younger people have to know that it's a really tough world out there. Now perhaps in sciences there's the same problem. I'm sure there is. No?

REVELLE: I don't think there is, really. I think there are still opportunities for all the sciences, not necessarily in the academic life, but in some kind of research position somewhere. I mean, there's lots of research outside the universities.

The departments that Herb York started were basically Literature, Linguistics, and Philosophy. And I guess maybe Mathematics, too. Warshowski ...

RINGROSE: Yes, that's pretty much his. And Psychology.

REVELLE: And Psychology, too?

RINGROSE: A little bit later, but—and all those bear the stamp of their founders, all those departments, I think.

REVELLE: Psychology was two people—George Mandler and his wife.

RINGROSE: Mandler really was the person that built that department.

REVELLE: Mathematics turns out to be coming up very fast.

RINGROSE: That's what I hear.

REVELLE: It is doing very well. They have a real entrepreneur there—the Chinese Yau who's going off in all directions, and a very bright young man named Friedman, Michael Friedman, who's apparently a dazzling mathematician.

RINGROSE: Well, how do you measure success for a university or for a faculty? How would you measure success?

REVELLE: What universities are usually judged by is reputation. This is sort of a circular statement. Some universities are universally agreed to be great universities, like Harvard, and Berkeley. Some are universally agreed to be mediocre, like USC. Some are in between—like UCSD, and UCLA. Stanford is a great university now, too. You know, there are all sorts of quantitative measures. In science there are measures like Nobel prizes, membership in the National Academy of Sciences, and the American Philosophical Society. I would say that in terms of the quality of the graduates, the success of the graduates, maybe Harvard is the best, at least it is in many fields. In terms of the distinction of the faculty, Berkeley and Harvard are about equal. One of the reasons why Berkeley doesn't shine as much as Harvard in terms of its graduates is that it's virtually free compared to Harvard, so it has a lot of poor people come to it, many of whom become schoolteachers. You don't ever get rich being a schoolteacher. I don't think you can judge a university on any of these quantitative bases and make very good sense out of it. It's basically how people feel about it. That's why I said its reputation—which university do academic people think is really the greatest, or in the top ten, or the top twenty.

RINGROSE: You could argue that perhaps if UCSD were picked up and plunked down on a choice piece of land in the middle of San Francisco, with everything San Francisco has to offer, that our stock would immediately rise.

REVELLE: Why?

RINGROSE: Because it would be a place that perhaps people would be more eager to work at, be at.

REVELLE: Like Berkeley. Berkeley is just such a marvelous community place. I always get chills going up and down my spine when I go there. You're implying that San Diego is a rather mediocre place.

RINGROSE: We all work at making it better, but it's going to be a slow process. I think that it is not something that you can do in a hurry from a kind of elitist perspective. We talked about this earlier with regard to the theater and some of the things that John Stewart said when I interviewed him about the development of the La Jolla Playhouse and all the problems attendant on that.

REVELLE: What did he say about that? That's interesting.

RINGROSE: Well, what came across to me was that as an elite academic representing an elite academic community, he had a very different perception of what was needed in the Playhouse, what was appropriate. He was rather distant from the people in La Jolla in his ideas of what would provide good entertainment for the community. One has to leave value judgements aside. Sometimes it takes a matter of years for these two perspectives—one educates the other.

REVELLE: What do you mean by that? You mean the Stewart perspective and the La Jolla perspective?

RINGROSE: Yes, and it isn't necessarily the place for the university to impose its taste on the community. You try to take a leadership role in the community, and then plan that in fifteen or twenty years we will be doing more avant-garde theater and less popular theater. But you just can't look down on a community like this from your Olympian heights and tell them what they ought to like. That's not going to sit well.

REVELLE: Not in the theater, because you've got to have people who will buy tickets. It has to be a commercially viable enterprise. Otherwise, it doesn't work at all. So what John is saying is that the La Jolla Playhouse is being too elitist.

RINGROSE: Well, no, he talks about the things that happened, but his own elitist perspective does show through the discussion in some very interesting ways, and for me explains why there were so many problems initially with getting the project off the ground.

REVELLE: There are problems now, which it's barely surviving, very serious problems.

RINGROSE: Oh, I hadn't realized that. I thought things had been fairly well ironed out.

REVELLE: We've lost a lot of money in the last two years. A couple of million dollars, or pretty close. So, I'm very worried about it.

RINGROSE: I see.

REVELLE: And I've been very much—it's been very close to my heart for a long time.

RINGROSE: Well, you were involved, obviously, from the very beginning. Isn't that right?

REVELLE: Yes, I was.

RINGROSE: Well, you'll be very interested to read the conversation that John Stewart and I had about how the Playhouse progressed. This would be after you left. During the period when things pretty much fell apart.

REVELLE: When they had this chap, Michael Langham. That didn't work out. That's probably where John got involved.

RINGROSE: And you can see why it didn't work.

REVELLE: I suppose so.

RINGROSE: I suppose that has been perhaps the most—the longest term and closest connection with the community that the university has had, hasn't it? That joint venture with the theater?

REVELLE: I guess, so. Yes. That was really my idea, to have the university involved with it. We planned to have the site of the theater on the university campus. We talked the Regents into that, but it's never been a very close relationship, unfortunately. I think it ought to be a lot closer. I think we ought to have a thing like we have at Harvard, the Loeb theater, which is a joint community /university enterprise, and I think the Drama Department should be very much involved with it. We're making some progress there. Des McAnuf is now teaching in the Drama Department. They like him, and they should. He's a difficult guy to make any money with, though.

RINGROSE: I had always assumed that the summer affairs took care of the financial problems. I've really not been involved with that side of the theater at all.

REVELLE: It doesn't take care of it at all, quite the other way.

RINGROSE: My involvement of that kind is with the La Jolla Civic Orchestra, and we just barely keep our noses above water, but we continue to break even.

REVELLE: Well, I guess I haven't even got any good ideas about how to make the place better, I'm sorry to say.

RINGROSE: Do you feel optimistic for the future?

REVELLE: Yes, I do.

RINGROSE: Kerr did, too. I was pleased at that.

REVELLE: The only ways we can go are up, or down. We're obviously not going to stay where we are. And money helps an awful lot in a university. If you have enough money, you can do almost anything. That's a cynical thing to say, but my lifetime experience has been that the number one problem with a university is money. We're not doing too badly on the money now. During the last ten years or so we were doing very badly, so that's a big help in the right

direction. I think Dick Atkinson is a thoughtful chancellor who is really very much concerned about the place. He works hard at it. I'm not sure he's particularly good at it, but he certainly is thoroughly committed. He feels his reputation hangs on it pretty much.

RINGROSE: Well, it's a tough job running any University of California campus, if only because the faculty is usually reluctant to let you do anything.

REVELLE: That's right.

RINGROSE: The comment Herb York made to me when we talked about this was, "You know, all they'd let me do was decide where to paint the lines in the parking lot." He said there were so many wonderful decisions to be made about curriculum, and education, and he thought those were really interesting, but he got to plan the parking. It's a tough job.

REVELLE: That was when he was chancellor the first time. He was not much of an academic at that time. He's become a great professor during the past twenty-five years, but at first, he wasn't very much interested in the university, he didn't understand it very well. He'd never had this kind of experience before. I don't mean the experience of being chancellor, but experience of being a professor.

RINGROSE: No, he'd been an administrator all his life.

REVELLE: So, he didn't understand professors and how they think, what incentives you can offer them. I thought perhaps he wasn't interested. He really was sort of bored, it seemed to me, with the whole business. It takes a lot of patience and a lot of tolerance to work with professors, they're a sorry lot.

RINGROSE: Well, they're all independent operators.

REVELLE: Yes, that's why I said you should appoint them, you don't hire them.

RINGROSE: Right, appointments. They're not employees, and they know it.

REVELLE: They're partners. Or should be partners. But as you say, they're really not partners, they're independent operators—independent contractors.

RINGROSE: They have been since the Middle Ages. And yet, based on our earlier conversation, so many of these people did not come out of a traditional faculty mold, they weren't faculty people, and it's interesting that they so quickly fell into this pattern.

REVELLE: Sure. One of the things that I spent a good deal of time on, in those early days, was studying the histories of universities. I was particularly interested in William Raney Harper of the University of Chicago, and in a book by a man named Rashdall called *The History of European Universities*. Like many great English books, this was written for a particular purpose, in this case in order to prove that Oxford was older than Cambridge. But he has a whole volume on the University of Paris, in the 12th and 13th Centuries.

RINGROSE: It was a fascinating place.

REVELLE: And that's a wonderful book. And I used to say, and to some extent it's true, that all the problems of modern universities were similar to those the Rector of the University of Paris had in the 12th Century. In his case not so much sex for the students as Clark Kerr said, but rowdy behavior of the students. Besides their teaching the faculty were essentially boarding-house keepers. They ran boarding houses for the students, and there were problems of students not paying their bills, and the faculty cheating them, and things like that. All essentially the same kinds of problems we have now with parking, and—

RINGROSE: And also, a whole collection of problems that involved who could teach, and how do you establish credentials for teaching, and the same kind of political problems and in-fighting.

REVELLE: But the great American university man—the great precursor as far as I am concerned was William Raney Harper, who was a teacher of Hebrew—in fact, a very enthusiastic teacher of Hebrew—he taught Hebrew in Chatauqua courses all over the country. Because of him millions of people who lived in America studied Hebrew, of all things. And John D. Rockefeller approached him and said, "I will be glad to endow a college, if you will be the head of it." And Harper said, "I don't want to be head of a college. I want to be head of a university. I'm not interested unless you are interested in really starting a university." And Rockefeller said, "How much would that cost?" "Oh, $25,000,000 at least." And so, Rockefeller backed off, and Harper went back to teaching Hebrew. This happened for about ten years. Finally, Rockefeller got a man named Gates as an adviser and representative in philanthropy. Gates was a Methodist minister. Harper apparently was a very charismatic guy and Gates was fascinated by him. So, Gates advised Rockefeller that he should let this man, Harper, start his university.

RINGROSE: For $25,000,000.

REVELLE: For $25,000,000. And he did. The University of Chicago was a great university from the day it opened its doors because he had such good taste in choosing faculty, and so much money to pay the salaries of the faculty. He went to Clark University in Massachusetts, which was one of the pioneer genuine universities in this country—they'd been painfully assembling a good faculty—and Harper offered them all jobs at the University of Chicago at twice the salary they were getting at Clark. Then he went to the president and told him what he was doing, and said, "I want you to come, too." The president threw him out of his office! He was so bitter about Harper stealing all his faculty. But it turned out, of course, that Chicago was really just a marvelous place, really right from the beginning.

He did it a little bit differently than we did. Like UCSD, the University of Chicago was a new university, that was part of the lure of it. High salaries were another part, which we didn't offer.

RINGROSE: Also, it was private. I think there are a lot of things you can do m a private university you can't do in a public university.

REVELLE: That was part of the problem, of course. But the real problem was that I just didn't feel that that was the way to do it—pay all those high salaries.

RINGROSE: 'Though you did raid Chicago.

REVELLE: Oh sure. Of course.

RINGROSE: You made quite a raid on Chicago!

REVELLE: Well, that was really Bob Hutchins' fault. Hutchins was not interested in the university neighborhood. His mind was far away on academic excellence and all like that. But you know he let the neighborhood deteriorate to the point where it was dangerous to be there. And it took Larry Kimpton to bring the neighborhood back more or less. But it's still not—

RINGROSE: No, but they've done a lot to bring it back.

REVELLE: Bob was a poor university president, in the sense of what was really important in a university. He was poor in various ways, but that was one of the ways he was poor letting the neighborhood deteriorate.

RINGROSE: So, it's clear that you think that you don't live in isolation in a university. You have to relate to your surrounding residential community.

REVELLE: Oh, I always felt that. That's why I started SEA. You had to be part of the community, and I felt very badly, as I told you about Washington University, where it didn't have a student community around it. And I feel very badly about the Golden Triangle. It's a terrible development from the standpoint of the university. I guess the main thing I feel about the surrounding community is that it ought to be a congenial place for faculty members as well as for students. It ought to be a place that faculty members like to live in and are welcomed in, and happy in. They must really be. a part of it. What happens to our faculty is that they're scattered all over hell's half acre. From Leucadia to—I don't suppose anybody lives in Chula Vista, but many live in San Diego somewhere.

RINGROSE: The young faculty in history—there's quite a group of them—have settled in some of those poor older neighborhoods down by the park, and they're gentrifying those neighborhoods. Buying up those old houses—

REVELLE: Hillcrest?

RINGROSE: Nothing as fancy as Hillcrest. Hillcrest is getting expensive. There are some little pockets down there, and they buy up the old houses and fix them up.

REVELLE: Well, I suppose it helps that neighborhood, but it doesn't make them really connected to the university. My ideal would be if every faculty member lived within a mile of the campus, pretty much the way it is at Harvard. Some people live as far away as Belmont, but mostly they live in Cambridge. And even so, there's not much socializing with the students. I

went to Pomona College, where there was a great deal of socializing between faculty and students. Particularly one man, Mr. McKenna, who used to have a discussion evening once a week.

RINGROSE: This is the McKenna of Claremont McKenna?

REVELLE: Not exactly. He was the father of Donald McKenna for whom Claremont McKenna college is named. Donald McKenna went to Pomona College; he was a classmate of mine. His father was a great admirer of John Stuart Mill, I remember. And he always talked about Mill, every week. And quite a few of the faculty joined the discussion group, and about half a dozen students. undergraduate students. I was one of them, and I thought it was just marvelous. That's the way it ought to be, it seems to me, here. Faculty should have a lot more contact with their students, undergraduates as well as graduates, not formally in the Revelle Formal Lounge, but in people's homes. To some extent, that's done at Revelle College. Not so much with the faculty, but with the provost and his staff. Ernie Mort, for example. They spend a lot of time thinking about the students, working with them. They are very good at it. It's a great thing to do. You were asking me what are my criteria for a great university? One of the criteria is that the students love it.

RINGROSE: The undergraduates.

REVELLE: The undergraduates. And the graduates love it, too, for somewhat different reasons. But it's to some extent all things to all men. You know the word "university" is an important word. It used to be called the studium generale in the time of Paris in the 12th and 13th Century. What they said was, "Ecclesiasticum, imperium, studium" were the three pillars of Christendom. And that's the way the university should be. It should be one of the pillars of society, pillars of Christendom, if you will. I'd rather not use Christendom, but of our community, our society. That's what Harvard is. That's what Berkeley is, more or less. It is certainly what Chicago has been. We have a tremendous opportunity to be that, because of our responsibilities to the state. I guess I've talked myself out again.

RINGROSE: This has been very interesting, and I want to thank you very much for all your time. You've given me two whole afternoons, and I do appreciate it. On behalf of the project, I want to thank you.

[END PART FIVE, END OF INTERVIEW]