



Oral History with Anthony B. Evin

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National Venture Capital Association
Venture Capital Oral History Project
Funded by
Charles W. Newhall III

Anthony B. Evin

Interview Conducted by
Carole Kolker, PhD
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This collection of interviews, *Venture Capital Greats*, recognizes the contributions of individuals who have followed in the footsteps of early venture capital pioneers such as Andrew Mellon and Laurance Rockefeller, J. H. Whitney and Georges Doriot, and the mid-century associations of Draper, Gaither & Anderson and Davis & Rock — families and firms who financed advanced technologies and built iconic US companies. Each interviewee was asked to reflect on his formative years, his career path, and the subsequent challenges faced as a venture capitalist. Their stories reveal passion and judgment, risk and rewards, and suggest in a variety of ways what the small venture capital industry has contributed to the American economy.

As the venture capital industry prepares for a new market reality in the early years of the 21st century, the National Venture Capital Association reports (2008) that venture capital investments represented 2 percent of US GDP and was responsible for 10.4 million American jobs and 2.3 trillion in sales. These figures, while significant, greatly understate the collective accomplishments of the venture capital industry.

I'm pleased to have supported this project, which I believe will advance the understanding of the venture capital industry. This collection, along with Paul Bancroft's Bay Area oral history project at the Bancroft Library at the University of California, Berkeley, and Paul Holland's Silicon Valley project for the Western Association of Venture Capitalists, will add significantly to a growing body of venture capital memoirs available to the public sector.

A special note of gratitude goes to each interviewee who generously gave of his time while candidly sharing his memories. Their recollections bring to life the dynamic story of venture capital in the 20th century, providing a powerful perspective on the history of this industry.

Charles W. Newhall III

Spring 2009

VENTURE CAPITAL GREATS



A Conversation with Anthony B. Evin

Tony Evnin joined Venrock in 1974 and established the firm's healthcare franchise. He helped shape the modern biotechnology industry, building valuable companies that address some of the important medical needs of the world. Among the companies he helped build are: Centocor, IDEC Pharmaceutical, Infinity Pharmaceuticals, Genetics Institute, and IDEXX laboratories. Six of Tony's portfolio companies have entered the public market in the last three years and over twenty-nine of his investments have been through an IPO during his Venrock tenure.

Tony started his career as a research scientist and group leader in organic chemistry at Union Carbide and as director of product development at Story Chemical. Today, he serves as Trustee Emeritus of Princeton University, as a Trustee of The Rockefeller University, and as a member of the Board of Overseers of Memorial Sloan-Kettering Cancer Center. In 2009 he received the Lifetime Achievement Award from the National Venture Capital Association. It has been noted that Tony not only helped shape the venture model for the life sciences industry, but he also mentored a new generation of venture capitalists.

Tony holds a Ph.D. in Chemistry from the Massachusetts Institute of Technology and an A.B. in Chemistry from Princeton University.

The following is an interview with Dr. Anthony Evnin of Venrock Associates. This interview is taking place at Dr. Evnin's office in New York City. Today's date is June 30, 2009. My name is Carole Kolker

Carole Kolker: *Good morning, Dr. Evnin. Thank you very much for your time. I look forward to having this conversation this morning. On behalf of Chuck Newhall, thank you for your participation in this venture capital oral history project. What I'd like to do is start with the early years, basically when and where you were born.*

THE EARLY YEARS

Tony Evnin: Born and grew up in New York City, in Manhattan, and my parents were both of Russian origin, having come to the States in the mid- thirties. I grew up on the Upper East Side, went to the legendary P.S. 6 Public School through the eighth grade, and was probably going to go to Bronx Science, because I was a science-oriented kid, but ended up going to Trinity School, one of the private schools in New York, instead. I was on a scholarship there. Did reasonably well.

CK: *Your parents immigrated in the 1930s. Had they been living in Russia?*

TE: Both came from Moscow, but they left when they were children.

CK: *What were your parents doing here? Why New York?*

TE: 1917 was a good time to leave Russia. They were both bourgeoisie, lived around Europe, married in Paris, lived in London, came to the States in the thirties.

CK: *And why New York?*

TE: Well, it is a sophisticated city; they were reasonably cultured and business people. My father was a small businessman; my mother was an artist and then had a very successful floral design business in New York.

CK: *What were their names?*

TE: My mother then divorced and remarried. So, Nina Evnin originally, then Nina Schick for the last fifty years of her life.

CK: *And your father?*

TE: Oscar Evnin.

CK: *Do you have any brothers and sisters?*

TE: One older sister, about two-and-a-half years older, who lives in New York, and has been a money manager for a long time.

CK: *What were the expectations in your home for you as a child? What was the message?*

TE: I can't say the expectations were particularly high. My parents were divorced when I was about eight or nine, and so my father was not around that much. I saw him, but not that much. So the expectations were perhaps as much self-imposed as anything else, and that was to do well, to succeed. It wasn't a strong message, but it was a message.

CK: *Were you a reader or a tinkerer?*

TE: I was a reader, a pretty energetic reader. I was always good at school. The best, eh? Certainly, I was one of the best in grade school. P.S. 6 was one of those curious — Did you ever read *Catcher In The Rye*? It was the Upper East Side public school, and gerrymandered from 68th to 96th, from Fifth to Third Avenue, so it was a private school. Not really, but it was. The top quarter of the class ended up going to college after secondary school, at Harvard, Yale, Princeton, Wellesley, Smith, places like that.

CK: *And what would you say were the values in your home?*

TE: Good values. As I said, my mother started a business when my parents got divorced. It was a serious work ethic. You knew that you had to work and succeed. My family was Jewish, but completely areligious, so there was that element of it. Great work ethic, good morality, but neither religion nor strong “thou shalt succeed.” My older sister was a very good student as well, so that sort of set a standard. But I think mostly she was sort of a driven first child.

CK: *Were you competitive with her?*

TE: Not really. She was a girl! I was probably more interested in sports. I was at least as interested in sports as I was in academics. We lived pretty much orthogonal lives, and always have.

CK: *What kind of sports were you playing early on?*

TE: Wrestling, tennis, cross country. Those were the three sports I did in school, The only thing I did in college was tennis and squash, but not competitively, and played rugby for Princeton.

CK: *Did you have favorite subjects?*

TE: I liked the sciences. I actually liked all the subjects. I'd probably say that I liked chemistry, which I ended up pursuing, and I think I was the first person from Trinity School to ever take an advanced placement exam—I think that's correct—even though, in the preceding years, there was a bonafide genius who has become an important music composer, a man named Charles Wuorinen. I don't know if you know music. But for some reason, the school was not upward thinking academically. Although it's a very good school now, it was only an okay school then. I pursued chemistry in part because the chemistry course that they gave at Trinity was so bad that I decided: the subject's kind of interesting; it can't be this stupid, so I took the advanced placement exam. But I liked science, I liked math. I enjoyed Latin a lot. I did well in the languages because I heard French and Russian all my life, so the French came quite easily.

CK: *Were there any teachers that influenced you, that made something more interesting?*

TE: No.

CK: *When was the first time you earned money?*

TE: I worked every summer from the age of thirteen. I'd deliver flowers; I did odd jobs for my father's business. There was some kind of summer jobs every year. Although I did a little bit of traveling, I worked pretty much every summer from the age of thirteen on.

CK: *You said your father was a businessman. A variety of businesses—*

TE: He was in the fur business.

CK: *So you graduated from Trinity in '58?*

TE: And went to Princeton.

COLLEGE YEARS: PRINCETON (1958-1962) AND MIT (1962-1966)

CK: *Where were you headed?*

TE: I didn't really know. I did go to Princeton as an engineer. I thought that's what I wanted to do. I was accepted at Harvard and Brown; I don't know if I finished the application to Yale. I don't think there was any place I wasn't accepted. I think I was accepted pretty much everywhere.

CK: *Why did you choose Princeton?*

TE: Well, I decided not to go to Harvard because my sister was at Radcliffe, so that was a negative selection. We had a neighbor who'd gone to Princeton who spoke highly of it. It seemed like a nice thing to do. It's stupid the way these decisions were made, because you didn't have a lot of information then.

I had a good experience at Princeton. I opted out of engineering fairly quickly because I didn't like a lot of aspects of it: seven o'clock mechanical drawing classes and stuff like that; it was just nonsense. And, then, was torn between economics and the sciences. In fact, I was probably going to major in economics, because I had a professor that I really did like quite a lot, and then there was some confusion about an exam. I turned in the wrong exam. We used to take these exams in blue books. Well, I wrote the notes in one blue book and the essay question in the other, and I turned in the notes. I had something that evening I was focused on more than the exam, I guess. So I didn't do that well, and of course then it turned out that professor was going to Washington the next year anyway, so I decided to major in chemistry. The rest sort of followed along.

CK: *Economics was an interest—*

TE: I always assumed I would end up in business. But I liked the technical side, so I thought maybe some kind of technical business, but I'd always assumed I'd end up in business.

CK: *At that time, at Princeton, were there any professors that might have influenced your direction?*

TE: As I said, I was very impressed by this professor of economics — I took really a pretty broad program of courses: I took a lot of history, I took a fair amount of art history, and then when I started taking the sciences, I frankly did not have any particularly wonderful chemistry professors. Probably the most extraordinary course I took was one on in the diplomatic history of modern Europe by a man named Gordon Craig, who was highly regarded and well-known in the field. And it was interesting, because I took it in my junior year and I was chemistry major. Princeton had this program of precepts where the class was broken down into basically discussion groups with a dozen people or so who met with a professor. As we went around the room the first day, everyone described what their major was and their interests, and I said I was a chemistry major, and Professor Craig chuckled a little bit. And that was the only A+ I got at Princeton. Because I thought the course was interesting, and it was reasonably logical; you kind of knew what

to do and where to go. My academic record was pretty good, it wasn't fabulous. I wasn't that serious until my junior year, and in the junior and senior year, I did quite well.

CK: *Were you involved in any extracurricular activities?*

TE: I did some of the school officer type stuff, and I did play some sports. I played rugby, and I spent a lot of time having a good time. I got serious my junior year. I got engaged at the beginning of my senior year and got married the day I graduated. Life began to be a little more serious. I graduated, as I described, sine laude.

CK: *What excited you about chemistry?*

TE: Well, it came to senior year, I was getting married; I was not quite sure what I was going to do, but I majored in chemistry, did pretty well. I took the business boards, the law boards, the Graduate Record Exam, and the Foreign Service Exam. If you ever took those things — it's a long time ago — you get better at them; it's experiential.

And so I took the business boards first, and I did reasonably well, and then a time thereafter, I did the law boards and did very well, Graduate Record Exams, did well, and then the Foreign Service Exam, I aced. Foreign Service was a little bit more of an appropriate career for Ivy League-type graduates then. I didn't really know what I

wanted. I was sort of alerted to the fact that in the foreign service, if you're going to get married, your typical posts were in Central Africa. I was marrying a nice young lady, and she wasn't going to go to Kenya. Actually, Kenya was probably okay then. But I went through the whole experience. Frankly, what I found was that chemistry, which I liked pretty well, gave full scholarships; no one else did. So I decided to go into chemistry. I didn't have any money, I was getting married. So, a series of accidental choices of sorts.

I'm very happy with them, I think it turned out wonderfully well, but I did get into Harvard Law School, I did pass the Foreign Service Exam, although when I interviewed down there, they quickly determine that I didn't know anything about the world, about the foreign service, about sociology, politics, or really in-depth about American history, which actually impressed me quite a lot. I've known a lot of foreign service people since then, and they're very good. And even walking out of the room, I said, You know, I'm glad they didn't accept me because I was inappropriate — I know I'm fairly smart, but I was an inappropriate candidate.

CK: *It sounds like that allowed you to cross off one thing. So then you finished in chemistry at Princeton, and you went on to MIT.*

TE: Yeah. And I did work pretty much every summer in college; I had jobs. I worked for a distribution company that a cousin of mine owned. I worked in a chemicals company, again, through a family connection. But I did earn money every summer. I did travel a bit too, but I earned money every summer. It was kind of necessary. We certainly were not poor, but there wasn't a whole lot extra. In fact, we were decidedly upper-middle-class, but even so. And then, of course, I got married and went to graduate school with no income other than a little help from the families. In those days you'd get pretty much full scholarships all the way through in the sciences. So that's '62-'66. The Vietnam War was going on, but I was just on the too-old edge while in graduate school. And in fact, by the time we finished grad school, we had two children.

CK: *You married Judith Ward from Greenwich, Connecticut, and you now have two sons.*

TE: Two sons who are now forty-six and forty-four, Luke and Tim. Luke is a venture capitalist of a very serious level. I think there are about half a dozen of two-generation families in venture. I think the Drapers are the only three-generation, which is an interesting thing.

CK: *It is an interesting way of looking at it. Why did you choose MIT?*

TE: I can't remember where else I got in. I did not get into some places. I got into MIT and maybe Stanford and Berkeley. But I kind of favored the East Coast. I liked the idea of being in Cambridge, and I think the package there was pretty good. I had a lot of classmates from Princeton who were going to the law school and business school in Cambridge, so we knew that it was certainly an environment that seemed attractive. So we went there and spent the next three-and-a-half years getting a degree and having babies.

CK: *That was pretty quick, getting your PhD in that short a time.*

TE: Yeah. It turned out I was pretty good, and I had good luck on a project and a very decent professor. Some of the professors just keep you as cheap labor, keep these kids forever. My guy was quite decent, Professor Dietmar Seyferth. The project worked out well, did well on the exams, and finished in three and a half years. In those days four years was typical, so it was a little early, but it wasn't hugely early.

CK: *You don't stop and get a master's.*

TE: You don't do that in the sciences, in the pure sciences. If you have a master's and you leave, it means you flunked. There were very few women. It's interesting; this has been a career which for the most part was an almost single-gender career: graduate school, venture capital work. I'd say even today, probably, at the partner level in venture it's 10 percent women. Graduate school was about that. I happen to like women, but it just happened to be that this is a career that is not gender neutral. Anyway, in that class there was one probably brilliant kid who ended up being a full professor at twenty-nine. I think I scored about second or third on the exams for that period. But that really wasn't that relevant. I don't think there were any honors or degrees granted in graduate school. But it went pretty well.

CK: *What were your goals in majoring in chemistry at Princeton and at MIT? Where did you see yourself going?*

TE: It was interesting. I really didn't appreciate this sort of master's versus Ph.D. thing. But in fact, again, an amusing story: Princeton has an undergraduate thesis, which I did. I ended up getting an A+ on it, although it was clear that the professor never read it.

CK: *And what was the topic?*

TE: You don't want to know. Viscoelastic properties of acrylate copolymers, okay? Great cocktail conversation. But it was in the area of polymer chemistry. So when I decided to go to graduate school, I asked the professor for advice. He said, "Well, you ought to go to MIT because Professor Stoutmeyer is there." Okay, sounds good. So when I got to MIT I found out just as he hadn't read my thesis; Stoutmeyer had left two years earlier to go to Dartmouth. So there I was, but MIT was a nice place. I soon forgot that piece of the decision. So I majored in a different space. I left polymer chemistry and did organometallic chemistry. That's part of the answer to the "why MIT" question. Again, the thesis would be on a subject that would make no sense to you whatsoever.

CK: *For the record, what is it?*

TE: Diels-Alder Reactions of Organometallic Acetylenes. You asked! The question was why MIT? So I really went there with a sense that I would go to work somewhere in the chemicals industry. That was really the thought process. I got there, I thought, Well, maybe I'll take a master's degree and go to industry. But I realized, of course, that master's degrees meant you flunked out, and I was doing pretty well, so I figured, Well, I'll finish; and again, it was fully paid, fully supported. So I finished. And then I was going out to look for a position and thought I would probably take a job more on the

business side. But as a pretty good researcher, I got a very nice research job at sort of a central laboratory for Union Carbide Corporation, which paid me quite nicely and had us moving back into the northern Westchester area. That was not too far from my wife's family, not too far from New York, and that seemed like a nicer place than Schenectady, New York or Corpus Christi, Texas, which were where some of the other job offers would have taken us. I did not consider teaching. I was not interested in teaching.

WORK: UNION CARBIDE (1966-1971)

CK: *Were you a teaching assistant while you were in school?*

TE: Yeah, you had to do it, and I didn't mind that; that just wasn't what I wanted to do. And so I spent four years doing basic research at Union Carbide and was promoted to a group leader. That was interesting and enjoyable, but it was pretty clear that I didn't want to do that the rest of my life.

CK: *What were you learning about yourself at this time?*

TE: That my interests were broad, and I did like the interface between science and business.

CK: *How were your leadership skills?*

TE: I would say pretty good, not exceptional, pretty good.

CK: *Were you competitive?*

TE: Yes, but not killer competitive. I was always a hard worker, and I was competitive, but I didn't try and rip the throats out of everybody else in the organization. I would say that among scientists, I was probably a little stronger in social skills and the human side than most scientists, at least most of the scientists I knew, and frankly, most scientists.

CK: *Are you a risk-taker?*

TE: Yeah, although tempered by the fact that I had a family and no financial underpinning. And at that point, I had seven and eight-year-old children. These were real people.

CK: *How about your energy level?*

TE: Very high. That's always been very high. I was always considered good at sports. I still routinely take red-eyes from California. I don't see too many guys with my level of hair

on red-eyes. I've always been pretty high-energy, and I'd say reasonably high-intensity, but not a killer competitor.

STORY CHEMICAL (1971-1974)

CK: *So you left Union Carbide.*

TE: So, I was there from '66 through '71. By chance, in a conversation with a friend, I became aware of a specialty chemicals company that was doing what sounded like interesting things. This was in an era — as you are of my age — you'll recall the story of the musks. There was a big tremor in the '70s about human pheromones and human sex attractants. This company was working with compounds that were thought to be in that category, and they are, in fact, the base notes in perfumes. So when you make a perfume, you mix a variety of different fragrances. Some are volatile, some are sort of base notes, and the base notes are these compounds called musks, and these musks were originally drawn from various animals — the musk deer, the civet cat, and so forth and so on. This company had figured out a way to make those in the laboratory, and it was an interesting technique. The company was highly promoted. And it was, in fact, in an interesting scientific area and an interesting sort of business area, but it was just a terrible company. But I didn't know enough about companies at that time to know that.

The company was Story Chemical. They went public. Again, it was not a well-managed company. They got overextended. They made an acquisition. But for a while, I was sort

of the business and commercial development person. I was that figure that was supposedly translating between science and commerce. The company was actually located in Athens, Georgia, the seat of the University of Georgia, where the founding scientist was a professor and where the facility was. They then acquired a company in Muskegon, Michigan. So I was commuting first between New York and Athens, Georgia, and then New York and Athens, Georgia and Muskegon, Michigan. And again, I had enough energy and drive to do it, but it was clear that the company was getting into trouble. After about three years, they wanted me to move to Muskegon, Michigan and become director of research as well as doing the commercial operations. I'd learned a lot about business at that point, and I knew that was not what I wanted. So I was looking to find another job in the chemicals industry, and I had one, at which point someone introduced me to Venrock.

VENROCK 1974

Robert Waterman, he was the director of this company, Story Chemical. He was a delightful man. He's now been deceased probably twenty-five years. He had been the director of research at Schering Plough, and then on the board of Schering Plough, so he was a chemist and a figure in the chemicals industry. He had somehow gotten talked into going on the board of Story Chemical. I'd gotten friendly with him because he was a lovely man. He also had told me that he was not getting straight information from the management. So when he wanted to know what was really going on at the company he

would talk to me, and we got quite friendly. He had also been the founding director of a company called New England Nuclear, which was a company that made radio isotopes for medical research. It's a wonderful company, acquired by DuPont in the '70s or '80s.

And as I saw my time at Story Chemical coming to an end, I had sort of hinted to Bob Waterman — we had gotten quite friendly — that I would I be interested in maybe getting a little help to find my way to Schering Plough or New England Nuclear. But I didn't appreciate that as a director of a company you do not help employees of that company go elsewhere, particularly from a public company. It so happened that the week I resigned from Story Chemical, I happened to see him for dinner, and it wasn't anticipated, but he said, "I'd like to introduce you to someone I know at Venrock." And in a small world, and this is the 1970s when the venture capital industry virtually didn't exist, I did happen to have two friends in venture capital, which was just short of remarkable: Rick Burnes, who was at Charles River, and a fellow named Jerry Bogert, who was with a small, sort of private venture firm. So I actually knew that the field existed, and I certainly knew the Rockefeller name. And curiously enough, I knew socially and athletically a man named Rick Solomon, who was David Rockefeller's sort of chief of staff. So when this opportunity came up, I talked to him as well, and I think he put a call in to Peter Crisp. So I had sort of two introductions to Peter Crisp.

I think there was an opportunity at Venrock created by the fact that one partner had retired or had left the firm, and the group, except for Peter Crisp, who was the youngster

then, had gotten pretty mature. So they'd actually hired someone on the more electronics side just before I showed up. And I guess they decided, because they'd not had anyone with a background in the physical or life sciences, to give me a chance, even though there wasn't much going on in venture in those fields in those days. So this other fellow, Hank Smith, and I joined Venrock within two months in 1974. I think they only planned to hire one, but I think Peter Crisp decided to take a chance, and it worked out pretty well.

CK: *What made you think that you were well-suited for venture capital?*

TE: First, venture capital, who knew what it was then? It was investing in technical businesses. When you walk out of the office, you see the wall board that we have. The history of this operation — it started with Laurance Rockefeller in the 1930s — was to invest in entrepreneurs and build companies in new technology areas.

I knew something about technology, and I thought I was pretty good at the interface of business and science, which I'd been actually working on for at least the previous three years. So that seemed like an interesting thing. I would understand the technology, and I was reasonably good at the interface, and, I had learned a lot of things not to do in business in the previous company. So it's not so bad to have a failure early in life when you are able to recover. And you tend to learn more from your failures than you do from your successes.

CK: *At this point in your life, is this a dream job?*

TE: 1974, I'm thirty-three-years-old. Yeah, it was, because at that point everyone was a generalist, no one was a biotechnologist. There were people who developed skills in certain areas, but people were much more generalists than they are today. The specialization has really evolved in this field over the years. So I looked at electronics companies, I looked at material science projects and at all kinds of different things. It certainly was very interesting. And what was clear early on was that the people interactions were very important. And again, that was an area where having some appreciation for the science but being able then to interact with people who are technical as well as business people — I found that I had a pretty good facility for the human interfaces, as well as being pretty good on the science side. And that was a pretty constructive combination. And also, there was a good bit of mentoring from Peter Crisp — I'd say Peter Crisp, primarily, who just set a standard of an extraordinary work ethic, and a seriousness about what you were doing, and an approach that said: you are working both as an investor, but really with the company as a director, technically, but a partner. And the concept of you have to do well, but if you do well, you do good, which really reflects back to Laurance Rockefeller, in a way, was a pretty strong theme. Particularly as I evolved increasingly towards the biotech side, where when you do well you typically do good, that has been tremendously rewarding.

CK: *That's interesting. So it is different, the life sciences.*

TE: Apple Computer has done wonderful things for mankind, maybe, in a sense, more than drugs, in terms of opening the world of communications, making the computer accessible. But in a social sense, it's at least a one-off. Although networking, the cell phone, you could argue that those are—But I have to say, it's very satisfying to know that certain of the drugs that companies I've worked with have developed have really had a big impact; that is a very nice feeling, and makes this very worthwhile, provides an additional dimension of satisfaction.

CK: *What was going on in biotechnology in the '70s?*

TE: Nothing. The field really begins with Watson and Crick and the decoding of DNA. The earliest companies that we would call biotech companies were formed in the mid-'70s, and there were just a couple of them. The only one whose name survives would be Genentech, which was formed I think in '76 or '78, but with a quite different focus than it ended up with. There was one called Cetus, which was acquired a long time ago by Chiron, which is part of Novartis, and there were one or two others. But it really got going in the late '70s with the ability to do genetic engineering, inserting genes into, say, bacteria, and then getting the bacteria to become “factories” to produce proteins. And so starting in around '79 and '80, there was a whole cluster of companies which were

formed: Genentech, which was formed slightly earlier is now part of Hoffmann-LaRoche, if you follow these things at all. There were many, but there were at least half a dozen important companies that were formed all around 1980. And of them, today, the survivors are Amgen, which is a name you hear a lot, and Genzyme, which is a company which ended up specializing in proteins to treat rare diseases like Fabry's disease, certain other genetic deficiency diseases. Two companies that I was involved in forming were Centocor, which was acquired by Johnson & Johnson in 1999, and a company called Genetics Institute, which was acquired by American Home Products in '96. Those are all the first generation of genetic engineering and monoclonal antibody companies.

But what happened prior to when that field began to emerge —'74 through '79, I made a bunch of investments, none of them particularly distinguished, in all kinds of areas — electronics, and there was a specialty chemicals company or two, there was a materials science company. But then, when these genetic engineering companies started to form in the late '70s, I think I was one of two or three people in the industry who knew any chemistry or biology; this was a new field. I think when I came into Venrock in '74, there was one other person, that I ever knew about, who had a doctorate in chemistry, physics or biology. A man named Sam Bodman, [AR&D, Fidelity, Cabot Corp] who was the Secretary of Energy in the Bush Administration (2005)—an interesting guy, a bit older than I am. So what happened when this field started: I was relatively knowledgeable because after all, all of these proteins are basically large chemicals, so if

you understand the chemistry, you at least have some insight. I didn't know any biology, nor did anyone else, but at least I knew a little bit. I often used the phrase, "The one-eyed in the land of the blind." So I got started in a bunch of these companies, and things just kind of rolled on from there. At that point, Venrock, and, to some extent, I, became one of the leading players in that space and invested in all of the new technologies that emerged thereafter and participated in probably about half of the major successful companies that emerged in the first five to ten years in the field.

CK: *In your questionnaire, you said you joined Venrock in 1974, and then something changed in 1975.*

TE: In 1975, I was made a partner.

CK: *And you started as a generalist, as you were saying.*

TE: Although, with sort of a leaning towards the physical and life sciences based-areas, but there just wasn't that much to do there at the beginning. And then when the genetic engineering revolution started and the biotech era starts in about '80, that's probably been 85 percent of what I've done.

CK: *Could you take, let's say Centocor, because it certainly has an interesting history, and take me through your involvement from the beginning — the ups, the downs, the frustrations — in other words, how a venture capitalist really gets involved.*

TE: So, Centocor was founded either at the very end of '79 or the beginning of 1980 by a man named Michael Wall. He had had an entrepreneurial success, but not a completely untarnished run previously, and he had gotten together with a scientist who was at the not well-known Wistar Institute in Philadelphia, who was one of the very first people to recognize the potential value of monoclonal antibodies. Do you know a little bit about what those are? Okay.

CK: *I've been working on this.*

TE: When your immune system is challenged by some external element, your immune system creates antibodies to attack, absorb, etc. There are two immunological themes. One of them is antibodies, and the other is the whole t-cell system, which does a bunch of other things. Your system makes whole varieties of antibodies against invaders. The monoclonal antibody concept is the ability to make a single, pure, biologically unique antibody, which does a specific thing, hits a very specific target. And the technique was to find the antibody, typically by challenging a mouse, taking the portion of the antibody

which acted against the target, but then making it effectively an immortal antibody by fusing it with a piece from another biological system.

So you got something which was unique and pure and could be reproduced faithfully over a long period of time. The initial antibodies have significant components of mouse protein, and one of the problems with that is that when you give that to a human being, even if it's targeted to the exact target in the human being, the fact that there are pieces of the mouse protein in it creates a certain amount of antibody response in the patient.

So you have what's called HAMAs, human anti-mouse antibodies generated against this. Anyway, that's probably too much technical stuff. Anyway, the ability to make these singular proteins, these monoclonal, as opposed to polyclonal antibodies, opened that field up. The original approach at Centocor was to use these antibodies primarily in cancer, with the concept that you would use them both to diagnose the cancer by blood tests—you'd develop an antibody which was specific to let's say a receptor or a shed protein on a colorectal cancer—actually, in their case they worked on ovarian cancer. If you've heard, there's an ovarian cancer test called OC-125, which was widely publicized because the actress, Gilda Radner's, who died of ovarian cancer, husband, Gene Wilder, became a great promoter of this product, and it was the first diagnostic in ovarian cancer cell. I'm sure tragically you've had friends who've had ovarian cancer. They would've had this test.

The original concept, you'd have a diagnostic which would identify the cancer in the blood. You would be able to use that, connect it with a radio isotope — back in the nuclear medicine days — to give to a patient to show where the cancer was, and then you would use the antibody as a drug to attack the cancer cells and help to eliminate them from the body. Not so simple. It turns out you really need different molecules to do the different tasks. But Centocor started out with a diagnostic company, increasingly realized that the more important commercial opportunities were in creating drugs, and set about building drugs. Centocor had built an interesting team. They hired a wonderful, energetic CEO named Hubert Schumacher, who had come from Corning, and built an organization that initially focused on a drug for the treatment of septic shock, and that product was called Centoxin. It got a lot of publicity. The company was heading for what they thought was an FDA approval. They got involved in a patent fight with another company, but in the meanwhile created a huge infrastructure. Venrock was the initial investor, with actually a French group, in the company in 1980. There were several subsequent investments. The company made an initial public offering in 1983 and raised quite a lot of capital in the public markets.

CK: *How did you get to Centocor?*

TE: Someone introduced Mike Wall to me. I liked the concept; I think I recognized the potential of the technology, and Venrock became one of the founding investors of the company, and I went on the board. And that and Genetics Institute were my first real biotech boards. I stayed on the Centocor board from 1980 to 1999, so nineteen years. They developed the diagnostics business, which reached critical size, focused a lot of their early attention on the product called Centoxin, built the company, expanded to 1,500 people as Centoxin was coming towards the market; the stock went up to the ceilings, but then the drug failed in its phase three trial. Although it mechanistically did what it was supposed to do, it turned out that it didn't treat the disease. The company's shares went from sixty-two to five in the subsequent year. Of course, a lot of the market upswing had been based on that product's potential, and they expanded, they built their sales force, and they built manufacturing facilities. They had probably brought in a manager who expanded way too aggressively.

CK: *Were they global at this point?*

TE: Well, they were expecting to be. The company effectively crashed after the trial failed. The board, really led by Michael Wall, who came back in as chairman, fired the CEO

who'd come in for the commercial development, cut the company from 1,500 to under 500 people, regrouped and restarted. And the company really was out of cash. We then did a deal on a different product with Eli Lilly, which brought in a critical amount of cash. And then Centocor identified a product which was sort of an anti-inflammatory product, which today is Remicade. It started with a product called ReoPro (the basis of the deal with Eli Lilly), which was a cardiovascular drug, which prevented basically aggressive clotting, sort of post-surgically and things of that sort. And that's a product that today is a \$300 to \$400 million product. But the huge product which they found was the one called Remicade, which had the daring approach of down-regulating certain molecules called TNFs, which are very important in inflammation and immune response. But the concern was that if you down-regulated those too much, you might permit cancers to develop, because these molecules were also involved in perhaps the immune regulation of excessively growing cells, such as cancer cells.

But the company figured out that that balance could be achieved where you could down-regulate these so-called TNF molecules without creating a pro-cancer environment. To bring this home a little bit, there has been a lot of publicity recently — this is off-subject, but just to illustrate — a drug for multiple sclerosis called Tysabri, which has been in the news. It is the best drug for MS, but it so down-regulates the immune system that certain viruses come up in the brain and can be fatal; so there's been a lot of news about this particular neurological virus, which is able to come up because of the immune

suppression — that's a more recent example. That was the concern about Centocor's product, but the concern turned out to be manageable. The drug today is about a \$4-5 billion sales drug. It was the key to the acquisition by Johnson & Johnson for \$5.3 billion in 1999. So, as I told you, the stock had gone from 62-5. The company was cut back severely. It reemerged and recovered, and the sale to Johnson & Johnson was at about \$62 a share. So it was that kind of roller coaster. And in the final negotiation with Johnson & Johnson, I ended up becoming highly engaged. I wasn't the most senior director at that point, but for a variety of reasons I ended up becoming wholly involved in the negotiation, because it's very difficult for the management to negotiate with the people for whom they're going to work after the acquisition. So I got involved right in the middle of that.

CK: *What's the process of vetting a company that you might be interested in?*

TE: It has evolved as fields have matured. So Centocor was acquired by Johnson & Johnson for \$5.3 billion, and everyone was very happy. What has been nice, and I think very gratifying, is the product has grown dramatically since 1999. It was approximately a few hundred million at that time; it's \$5 billion today. In fact, in the paper today, you see that Johnson & Johnson just was awarded \$1.6 billion in a settlement with Abbott Laboratories for infringement on some of those patents.

CK: *How involved did you get in this product development?*

TE: Really, not much in the product development, but again, it was nice on the board to be able to understand the science. I couldn't have originated it. I couldn't really opine on it and say, "Gee, you should do this," or, "You should know where to get that." But I knew enough — and talked to the scientific people on the board — to conclude that the risks were reasonable and supported its development.

CK: *Were you directly involved with the scientists at all? Did you go into the labs?*

TE: No, but there's a fair amount of science talk at the board — there are almost always at least one or two serious scientists on the board. There were in this case. I would talk with them a lot about the science, the risks and the rewards, and make inputs as appropriate. But no one on the outside can really direct or manage the science.

CK: *It's different than a technology company or a manufacturing plant, where people go in and observe the management aspect.*

TE: You are able to track the developments. Management will give you a plan and say, We're going to do this, and we predict; There's a timeline; We'll do this, and the product will do this. And if you understand that well enough, you can find out whether they're

proceeding as advertised. You can talk to other experts and say, “Does this make sense? Is this proceeding?” You understand what other companies are doing if you pay attention to the literature, and it’s rare that only one company is working in an area. So if you’re at least at a certain technical level, you can appreciate what the company is about, but also understand what else is going on in the world, and does that seem better, worse, going faster, going slower? So you bring that amount of knowledge and perspective back to your decision making.

CK: *How emotionally involved do you get?*

TE: Very. As a director of a company, you not only represent the economic interest as an investor, the law — and this really applies more to public companies than private — is that you have responsibilities of duty and attention for all of the elements of the company: for the shareholders, for the employees, for the tax authority, whatever. Now, it’s become increasingly apparent, as the requirements for care have become codified; but I would say that it was always one of the themes that Venrock had, emphasized by Peter Crisp, was you were both an investor in a portfolio company, but you were a partner to management and were part of the company as well.

CK: *So how did you feel when this promising drug—*

TE: Crashed? It's like a kick in the stomach. Sometimes things just don't work — this mechanistically worked, but didn't treat the disease. It targeted what we thought we should target, but it turned out there were enough other things going on in other pathways that it didn't really treat the disease.

CK: *It seems that for a while your hopes were just riding high.*

TE: Exactly. And I must say that's happened a number of times. The human body is very complicated, and the previous experiments that you do, however carefully done, aren't one-hundred percent indicative, in most cases, of what will happen when you start treating thousands of patients.

CK: *How do you handle the stress?*

TE: Well, because I'm emotionally involved, I handle it not that well; I get upset, but I also appreciate that there are times when it may be the end of the company, and then you just have to say, Well, it didn't work. You try to salvage for your investors everything that you can. In most cases, you say, Well, pull your socks up and go on. But the development of drugs is high-risk and high-uncertainty, and you cannot take all of the

uncertainty out, even if you are thoughtful about the risks and the rewards. When you do that major trial and you then find things that you cannot fully explain—It varies a little bit by the nature of the disease. It turns out that antibiotics are more easily predictable from the early stage data, because you can do trials with the bacteria or the fungus or whatever. When you get into diseases like cancer or cardiovascular disease, you're dealing with very complicated and often highly heterogeneous systems and elements.

The smart people can make predictions and will be right more often than not, so, work with smart people and experienced people. But it's very, very difficult to predict not only how this product will perform in a large trial. but the potential of side effects. Just the complexity of the system, which may mean that you do certain things, but it doesn't accomplish what you want, or that there are other secondary or off-target effects which confound these.

CK: *The management can be good, but it's that the product just doesn't succeed.*

TE: Maybe it gets back to the question of choosing how you go about vetting these things. I always place great emphasis on management. The keys are experience, because the best indicator of future performance is past performance; high intelligence — are they best in the field, best in class. Particularly when you get to the science side of things. A lot of reference checking. Particularly in the sciences, it's reasonably unambiguous who's

good and who's not. Even when there is high competition: Jones likes to do it this way; Smith likes to do it that way. You can usually gain insight into the fact that Jones is really good and Smith is not so good, by talking to ten people, twenty people.

CK: *And you do that work?*

TE: I do less now, but in those days that's what you did. Then you really have to conclude that the target or the area that they're approaching is tractable scientifically, that their hypothesis about what they're trying to do is something that could be done, and again, that they have a plan and approach, but again you'll try and talk to other experts, who say: Well, that could work, and Smith is the guy to make it work, if it's possible to do that. Or, No, that's going to run into these kind of problems; You really should be aware of: if you affect this, you're going to do something over here, which could create some real problems. So you do as much checking on the hypothesis and the approach as you can with other experts.

And then, as you get to the question of the business, how long, how expensive, and if you are successful, will you be able to bring the product through the regulatory hurdles and to market. For example, if you want to develop a drug for what is a very large market, let's say treatment of asthma or certain kinds of cardiovascular diseases, you want a drug that is going to be prescribed by family doctors, and you have to have an enormous sales

force to deliver a product like that. And that is probably something that a small company can't take on. So that would be the kind of product you would have to partner with a Merck, with a Roche, with someone like that. A cancer drug or a specialty product for hemophilia, or something a small company might be able to market.

So you really have to think through the commercial strategy as well as the ability to finance the timeline to develop and how you will go to market. I would say in the early days, you didn't really know quite as accurately about that as you do today, because no one knew really how long the timelines were going to be.

But I think with the experience that has developed over the past thirty years, there are pretty good paradigms to determine what things will cost, how long things will take, can you really deliver that product to the market or not. There are a lot more factors in the equation now. In part, in the early days you were also trying to address the low-hanging fruit. Could you come up with a drug that would increase red blood cells, Erythropoietin; Could you come up with a drug for short stature - human growth hormone; Interferons for anti-inflammatory and immune conditions and certain things of that sort. Those were products that were kind of obvious. If you can make them, there's certainly a market for them, and maybe it doesn't matter how long it takes or how much it costs. Now it's much more complicated. The matrix is a great deal more complicated.

CK: *What was the market for biotechnology when you were starting out? You said there was no biotech field.*

TE: Effectively, it was zero in terms of engineered products.

CK: *How about raising money?*

TE: Yes. Because you could make the case that if you could make these things, there would be a market for them. For example, many of the products such as immunoglobulins, which are immune drugs, were extracted from pooled blood. There was a whole blood fractionation industry. Companies like Baxter Laboratories made and isolated certain kinds of fractions from blood which were used for various things. Most of the genetic engineering products are single component examples of things which may already occur in your blood. Erythropoietin occurs in your blood; human growth hormone occurs in your blood. So, many of the diseases that you treat with genetic engineering are diseases of deficiency, so what you're doing is adding in some of the protein, or dealing with excesses by targeting something which will reduce the excesses. Many of those products exist in the body already, maybe too little or too much of them.

So in principle you could extract them from the pool by blood fractionation. The problem is it's difficult, cumbersome, expensive, and some of them you couldn't extract.

And in the process of extracting them — and I'll give you an example which goes to genetic engineering: In concentrating blood to find certain desirable materials, you may also be concentrating viruses as well. Hemophilia is a case in point. Hemophilia is a gene deficiency disease. If you're of royal origin, which maybe you are and maybe you aren't, you might be lacking the gene that **codes** for factor VIII or factor IX, which are key in the clotting of blood. So that if you're a hemophiliac and you have a severe bruise or cut, you can bleed to death. The way that was treated up until 1987 or 1988, was thousands of people donated their blood for plasma recovery, but they also would extract from that blood a series of proteins, and you could isolate from that factor VIII and factor IX for the treatment of hemophilia. That was what was done.

And they became more and more skilled in purifying these, so that you got increasingly pure product. The problem was that the characteristics of factor VIII and factor IX were not so different from the characteristics of certain viruses. So, in concentrating and purifying the factor VIII and factor IX, you tended to purify and concentrate certain viruses, and in particular HIV. So in the '80s, as AIDS/HIV emerged, many hemophiliacs who were given factor VIII or factor IX produced from blood fractionation ended up with viruses, in particular AIDS. So AIDS was quite common in the hemophilia community in the '80s. When you have the genetically engineered products, you start with the gene that makes factor VIII, you insert that into a bacteria or into a certain kind of human cells which have been isolated and cleaned up. And so that makes only factor

VIII. There never is any HIV virus around, because that only comes from the blood of someone who's got the disease. So the advantage of the genetically engineered drugs is, you have to purify it, but you make something which is pure, it's not contaminated with other stuff that you would find in human blood if you are trying to separate it. That example is one of the stories of Genetics Institute, the other company I was involved in early on.

CK: *How did you get involved in Genetics Institute?*

TE: The company was founded, again, in 1980, founded by a couple of scientists at Harvard. These were the leading scientists in the Harvard community in biochemistry and in genetics — a man named Mark Ptashne and a man named Tom Maniatis, who had just come to Harvard. The company started out at Harvard, although Harvard was very unsupportive. Harvard was sort of anti-business at this point in time, and also there was a real resistance in the Cambridge community, which was pretty liberal and left-wing, about the idea of having these “dangerous organisms” present in their community. So there was a lot of pretty negative publicity at the time.

CK: *And they're anti-business in their science department?*

TE: No. Well, Harvard was sort of anti-business, the university. They weren't much interested in licensing technology for commercial use. The position was "science for science's sake."

CK: *I'm thinking of George Doriot.*

TE: MIT has always been very commercial. At Harvard, until recently — the business school might be pro-business, but the college of arts and sciences, not. The team that started Genetics Institute found their way to a couple of venture firms. The scientists had gotten connected. One of them had a neighbor who was a middleman. He connected them with one of the Boston venture capital firms called Greylock, which is one of the traditional firms. The senior partner there, whom I guess I had met in another context, knew that we were interested in, and knew I had some knowledge and experience in, this space. He might've called Peter Crisp who referred him to me. I'm not even sure that he knew me. But anyway, we got connected. And then the third connection was to a man named Benno Schmidt at J.H. Whitney. He was one of the great figures in the venture business. He had been the head of J.H. Whitney from the late 1940s until his death — I'm going to say he died about '98 or '99. He was a major figure. I think he was one of the original proponents and on the board of the National Cancer Institute. He's a very important

figure. So they somehow got to Greylock, to J.H. Whitney, and to Venrock, and we ended up funding the company — we all did our homework. Benno Schmidt, just by his presence, became the lead and was the chairman of the company until he got on in years at which time I became the chairman in about '93 or '94. And in a curious twist of fate, Bill Paley, the legendary CBS guy, got involved. The middleman sort of found his way to Bill Paley. It was a four-handed deal originally — but for Paley, it was not really his area of expertise. And he was quite old and actually already becoming quite ill at that time. So I was on the board originally with Benno Schmidt, Dan Gregory, and Bill Paley, which was an interesting experience. As it evolved, Paley passed away fairly early in the company's history; Benno Schmidt was very much in the lead role, but he was not highly technical, so I was certainly the most technological of the investor directors. I got quite engaged with the company. They lost a major patent lawsuit with Amgen on Erythropoietin, which was a major setback for the company. And they also had gone public by that time. And after that setback, they made a partial sale to American Home Products. I think that was '92. And the deal had American Home buying a majority interest, but with an option to buy the remainder a few years later; it was a fixed price option.

And the challenge during the period of partial ownership was the integration of American Home, as on the board they basically had a control position, but left the company more or less to run independently, but with a lot of oversight. And so I had a major role

interacting with the management of American Home. And I ended up getting quite close to one of the people, who subsequently went on to be the CEO of Pharmacia and Upjohn and then Schering-Plough — a man named Fred Hassan. And when Benno Schmidt got on in years, I became chairman and was involved in the final successful negotiation of the back end of the deal with American Home, where they ended up paying, I think, a full-price and more than they had anticipated paying. And that was a nice outcome again.

But that company ended up developing the hemophilia drugs, the factor VIII and factor IX, which is why I told you that story earlier, They did develop Erythropoietin, even though they lost the patent suit in the United States; they developed it in Europe and Asia. So that was a second very important product. A third important product was something called bone morphogenic protein, which you don't hear about. But if you've had friends who've had severe compound fractures—do you have friends who ski — sometimes you get bad fractures that don't heal properly. What they've done in the last five or ten years is add an ingredient, particularly if it's not a juvenile or a pediatric case, that enhances the bone growth, and the re-creation of the full bone matrix, and that was a product that came out of Genetics Institute as well. That's marketed today by Medtronic; there's a competitive product marketed by Stryker, and those are a couple-billion-dollar products today.

CK: *Are you going out and finding these companies, or are they coming to you?*

TE: In my case, I guess in both cases — Centour and Genetics Institute — they sort of found us. In other cases, we heard about developments and went out and called on the companies. It's fair to say that I have never been much of one to go walking down a university hall, find a researcher and say, "Gee, we should start a company." There are people who do this, or claim that they do this. More typically, I have responded to either the entrepreneur who's formed a company and somehow finds his way to us — because once we'd done a couple of these, we had a fairly good presence as people who were invested in this space and were decent people to work with. So a fair number of things would come into us. But part of it was just keeping very much in the network, hearing about new companies that were formed, or having people that you worked with in a Centocor tell you about a company that was being started over here, that they were interested in, and then going through the vetting process, which we'll talk about later.

CK: *Who are your partners when you get involved? Do you partner with other venture firms?*

TE: I always typically partner with other firms. I always felt that, firstly, these are companies that will typically need a lot of capital, and in very few cases were they located in New York, so I think it's always desirable to have at least one director a little bit closer by, just able to be a little bit more available perhaps physically; although as electronics have

improved, that's become somewhat less important. And just sharing the work with people who you feel would make contributions by being smart, hard-working, and able to give good advice to the company. So I've always liked to partner, but it does make a difference who your partner is.

CK: *Do you often partner with the same venture firms?*

TE: Probably with a set of venture firms. And maybe it's as important the individual in the firm as it is the firm itself, although firms have cultures and styles; frankly, this is still today a somewhat personalized business. I would rather work with Joe than Sam.

CK: *It seems like you have certainly acquired an enormous amount of medical knowledge.*

TE: A fair amount, although I'm now forty years from my doctoral degree, forty-three to be exact, and it was in chemistry, and this is really a lot more biology and medicine. I would say I'm sort of an educated layman. But what one has developed over the years is a pretty good network of people that can give you advice about something if you need to know. Usually, Venrock will have young associates, venture partners or vice presidents, who are very fresh, very knowledgeable, and much more current technologically than I

could be, who provide an awful lot of science and medicine expertise which I don't really have.

CK: *These other venture firms that you say you tend to work with, do you see yourself in some way as a 'band of brothers' going through something?*

TE: Yes. More so in the past, when the field was a little smaller than it is today. There are now 600 plus firms, and perhaps 50 or 100 firms who invest in these spaces. Also, many people who I worked with 25 years ago are not so active anymore, or not active at all. In fact, I'm not making a lot of new investments these days. When you make an investment, you are making a five to ten-year commitment, in a sense, and I'm not sure I'll be making too many five and ten-year commitments.

CK: *I wanted to ask you, when you get involved, what is the life of this involvement?*

TE: Again, this is now speaking of the biotech world, which is quite different than information technology. For a therapeutic product, from the time it is identified and characterized, it's at least ten years to an approval. And it might take quite a while to identify it. Suppose you say, I think that the way to treat breast cancer is to target this receptor or pathway. Again, you've heard that certain kinds of breast cancers have

certain characteristics. If you correctly identify that, you're going to have to find something which targets that receptor specifically and then develop it. It may take you two or three years to properly identify and characterize the right attacker, but then it'll take the better part of ten years to get that product through pre-clinical, phase one, phase two, phase three and approval. So the overall process could be easily a dozen years.

Now, that's therapeutic products. Medical devices, which we haven't talked about, take significantly less time, maybe half that from beginning to end, five, six years. And diagnostic products: you've heard of the PSA tests, that's another cancer test. It might be three or four years. There's the ovarian cancer test, the drug, the OC-125 — I think it was Gene Wilder whose wife was Gilda Radner, she died of ovarian cancer — that drug was really, until today, the one diagnostic — it's not a perfect product, but it was the best diagnostic for ovarian cancer. Diagnostics, shorter; devices, a little longer; therapeutics, easily a dozen years. Now, you can create value earlier than product approval. And if you will, in the days when companies could go public early in their lives, you might not have stayed around after the companies went public. But you recognize that when you embark on these projects, they're long-term. Not that they can't be handed off to another Venrock partner; none of us are unique. But I think if you're pursuing an investment in this space, you really should be prepared to sign up for a pretty long haul.

CK: *Does that make it more difficult to raise money?*

TE: Well, Venrock is a diversified firm. So we do information technology investments, health care investments, biotechnology, etc., and in the last five years, alternative energy clean tech investments. So the timelines for investments in those varying sectors are diverse. But when you think about health care funds, you do have to be aware of the lifecycles. And many of the health care firms, which are dedicated health care firms, will have a mix of device investing and perhaps something called specialty pharmaceuticals, where they will bring in products that are perhaps on the market, or almost on the market, and that will shorten the time. But if you're talking about discovering a new molecule for a new target, and bringing that all the way through, it's more than ten years.

CK: *So, Venrock functions differently than, let's say, Frazier Healthcare.*

TE: Yes and no. Frazier does some of this; we've invested together with Frazier. We do some of the same things. They may do more of that sort of specialty pharmaceuticals. For example, Chuck Newhall's firm [NEA] does a lot of that, Jim Blair's firm [Domain] does a lot of that, but they also do early stage stuff, exactly as we do. In fact, we also do later stage stuff. It just happens that most of the stuff I have done has been starting at the quite early stages.

CK: *You have a California office. Is there a difference between the East Coast and West Coast culture in venture capital that you're aware of or have experienced?*

TE: Yeah. First, the West Coast culture I'd say was dominated by the Silicon Valley — more information technology culture, which has been perhaps more engineering, more fast-moving, aggressive technologies than let's say than health care. Silicon Valley, California, perhaps more open to rapid change, sort of aggressive development, not in any negative sense. Perhaps more open to the new thing, the new ideas. There's also a tendency to invest and work very close to home: "if you can't drive to it, you don't do it," which I think is — is nice — there's a positive to it in that you really can be engaged and involved, and that's good if you really have something to contribute. On the other hand, that assumption is that nothing else in the other 99 percent of the world is useful, which is probably not quite acceptable. But what has developed in that West Coast area is there's a terrific infrastructure. So there are lawyers and bankers and managers who are all in that immediate area. So it is more easy to assemble a venture say, between San Francisco and San Jose than it is probably anywhere else — maybe Hong Kong now — in the United States. And there are more people and more investors. The subculture there is dramatically more developed.

In the semiconductor and the information technology world, I'd say there's a high level, although the risks can't be higher than in drug development, but the risks are resolved more rapidly and with less capital. So the philosophy is, if you haven't failed, you

haven't really tried anything out there, because you can get to failure pretty quickly without so many dollars. Unfortunately, in life science failure may take a long time and a lot of dollars. Now, they do health care investing too, and they have the same issues that we do. But if you're talking about differences in the culture, West Coast is a faster-moving, more open, more risk-welcoming culture with this wonderful infrastructure for doing new things, and new companies, tempered by the fact that it's kind of expensive to live in Palo Alto and so forth. But putting that aside for the moment, when you get into how you do health care investing, it's going to be not that different because issues are the same — you can't do a drug in six years there and twelve years here; that doesn't change.

CK: *And the culture on the East Coast, how would you characterize that?*

TE: Again, probably, at least in terms of the venture world, the Boston-Cambridge area would be the most similar, in fact got started earlier than California. General Doriot etc. But it clearly has been overtaken substantially by the San Francisco-Silicon Valley area. Somewhat less aggressive, somewhat less open to change, somewhat more conservative and traditional. Nothing surprising there. But again, with the MIT-Harvard access, which some people say is as rich as Stanford-Berkeley—Harvard, as I said, had this history of non-commercial orientation; MIT has always been very commercially oriented. But again, I'd say somewhat less open than San Francisco. Less sunshine, right? Then, if you

come down towards New York, New York has never really had a tremendous scientific entrepreneurial venture capital set of companies. Even in health care, where you've had all of the pharmaceutical companies in New Jersey, the number of new health care companies, new biotech companies, in this space has been far, far less than Boston, Cambridge, or California.

CK: *How has biotech changed since the late '70s, early '80s?*

TE: The field came into existence then, in the 70s and 80s. There were handfuls of companies and handfuls of investors. It's now a large, well-developed field. I think an average of three, four, five billion a year invested in health care in the last decade, with probably two-thirds of that, at least, going into biotechnology. There are 4,000 biotech companies, 3,000 or something private, 700 public. It's a large field. So that's one piece. The other is the harsh realities of how difficult it is to develop drugs, how long it takes, how expensive it is, how prone it is to failure; after passing many hurdles, you can still stumble at the last one. This has made it a harder field in which to achieve good returns, which, after all, you have to do to do this business, and therefore makes it harder to raise capital.

Also, significantly affected — since these are companies, these are companies that have to raise large amounts of capital, because it takes, in the minimum four or five years for

diagnostics, five or six for a device, and maybe a dozen or more for a drug. You have to fund all of that before you have revenues. So you either have to get partnership money from the big pharmaceutical companies or device companies, or public money. Initial public offerings market has been, since 2001, in health care, erratic at best and is nonexistent right now.

CK: *There was a downturn in 2001.*

TE: 2001. That was for everybody. Health care actually wasn't quite as badly affected as technology when the technology bubble burst, but badly.

CK: *How is Venrock responding to today's downturn? Have you had to change your strategy?*

TE: Yes. Financing has just become a much more important element in all of your strategic thinking. There is a recognition that the public markets, as I say, they are virtually closed right now, and maybe they'll reopen as the year goes on, and in '10 hopefully, or '11 likely. Therefore, your capital has to come either from your syndicate or from corporate partners, or other financial entities. It's not going to come from the public, which makes you perhaps more selective about the projects you choose, and certainly you have to

spend a great deal more time raising capital than you did in the past. I would say the hurdles become higher for choosing to make investments that are capital-intensive.

In contrast, let's say a software investment, which may take only a few million dollars to get off the ground and try to prove the concept; that plan may become more attractive than at a biotech company, which may need tens, perhaps hundreds of millions of dollars to get to a product. If you get those right, those are wonderful payoffs, but you have to appreciate that you will have significantly more difficulty raising that kind of capital in the current environment. So competition's increased, the number of firms capital raising has become more challenging, and public offerings are non-existent. (They were never an exit strategy, but they at least created the opportunity for liquidity.) That pathway, for the moment, is shut.

CK: *What has been your relationship with the FDA?*

TE: I have no direct relationship with the FDA. Some people in the field have gotten so engaged — particularly some of the people who have true medical backgrounds, or have perhaps come from companies that have had a lot of experience there. But the companies that I'm involved with continuously interface with the FDA. But usually, the people who go there are the experts, the management and/or the experts. I think the FDA in recent years has become highly risk-averse and has emphasized safety versus outcomes. Drugs

need to be safe, but the fact is that nothing is perfectly safe. And to achieve perfection in safety, you will approve virtually no new products. So I think there's been something of a loss of the balance there. Part of that is, companies aggressively wanting to get products approved because that's their business. But I think the FDA has become excessively risk-averse, which makes the process very long. We have to do more trials, more patients, therefore more expensive, and probably delays getting valuable therapeutics to important populations who could use them.

CK: *I recently read an article [June 2009] about combining genetic data, and using computer algorithms. A merger of Internet technology and life sciences. And it mentions the Anthony B. Evnin chair at Princeton. The article discusses this new mapping, and I was wondering how that's going to affect research.*

TE: There are two pieces of it, I guess. One is just the knowledge of genetics and how the genetics control and influence what goes on in the body. And as you know, they sequenced the human genome half a dozen, ten years ago now, but they continue to learn about it—and some things are relatively straight-forward. There are certain single genes, as we talked about in hemophilia. Many phenomena are very complex, and they're still only beginning to understand them. For example, although there are only twenty-something thousand genes, there are several hundred-thousand proteins, because a gene

may end up coding for a variety of proteins, because there is sort of processing, which means that the complexity can expand to a much greater extent than the number of genes.

So there are more proteins in the body than there are genes, by a long shot. For example: There are now a variety of diagnostic kits from companies like Affymetrix and Illumina where have they have these arrays—they put little bits of genes on the arrays or little bits of antibodies or proteins on the arrays, and they can go fishing in blood samples or in dissolved cancer cells to look for certain things. You can go on fishing expeditions, because you now can bind the entire genome or all of the monoclonal antibodies or all of the RNAs on a chip, and then use that to identify a disease and determine if a patient has a certain component which is indicative of a cancer or of a certain cardiovascular condition.

So that's where a lot of the information that comes out of the human genome and knowledge of genetics comes into play. You can now use this extensively in diagnostics. You can use it in trying to figure out disease pathways. And since the information is now rapidly available on the Web, if you will, as all publications are now, so in that sense, that information can then get disseminated a great deal more rapidly. Now, that's one piece of it. So increasingly, the knowledge from the decoding of the human genome, knowledge of how the genes code for proteins and the complexity, therefore. That's one piece of it.

The second piece, which may be what you're getting at, is the whole area of personalized medicine, of the individual's genetic makeup. And there's increasing interest in the ability for each of us to have their genes sequenced. So you're 99.99 the same as I am, but the .01 difference is — well, more than that — there are unique patterns that you will have that no one else has, some of it inherited, some of that the result of the environment. And as it becomes less expensive and less time-consuming to do a sequence, your grandchildren will be able to have their genome sequenced for \$1,000. Now, what do you do with that information? Increasingly they will be able to use that information both in a predictive way — there is a susceptibility to something, there is an inherited disease or not, Tay-Sachs or something, if you're familiar with it. But those are relatively easy to diagnose today. But other things which are more subtle—Most of the time in medicine no one says, "You're going to get cancer." They say, "You've got increased risk of getting cancer." No one is going to say, "Your cholesterol's high; you're going to die." No, the answer is, "Your cholesterol is high; therefore, you are more susceptible, you have increased risk." So there are very few things where you say, "Yes, absolutely." But the ability to do individual genomes relatively inexpensively and quickly, and the ability to then say, with that knowledge, that you should be taking this statin versus that one, or statins aren't going to help you a lot because of this condition — so maybe you have high cholesterol, but you don't want to treat it this way, you want to treat it another way—That will be the other case where the information technology is going to come in, in an increasingly important way. But just doing the genome is only the first step; you then

have to figure out what to do with that information. I don't know if that's where you're headed.

CK: *This certainly will impact companies.*

TE: It will. So how does that impact? It could impact in two ways. One, it may tell you in advance whether a particular drug, which targets a receptor quite specifically, is going to be effective in a population. Because if you don't happen to have that particular receptor, even though you may have the disease, the drug isn't going to work for you.

For example, you hear about all the cancer drugs that treat successfully 30 or 40 or 50 percent of the patients that receive the product. This is what they call the targeted cancer drugs. The original old cancer drugs were, what they call, cytotoxins; they were simply poisons. But because cancer cells grow more rapidly, they tend to take up more of these drugs and be more responsive to cytotoxics.

So as you know, if you've had friends who've been treated for cancer, they lose their hair, they have severe side effects, those are substantially from the cytotoxic drugs, which are basically poisons. But they poison more rapidly the rapid-growing cells, such as hair cells, such as certain kind of skin cells, such as certain of the sex-related cells.

And they can apply, if you will, to all cancers, but not that successfully. But the targeted therapies, (the magic bullets, so to speak), address a specific receptor or a specific target that may exist on certain kinds of lymphomas, or breast cancer cells, or certain kinds of non-small-cell lung cancer. And there is a way of determining whether the patient has the receptor for which this magic bullet is designed. If the patient does, that treatment can be effective; if he/she doesn't, it's probably not going to work.

CK: *How will this impact venture capital investments in these more targeted ventures?*

TE: The advantage is, the hoped for ability to target; that it'll make clinical trials more efficient because you're only going to bring in patients that the drug might work for. So they might be shorter, cheaper. On the other hand, when you have the drug, you should be able to target the population to give the drug to, but it will be less than all patients.

So, smaller revenues. Arguably, you may be able to charge more, or at least not be forced to reduce prices, because you say, Hey, it's going to work 90 percent of the time," as opposed to 30 percent of the time; therefore it's a more efficient use of the health care dollars. I think net-net it's a positive for investment in biotechnology, because you might be able to work smarter, therefore, perhaps somewhat reduce the timelines to get to new products. And for a small company, a drug that treats 10,000 people is still a very, very important product, even if it might not be that important for Merck, because the revenues

from that will be very large for a company that has no revenues. For Merck, it may be too small, it may be a relatively small investment. So I think net-net that's positive, and it will open up more opportunities, and I would think the opportunities could be acted on more efficiently, and the end results, while perhaps they may be less large, will still be very attractive for smaller companies.

CK: *Will it stimulate the development of more small companies?*

TE: Yes, counterbalanced by the fact that it's just difficult to get funding. The problems that we talked about before won't disappear.

CK: *Thank you for indulging me. Is there any other company that really stands out in your mind as memorable — that has a great story, a teachable moment.*

TE: Again, in the case of Centocor and Genetics Institute, one of the things that I feel so good about is, one, being able to develop products which were truly important products for human disease. They both experienced major setbacks, from which they recovered and went on to a successful outcome. And again, they were characterized by exceptional management, very good scientists, so they're proving a lot of their points. Other interesting companies, let's see.

CK: *Maybe ones that failed and kind of kept you up at night?*

TE: A little statistics: I think I made about sixty-five investments in thirty-odd years here. Obviously, fewer in the early years, some years nothing. About fifty of those were probably in biotech. So that's the better part of 80 percent. Failures, which means we lost almost all of our money or all of our money, would be pretty close to 20 percent — some of those not in biotech, but many in biotech. Interestingly enough, a lot of the biggest financial successes were not necessarily the most important companies. For example, if you made an investment in '98 that went public in '99 or 2000, you probably made a lot of money if you sold then, even if the company wasn't very good, because it may have gone back from \$1 billion to \$50 million two years later.

But timing, and if you will, is that luck? I don't know if it's luck. I suppose being in the right place at the right time has an enormous influence on returns. The best returns, as I say, were not necessarily the most important companies. The company that I feel the best about, in addition to the two I described, there's a company called IDEC Pharmaceuticals. And actually, the CEO who built that is a partner of Venrock now; he's in his second career, Bill Rastetter. That's the company that developed the drug Rituxan, again, a cancer drug; I think it's a five to six billion dollar product today, very important in the treatment of lymphomas. And that was a company that virtually failed in their sixth or seventh year. You could've bought the entire company for \$30 million; at the

end, when it merged, it was a multi-billion-dollar company, and that was many, many years further along the way.

Lesson here is, again, these companies all go down and have their crisis moments. If you can recover from them, you might go on to greatness, but you might not. Interestingly enough, in a company like that, if you had held all of your stock, an enormous amount of the value creation might have occurred subsequent to the distribution. So in the case of IDEC, for example, Venrock realized about a three or four times multiple on its investment. If you had then held the stock for the next decade, you would've gotten ten times that; you might have gotten a thirty-fold greater return.

One of the interesting differences in the business twenty years ago, and perhaps being heavily involved with the Rockefeller investors then, you had a sense that if you distributed shares in strong companies, people were liable to hold them and perhaps get the benefit of subsequent growth. As the field has become highly professional, and most of the investors are institutions, you must assume that if a company has gone public and you distribute shares, they will be sold *instantly*.

We know that simply because for an institution managing \$50 billion, if they get a distribution of even a large amount, three to four million of stock — remember, they're going to be a 5 percent investor in Venrock, so if Venrock distributes even a large amount, they're going to get a few million dollars worth. They don't know the company,

it's too small a holding for them, so it's sold like that. So that the opportunity for rewards that would happen subsequent to the distribution isn't there; one assumes that if there is a distribution of stock, it will be sold instantly. Therefore, you might as well sell it in the partnership. So you're not passing along a security that's going to be put in a vault, for the most part. In contrast, Venrock was an original investor in Intel Corporation and Apple Computer, and in a one-off, Cisco, names you've heard about. If you had held those stocks for the subsequent 20, 30, and in this case 40 years, you'd have done very well indeed.

There would've been ups and downs. But in today's environment, those positions would've been sold instantly upon distribution. Now, in the world that we live in today, where the public markets are so constrained, almost all of our liquidity events or realization in the last few years have been sales to large companies for cash.

So the issue of stock to distribute of late has been less, although it has been some. I kind of like the old system where you built companies, and the stock that you gave out, hopefully, was kept for a long time, and it was a good thing. An aspect that was perhaps unique for Venrock, our early limited partners were members of the Rockefeller family. For them it was particularly attractive to get securities with a high value and a low cost basis, because they could then turn around and use those for charitable giving, and that was a very tax-efficient way to make charitable gifts. But the concept of long-term

holding of securities after they are distributed from the venture firm is something which, I think, is no longer the case in this environment.

CK: *You joined early on in the '70s, so you've been here quite a while. What was your relationship with the Rockefeller family?*

TE: In the early days, they were the sole and then the substantial limited partners. There was a very light governance relationship. And over time, our limited partner distribution was increasingly institutional. And since '95, we managed parallel partnerships for institutional investors and the family, and then last year we formally separated from the family office and moved to this location from 30 Rockefeller, although the move would've happened in any event just because of some real estate space issues. But we continue to manage parallel partnerships for the family and institutional investors. The family activities are now a quite small proportion of our total activities.

CK: *Did you, yourself, have a personal relationship?*

TE: Yes, but limited. I've gotten to know a number of members of the family somewhat, but not closely. Peter Crisp, I think, was quite close to Laurance Rockefeller, but he would've been the last of the Venrock Partners to have a close relationship.

CK: *Because of the generations?*

TE: Because of the generations. Although I know some in my generation and the next generation, some of them I know somewhat socially. But the governance was also light; there's never been a member of the Rockefeller family who was a general partner. They've always been limited partners, although wonderful limited partners. And again, their culture I think was influential. As I talked about: doing well but being particularly pleased when you do good.

CK: *How do you see Venrock's identity in contrast to other venture capital firms? What does Venrock stand for?*

TE: I would like to think it did, and still does have a reputation for a level of behavior and an approach to investing which is of the highest quality in the sense of doing things the right way; being supportive; being a serious, good investor, but being a good partner to the companies you're involved with; and doing the best thing for the companies and for all of the shareholders; being a particularly good corporate citizen. And at least having in mind doing good while doing well, but you can't start out to do good and hopefully do well; you have to do well, and recognize that by doing well, you'll do good.

REFLECTIONS

CK: *Could you reflect on what continues to drive you in this industry, and excite you?*

TE: First of all, there are companies that I'm involved with and partnerships that were raised that are still in process, and I think you should finish, as best you can, things you start. That's one piece. There are just things that I was involved in, I originated or raised capital for, either the partnership or the companies, and I feel very committed to seeing those outcomes.

Two: The wonderful aspect of this business is working with very interesting, very smart, very dedicated people, both within your partnership, but also, even more so perhaps, in the companies that you're involved in. And it's just stimulating and exciting to work with people who are doing new things, who are thinking at levels that you can't begin to think at, that are creating new products, new activities, and potentially, as I say, making a real difference. So that is great. In fact, half the time it's really difficult and unpleasant and not much fun, but the other half is pretty wonderful. Like any business or life, a lot of it's difficult and occasionally unpleasant. You have to raise money when no one wants to give it to you, you have to fire people, close things down. That's not fun. Or a project fails. That really hurts, so you live through that. But that's sort of life, isn't it? But that, and, frankly, the intellectual stimulation and learning. In this business you don't sell the same story every day. You come in and there are new things to learn and people to meet,

and that continues to be exciting to me. And you can still make a little money doing this, and that's not all bad,

CK: *In some way do you see this, as Chuck Newhall characterizes it, as a romantic quest?*

TE: It's a piece of it. I think you cannot lose sight of the fact that it's an investment business. You have to remember, as human beings we tend to want to remember the things that are nice and wonderful and to try to forget the unpleasant ones, but there are plenty of those. But this is an opportunity to work with the smartest people in the world and to do innovative and important things. I think when I came there was one other Ph.D. person in the industry. Now there are probably 2,000.

CK: *What are the rewards, specifically, in being in the life sciences? You've done your IT and other types of things, but primarily you said 85 percent of your time is devoted to the life sciences.*

TE: The rewards, I would say that I talked about: when you do well, you generally do good, because these are products which benefit people. In addition to the products we mentioned, companies I've been involved with contributing major contributions to antiviral disease, and I think perhaps to some of neurological disease, potentially

Alzheimer's, and then the MS drug, Tysabri, came through one of our companies that I was involved with, also some other cancer drugs. But really perhaps a dozen products that made a difference, and while that doesn't sound like so many in thirty-five years, but it is not insignificant.

CK: *You must come across people who are talking about having certain issues, and you know that you have been involved in their treatment.*

TE: Yes, that has happened somewhere along the way—That's pretty fun. The other thing is that, particularly in the biological sciences, you attract scientists as opposed to engineers, but I have had an opportunity to work with and interact with some of the brightest and best people in the medical and biological and chemical field. If you count Nobel Laureates, I've probably interacted with fifteen Nobel Laureates and many others almost as accomplished—and that is just delightful, and it is provocative and interesting. Some of these are not easy people to work with, but it's still pretty wonderful. I've been on the board of Rockefeller University for a bunch of years, and I was involved with Princeton, and worked with some of those same levels of people. But it's nice to meet a lot of people who are in the top-hundredth of one percent of the intellect of the world. What you're definitely not trying to do is prove that you're smarter than they are, because you know you're not. You don't necessarily get the extraordinary, brilliant business

managers on that side, but you get some of these extraordinary scientists and clinical innovators. And of course, you have innovators in the semiconductor business, and you may get more interesting managers and businessmen, but the involvement with some of these extraordinary scientific intellects has certainly been a joy.

CK: *When you see the future of life sciences, do you have any expectations? What's possible?*

TE: Some of the things we've talked about already. The understanding of how genetics influence disease, influence development, influence aging, is going to increase and will enable one to identify drugs which will be more effective, and maybe devices, but particularly drugs. Certainly it will improve the diagnostics. They're going to be diagnoses that predict, if not the actual occurrence, the likelihood of occurrences of those conditions. That will lead, in some way, to better prescription of drugs which are more likely to be effective for your particular condition and your unique nature. The extent to which your flu or your cardiovascular problem is different than mine, because of your genetic makeup, which goes back to your ancestors, goes back to environment, goes back to, etc. So those are pretty exciting and important.

CK: *Will we wipe out cancer in our day? Or AIDS?*

TE: I think you can convert many what are acute diseases today. For example, HIV is now a chronic disease as opposed to an acute disease. You will eliminate some of these as well. Cancer is such a heterogeneous set of conditions that no one is going to come up tomorrow with a drug that cures cancer. As George Bush would've said, "Not gonna happen." But I think, again, there are some opportunities to convert some of these from acute to chronic diseases, and to treat some of them. But I guess there's been some stuff in the papers recently about the disappointment with the progress that's been made in cancer since the war on cancer started. But, for example, you can now treat blood cancers. You can treat certain pediatric cancers. But the solid tumor cancers remain very difficult, partly because they're heterogeneous, partly because they're resistant to most treatments. In twenty years, I think you're going to see major progress, but to say that you'll eliminate cancer, I don't know.

CK: *I was just wondering what your hope would be.*

TE: The whole question of aging, how much impact you can have—There was all this talk—You see these ads in the paper from Dr. Mehmet Oz now about taking resveratrol. Aging, again, is an enormously heterogeneous process. Things wear out. Maybe your cardiovascular system will be better, but living isn't wonderful if your knees are gone and

you can't stand up. If you have had a relative or a parent who succumbed to Alzheimer's, it's pretty awful. The machinery's going to stop at some point. I don't think I want to live to be one-hundred and fifty. It'd be interesting, but I'm not sure that's what I'd want.

CK: *Before we end, I want to congratulate you on the NVCA lifetime achievement award in 2009. I'm sure that was quite meaningful. Perhaps you can tell me what it meant to you.*

TE: You know, there were five awardees that year and there have been others in this space. I was certainly pleased to be included in the group. These are people who I have worked with, in every case, on and off for thirty years. It's a group I was pleased to be part of. I think it does indicate a pattern of success and activity of a good quality, which I feel good about. Was it something I dreamed and hope for? Not particularly. I've frankly not ever been that interested in publicity.

CK: *It is nice to be recognized by your peers.*

TE: It's nice to be recognized by your peers, but frankly, if that hadn't happened, I might have looked at that group and said, "Gee, maybe I should've been part of that." Would I have felt diminished? I'm not sure.

CK: *And you also got an award from the Jackson Laboratory, and there's your involvement in a non-profit for cancer.*

TE: I've had no involvement in the Jackson Labs.

CK: *So they awarded you based on the work that you've done.*

TE: Again, sometimes it's nice to know the background. It turns out that there were three or four people on the board of the Jackson Labs with whom I've had very happy and successful associations. If you'd picked another organization, there might've been three people that were really mad at me and thought I'd screwed up terribly. It just happened, at the Jackson Labs there were about three key people with each of whom I've had a great and important relationship or a successful relationship. And as they were casting around for people to honor, they came to me. Again, as we're talking, there are sort of curious conjunctions and concomitants of events which create outcomes, which would be hard to predict.

CK: *This is a lifetime of networking.*

TE: Some of the networking has turned out rather badly; some of it has turned out reasonably well. It just happened that there were a couple with people at the Jackson Labs that turned out very well.

CK: *I'm curious to know about the chair you endowed at Princeton. Are you involved in that work at all?*

TE: An amusing story. I was a trustee at Princeton for fourteen years, but over a span of twenty years. It turns out that the current president of Princeton, Dr. Shirley Tilghman is a molecular biologist who I'd gotten to know quite well before her presidency, although I was not involved in her selection. In my involvements at Princeton as a trustee, I was sort of oriented towards the sciences, which are very good there and obviously of interest to me. And so I'd gotten involved with funding a lecture series there that brought scientists onto campus, because Princeton is a little bit isolated. It's not like MIT or Stanford. And then when they were putting together this Institute for Integrative Genomics, the woman who is now president of Princeton was going to be the head of that institute, and then she was tapped to be president of the university, so she left that behind. They were keen to have an initial chair supported there to sort of get that program rolling. I was a trustee, and so I agreed to do that. Then, just by chance, I got a call saying, "We are going to hire a wonderful scientist from Stanford who is coming to Princeton named

David Botstein.” And he is one of the really original players in the whole world of genetic engineering, going back to the late ‘70s. He’s done important science, but has always been very interested in teaching, which is why he decided to leave Stanford and come to Princeton, which has a much greater focus on teaching. And he has created this very interesting program there where they take very bright freshmen and sophomores who are science-oriented, and they’ve created a combined curriculum in math, physics, chemistry, biology, and computer science, to really train these people to be experimental scientists.

Some of them continue in science and some go on to medical school, and some don’t, but it’s quite an extraordinary program, and Botstein is a remarkable guy. Well, it turns out, in this small world, that David Botstein, while in California, was an advisor to a foundation which my son Luke heads, which is involved with a condition called scleroderma, which is a not widely known disease — scleroderma means hardened skin. My son Luke is the chairman of that foundation and unfortunately has scleroderma. He heads the venture capital firm MPM. He has the mild version of it, and so he remains completely functional. In fact, he was a high-level competitive athlete, and still is a terrific physical specimen, and works eighty hours a week. But Botstein was an advisor to the foundation and was quite friendly to Luke and his venture capital work. So when they formally asked me, Is it okay if this man has the chair? I said, “Terrific.” We’ve become moderately friendly since then, and he is actually now on the board of

Rockefeller University too, so I see him there. Even when I was on the board I made an effort to stop by, but I've never been really involved in the program. When you endow a chair it's a gift. It was a reasonably generous gift, but it has been used in such a way that it's enormously gratifying, again, sort of by chance.

CK: *I see that just recently you got involved on the board at Memorial Sloan-Kettering.*

TE: Yes. My Princeton involvement wound down in 2007. I went on the board of Rockefeller in, I think, '99, and that's been wonderful, because that scientifically is just an extraordinary place. Ten percent of the senior faculty are Nobel laureates. There's no place in the world like that. And that's been very interesting, but I'd never been involved in a hospital. I'm keenly aware that involvement with Memorial Sloan-Kettering is very much in the history of the Rockefeller family, Laurance Rockefeller was certainly a leader in philanthropic support of that. My former partner, Peter Crisp, was on the board for forty-two years; he just retired.

And so I've been keenly aware of it, with an interest, as I've talked about, and many involvements with cancer. I felt that it was someplace that I was interested in being involved with and would be able to be perhaps constructive as a knowledgeable layperson, but one who probably knew more about cancer, what's going on with cancer, than most of the other board members who are selected for their wisdom and wealth, but

probably not for their understanding necessarily of what goes on in cancer. So as I found out at Rockefeller , I'm certainly not a scientist of the caliber of the people there, or perhaps as wealthy as some of the other board members, but I'm a little bit in the middle of knowing something about what goes on, and a little bit about the other side, the business side.

CK: *It's a very unusual combination.*

TE: Not very, but somewhat unusual.

CK: *We're just going to look for a minute at your other interests, because you've got to give your mind a rest at some point.*

TE: I want to mention one other company. Another interesting example, which didn't do so much good for mankind, but which I often mention, is a company called IDEXX Laboratories. Again, amusingly enough, the founder of that company has a small association with Venrock today, a man named David Shaw. IDEXX was a company that worked in the field of animal health diagnostics. Sounds like it's not much of a business, but I don't know if you have dogs or cats — if you do, you probably know that people spend more money on their pets than they do on their children. Anyway, that company

started—in this case it was just a superb entrepreneur, and the technology was good, but it was as much really a company good at business development. And that company successfully went public and reached a market value of \$4 billion in its tenth year of existence.

Then it had a downturn and has come back up. But an enormously successful—one of these investments that so dramatically exceeded our expectations, which doesn't often happen.

CK: *How did you get involved in this?*

TE: The entrepreneur, David Shaw, was aware of Venrock's reputation as an investor in this field. I think he called on Peter Crisp, who sent him down to me. He was a very captivating entrepreneur, and he put an interesting key team together. And I thought, Gee, it'd be a nice small business. I thought you might reach \$25 million in revenue, and could sell it successfully. It was sort of a different area. I was sort of keen on the whole food side of things and had gotten involved a bit in agriculture, although it turned out that in IDEXX the pet business was by far the more important. So we made the investment, the company was enormously successful. It's an independent company today. This is an example where, if you kept your shares, it went up and down a bit, but it's been a very, very nice holding to have, clearly.

CK: *What happens when you bring a project or company before partners at Venrock, and they don't see eye-to-eye with you?*

TE: Sometimes you don't make the investment, or you have to just turn the views. All investment decisions have to have a consensus at the end. But you try and tend to build support for any investment; you will at least bring a couple of the others in to hear the story and meet the people along the way, as you're doing your so-called diligence, your investigation. And if there are violent reactions negatively, probably figure it's not going to work and you move on, or you have to convert the heathens. And sometimes you can and sometimes you can't. I've had deals turned down. And to some extent, if you've got a successful record in the space, you're given a little bit more leeway. If you are new or haven't been doing so well lately, you'll probably be viewed in a harsher light and have more scrutiny. But you do have to go through the process of getting the partnership to agree, and that's true in I think all of the venture firms, except maybe there are firms that are sort of singular, run by a great man, and you do what he wants to do. But for the most part, these are all consensus decisions at the end.

CK: *How much camaraderie is there at Venrock?*

TE: Substantial. However, as a diversified firm with information technology and health care and, now, energy, and with three locations, there's perhaps somewhat less than you

would have if you had five people in one office doing one type of project, and who all went to graduate school together, or let's say, all came out of Cisco Corporation. I'm sure you have situations — although they're now diffused in the venture business — where there are five gals or guys, occasionally gals, who basically grew up together at a company, go off and start a venture firm, and have dinner and socialize together. Given the diversity here, that's been a little less so, although we make a considered effort to be together as an organization regularly, once a month at least, even with the geography. Not quite; probably eight times a year or so. All our partners meetings are on video, so you at least have people in front of you, not voices on a phone. Those are the challenges of the diversified — intellectually and geographic-firm. Also, the firm has evolved. This is now a forty-year-old venture firm with a seventy-year-old history, going back to the early Laurance Rockefeller days. So there've been a lot of cycles. It's a fairly flat and egalitarian organization now. In the past, it had been more hierarchic.

CK: *Is it ever lonely?*

TE: When you are involved with a company, usually you are essentially the sole link to that investment. So in that sense, if you're grappling with the problems of that investment, it is somewhat lonely. Typically, you have either one of the young guys or other people in the firm working with you, and you can call in the resources and skills and wisdom of

your partners, as you will, and some people do that more than others. But when you're dealing with a company, you are pretty much out there on the point, which frankly is another reason why I'm pleased to partner with other venture firms who have good people to be out there on the point with you, because otherwise it can be really lonely.

CK: *I'm wondering, when you're up worrying at night—*

TE: It's nice to know that there's someone else worrying, someone else might be able to think of answers too.

CK: *What do you do when you're not involved in your venture work?*

TE: Still a lot of sports —, tennis and squash and biking. I did a lot of running, but that's over. And quite a bit of music; my wife is very involved in the music world.

CK: *What does she do?*

TE: She is the chair of a music center called Caramoor. Have you ever been to Tanglewood in Massachusetts? It's similar to Tanglewood, probably about two-thirds the scale. It's in Katonah, New York, which is about 30 miles north of New York City. Not as well-

known as Tanglewood, because Tanglewood has other things around it. And of course, being in New York it's substantially overshadowed by the music centers in New York. She's also on the board of Carnegie Hall, so we do a lot of music.

CK: *Is she a musician?*

TE: No, just very involved with music. We travel a fair amount. For the last years of their lives, my mother and stepfather lived in Paris, so I was spending a lot of time there. We do quite a bit of traveling, but I wouldn't say we're adventurers travel-wise. We do have four grandchildren. I was reasonably involved with my children as they were growing up. Of course, I had them so young that they were gone by the time I was forty.

CK: *I think raising children in the '60s was different than raising children now.*

TE: Right. Also, when you're developing your career—We were babies having babies. I had a son in college when I was 39. We have one set of grandchildren, Caroline and Timothy, who are our next-door neighbors now. We're in Connecticut; they're on the adjacent property, which is very nice. And that's great. We share a pool and a tennis court and things like that, which is quite wonderful. Luke lives in San Francisco, and he and his wife have two children, Alexander and Elena.

We just had a wonderful trip to Russia, which we came back from ten days ago, on the 16th, where we visited the house in which my mother lived in, in Moscow, in 1917. We came up there with a cousin, who I knew about who was there, and another cousin who had left Russia in the '90s, who lives in London and had joined us for part of the trip. And it was connected with some art — my mother was an artist as well as a floral designer, and there was a portrait of her by one of the important artists of that period, and then a couple of her paintings in this exhibit, so that was quite interesting. That was sort of the reason for the trip. But the two California grandchildren and Luke and Deann and Tim came with us. So it was quite exciting. A roots trip, I guess.

CK: *Did you prepare for that? Did you do any genealogy research?*

TE: Yes, to the extent you can, it kind of stops with my great-grandparents. But I speak a little bit of Russian, not much, just a little bit. I did some reading. And then having the cousins around was nice. It was a reunion.

CK: *How about reading?*

TE: I do a fair amount of reading, although I have to say that working in these fields you have essentially an infinite amount of both business and technical business reading to do, and I

have to say I probably do less reading for pleasure than I would like to, because I always feel I should be doing more reading for work.

CK: *What do you plan for your retirement?*

TE: (Sigh) That's a good question. More reading, a little bit more traveling, but I've traveled so much for business that the excitement of travel, what there is, is somewhat modulated. Certainly spend some more time with grandchildren, before they disappear, which they'll do in a couple years. I think I probably would like to go back to take some courses at the university level in a couple of areas that I'm interested in and don't really know much about.

CK: *Such as?*

TE: I'd probably take some biology, which I'm supposed to be an expert on but there is a lot I don't know. I would probably do some music, and I would probably do some more history, all of which I've enjoyed. I would think my not-for-profit involvements would go on for at least another three, four, five years, but really, on those kind of boards you get superannuated in your mid-seventies. So the next five years are really pretty well taken care of — five, six, seven years. Frankly, not too worried beyond that.

CK: *Thank you so much. Is there anything that I've overlooked that you'd like to add?*

TE: One thing: All the people you've talked to have been in the business as long as I have, and I don't know whether any of them commented on the cycles of the business and how it's evolved from what was a cottage industry originally — again, you've heard that from people like Peter Crisp and Charlie Lea—a business that was effectively the purview of a dozen firms, most of which were representatives of families of great wealth: the Whitneys, the Rothschilds, the Rockefellers, etc.— to a relatively professional, organized business that exists today. That's been an interesting transition to have experienced. The other thing is, the cycles in the business have taught me a lot of things. One, once you think you've figured everything out, something bad usually happens. We've had the tech bubble, which I'm sure you've heard lots about. In the late '90s, everyone was a genius, and all companies were worth billions of dollars, and then you went to almost devastation in the field where everything was worth nothing, and then for a while there was sort of a nuclear winter where nothing happened.

CK: *How did you handle that?*

TE: I never thought I was that smart when things were going pretty well. To be honest, I also never had a clue that things were going to stop and turn down so abruptly. But what was obvious to me was that all ideas were not good ideas; all twenty-six-year-olds who started

Web companies were not going to be successful and build things which were important. But the market got carried away, and it was impossible not to get involved.. It was a good virus; whenever you got it, you got varying degrees of it. But I guess I was never convinced that I'd gotten ten times smarter all of a sudden, or better. But I did see people around me who made fortunes in two or three years, and then lost them all in the next two or three years; they really believed that they had discovered the answer. I guess there was a good dose of humility that came along with that. I think one of the things I've always appreciated about this place — this has never been a culture of arrogance, thinking we know the answers and we are the masters of the universe. I don't think any of the people you have mentioned that you have interviewed would be in that category. But if you went around Silicon Valley there are some people who might give you that impression. So if you can keep a little bit of the humility with you, you are pleased when the times get extraordinarily good, and obviously you're devastated when they crash and go bad. But if you avoid drinking too much of the Kool-aid, you can survive those things. I think the culture here has been helpful in that. We weren't the best when the times were good because we hung back a little bit, but we were also not quite so devastated when the downturn came. But the cycles in this business, the recognition that it's never easy, and, if it is easy, watch out because the wave's about to hit — that is to me part of the story of how this feels. And right now, people are again questioning what happens to venture capital going forward.

I think unquestionably, the field is going to shrink somewhat; it's not going to go back to 800 firms. I think the capital is going to shrink because for the reasons we've talked about: the diminution of the public markets, or the recognition of the risks and difficulties of creating new enterprises, not just in health care but in other fields, I think is going to temper the investment enthusiasm for the venture space for a significant period of time. So I think the field in 2010 and '11 is going to be smaller than it was in '04, '05, '06, '07, maybe substantially smaller.

CK: *Do you think the Obama administration's emphasis on health care is going to have an impact?*

TE: It will have a positive impact — as well some of the initiatives in clean tech and information technology for health care and other places will have a positive impact as well. But if the investment returns aren't there — because remember, you're getting returns on the things you did two and three and four and five years ago — and without a public market, and with a difficult investment environment, you're not going to have great returns, and I think the capital flowing into the space is going to constrict. So I do think that there are going to be positive areas. I'm involved now with a company in the lithium ion battery area, which is a little bit out of health care, but certainly chemistry. They may well end up as major recipients of government support. Lithium ion batteries,

electric vehicles, etc., are a very important space. But I think the venture environment is going to be difficult and constrained for the next period of time. Less assets allocated to it, less successful results, but we may end up with a smaller, but healthier investment sector.

CK: *Are you concerned about the taxation on carried interest?*

TE: Yeah, particularly because it's wrong-minded. It's not a bad concept in the large, but when you try and create legislation which covers all sectors or spaces, it's maybe perfectly relevant for some but not for others. For example, almost all of the wealth creation for the venture capitalists results from sales of companies or the shares of companies which we invest in. We do not — and this varies a little bit — but we do not take large salaries or fees for any of our investments. So for many of late, their salaries have not been high. You're not going to cry for us, but no one takes five, ten, or twenty million dollar salaries. In fact, anything more than a couple of million is very large. Now, those are big numbers for the rest of the world, but it's not investment banking salaries. And we take no fees in any of the companies that we're involved with. So the way we get returns is, if the companies we invest for a dollar sell for ten dollars, we give our limited partners 75 percent, and we take 25 percent. That's how the money is made.

And that to me should not be subject to ordinary income tax; those really are capital gains. So it seems to me that is the way it ought to be treated. And that's very different than private equity, where they really have very large salaries, typically, and they take fees, and they get fees for doing the deal and for working on the deal. So they're making a lot of money other than on the return of the actual investment.

CK: *So venture capital is just a separate—*

TE: I think it is structurally and fundamentally different, but because we're relatively small and don't have a big political voice, when the bus comes to round up the girls, they put the good girls in the paddy wagon with the bad girls. Unfortunately. Our political voice may not be loud enough, although the clarion call from the venture industry is that we create jobs, we create the new industries, all of which is true, but we don't have a lot of political clout.

And I must say that I have not been involved in the NVCA. I had the opportunity to go on the board there, and I always thought I was too busy. I've never been politically active, which I'm not proud of. I've never had a great admiration for politicians or the political process. And given an option not to be involved, I would prefer not to be involved.

CK: *Well, this is your contribution, what we're doing today. Again, thank you.*
