SCIENCE HISTORY INSTITUTE

LARRY BOCK

Life Sciences Foundation

Transcript of an Interview
Conducted by

Mark Jones

Rancho Santa Fe, California

on

10 June 2014

(With Subsequent Corrections and Additions)

CHEMICAL HERITAGE FOUNDATION
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> Larry Bock, interview by Mark Jones Rancho Santa Fe, California, 10 June 2014 (Philadelphia: Science History Institute, Research Interview Transcript #0150).

Science History Institute

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ABSTRACT

Larry Bock grew up in Chappaqua, New York. His father was a stockbroker with Bear Stearns Companies and his mother was a professional chef. Bock attended Bowdoin College in Maine, where he majored in biochemistry. He aspired to attend medical school after graduating but struggled to get accepted to a program. Instead, Bock began exploring research jobs in the biotechnology field. He applied to several companies and was eventually offered a job at Genentech in 1981. There, Bock personally worked on foot-and-mouth disease. Bock continued to apply to medical schools, but ultimately decided to attend the University of California, Los Angeles for his master's in business administration. Bock was then recruited by Fairfield Venture Partners in Fairfield, Massachusetts, to start the company's west coast offices in Costa Mesa, California. He, along with his coworker Edmund Olivier, pushed Fairfield Venture Partners to invest in the biotechnology field. While working for Fairfield, Bock met Kevin Kinsella, a venture capitalist who founded Avalon Ventures. The two collaborated on various ventures, such as forming Athena Neurosciences.

Bock later left Fairfield Venture Partners to join Kinsell and Avalon Ventures full time. The first company Bock took on with Avalon Ventures was Metrad Biosystems. He initially struggled to find investors, but after focusing his pitch on diagnostics, he was able to secure funding from Kleiner Perkins and Delphi Bioventures. Bock also coordinated a limited partnership between Avalon Medical Partners and Sandoz, which allowed them to open ten biotech companies by 1987. These included Neurocrine Biosciences, Pharmacopeia Inc., Idun Pharmaceuticals, Argonaut Technologies, and Caliper Technologies. Kevin Kinsella eventually left Avalon Ventures to become the CEO of Sequana Therapeutics, after which Bock stayed on and raised funds with Institutional Venture Partners and Keliner Perkins to form the bioinformatics startup, DoubleTwist. He continued working with biotech companies, such as Illumina, before switching fields to nanotechnology and founding Nanosys. Bock later retired from full-time work, though he remained a venture partner at Lux Capital, and spent a year in London, England with his family. After traveling in Europe, Bock became interested in science education and founded the San Diego Science Festival in 2007, which aims to get children interested in science and engineering.

INTERVIEWER

Mark Jones holds a PhD in history, philosophy, and social studies of science from the University of California, San Diego. He is the former director of research at the Life Sciences Foundation and executive editor of LSF Magazine. He has served in numerous academic posts, and is completing the definitive account of the origins of the biotechnology industry, entitled Translating Life, for Harvard University Press.

ABOUT THIS TRANSCRIPT

Staff of the Life Sciences Foundation conducted this interview, which became a part of our collections upon the merger of the Chemical Heritage Foundation and the Life Sciences Foundation into the Science History Institute in 2018. The Center for Oral History at the Science History Institute edited and formatted this transcript to match our style guide, but, as noted, Science History Institute staff members did not conduct the interview. The Center for Oral History, Science History Institute, is committed both to preserving the recording of each oral history interview in our collection and to enhancing research use of the interviews by preparing carefully edited transcripts of those recordings. The preparation of interview transcripts begins with the creation of a verbatim typescript of the recording and proceeds through review and editing by staff of the Center; interviewees may also review the typescript and can request additions, deletions, or that sections be sealed for specified periods of time. The Center keeps track of all changes that staff, interviewers, and interviewees make to the original typescript. Please contact us if you would like additional information about these materials. We have established guidelines to help us maintain fidelity to the language and meaning of each recorded interview while making minor editorial adjustments for clarity and readability. The transcript also includes time stamps at five-minute intervals. We omit without noting most instances of verbal crutches and all instances of nonlexical utterances. We also make small grammatical corrections where necessary to communicate interview participants' meaning. Finally, staff of the Center create the abstract, chronology, and table of contents. With the availability of online full-text searching of our transcripts, the Center for Oral History opted to discontinue the practice of preparing a back-of-the-book index for each oral history transcript in 2020. **The Science History Institute is committed to the responsible presentation of the history of science by addressing evidence of inequality and oppression as well as the subsequent silences in our collections. To that end, we recognize there may be language in our oral history collection that is outdated, offensive, or harmful, such as, but not limited to, the following: racist, sexist, Eurocentric, ableist, and/or homophobic language or depictions.**

INTERVIEWEE: **Larry Bock**

INTERVIEWER: **Mark Jones**

LOCATION: **Rancho Santa Fe, California**

DATE: **10 June 2014**

JONES: What I would really like to do is record a biography, basically. Your stories from the beginning. Let's go back to the very beginning. Where were you born?

BOCK: I was born in Brooklyn, New York. I grew up most of my life in Chappaqua, New York, a suburb of New York City.

JONES: Yes, that's a little bit upstate.

BOCK: Yes, it's where the Clintons [William J. and Hillary R. Clinton] now live. I went to college in Maine.

JONES: Well, let me ask you a little bit about your family and growing up. Did you have siblings?

BOCK: I had one brother. One brother and two parents [Laughter]. And I actually got introduced to the biotech industry by my father who was an early stockbroker in the field.

JONES: So, who was he with?

BOCK: He was with multiple different firms. But probably the time he was mostly in the biotech area Bear Stearns [Companies, Inc.].

JONES: So, he's in finance and your mother, did she work? Or was she a homemaker?

BOCK: She was a professional chef. She was the chef for Carroll O'Connor [Place], Archie Bunker's restaurant.

JONES: In New York?

BOCK: In New York. But when I was a freshman in college they moved out to California. She moved out to Beverly Hills, [California,] to open a restaurant in Los Angeles. I continued to go to college in Maine. But then afterwards moved out to California.

JONES: And growing up your father is in finance; family is pretty well to do. Did you have opportunities?

BOCK: My father was a stockbroker. Yes, up and down [opportunities]. He lived for the moment [Laughter].

JONES: Yes.

BOCK: So, it was either boom or bust.

JONES: So, were you a good student?

BOCK: I was a good student. Yes. I was a straight A student and went to college, but was one of the people that wasn't fortunate and didn't get into the colleges I was hoping for.

JONES: So, this is Harvard [University], Yale [University], Princeton [University] you're hoping for?

BOCK: Yes, well or the Amherst [College], Williams [College], or more of the small liberal arts colleges. Got into one on the waiting list and ended up going there.

JONES: Well Bowdoin [College]'s a good place, right?

BOCK: In fact, it was kind of a funny story. I had a friend who used to play jokes on me, and he had his sister pretend she was someone else and ask me out to the prom. The next day I go to the school thinking this girl asked me out to the prom and looked like a fool [Laughter]. Then

fast forward like about three months, I get the waiting list email from Bowdoin, and I get a phone call that night from a lady and says, "You've cleared the waiting list." Oh, it's him playing the same joke. I cursed her out and found it really was the lady from Bowdoin. [Laughter].

JONES: And you majored in biochemistry. Had you developed an interest in science prior to?

BOCK: Yes, I was always interested in science.

JONES: Where did that come from? Your dad is a stockbroker. Did he have any—

BOCK: Actually, it came from probably high school. I had I went to a pretty innovative high school, and we got to do things you could not do in a science class these days. Anesthetize rats, perform surgeries bring them back and do all sorts of experiments on it. It just really intrigued me. I was headed down the medical school route but didn't get into medical school. And that was when I was searching for what I was going to do next, and I landed a job at Genentech [Inc.].

JONES: Yes, medical school was—did you get any kind of, I don't know if pressure is the right word, but I guess there's an expectation that you would succeed professionally at home.

BOCK: Yes.

JONES: That was just kind of assumed. And did you see medical school as a way of accomplishing that?

BOCK: Yes. I mean I actually was really interested in medicine. Did a lot of volunteer work working with mentally challenged kids and really loved that. I was kind of floored when I had straight A's through college and had all the right background. **<T: 05 min>** so I was kind of floored when I didn't get in. But in retrospect God kind of had his hand on my shoulder in getting this job at Genentech.

JONES: Right. Well especially—what was the year?

BOCK: It was 1981.

JONES: So, that's really early on. I mean you're in Bowdoin on the East Coast. I mean there's no real logical connection to that's the next step, Genentech. How—

BOCK: Through my father. So, my father, interestingly, was a stockbroker and he was doing a lot of the trading in a lot of these biotech stocks. One day he took me to his office to meet this guy that he had met that he thought was really interesting and I should meet, David Blech. He said, "Hey, this guy is a music major and he started up several of these biotech companies, why don't you do that?"

I said, "I don't really have the background to do that."

He goes, "Well this guy was a music major." I met David Blech that day in his office and had just started at— I was just thinking about what I was going to do next. I went after the various jobs of what some of the leading biotech companies at that time.

JONES: Yes, so David Blech made a good impression on you at that time?

BOCK: He did. He was incredibly creative too — I mean I think the most and biggest impression was that he must have been in his early thirties or even late twenties at that time. He had a couple of hundred million dollars to his name. He left the office with my dad and then he came back about twenty minutes later, and he goes—he forgot to validate his parking ticket. [Laughter].

JONES: Well, that's in 1981. He must have just started Genetic Systems [Corporation].

BOCK: Yes.

JONES: And so, it was brand new.

BOCK: Yes, I think at that time he had Genetic Systems. Yes, and one other, maybe BTG [plc].

JONES: And so, did you do a little research into what was out there?

BOCK: Yes, I started applying to the various biotech companies and I applied to Genentech. I got rejected about three times before they took me as a research associate. I worked there for approximately three years.

JONES: Well, I would like to hear about Genentech, but were there other firms that you looked at?

BOCK: I applied to Amgen, [Inc.] I applied to, let's see, it's been a while. I think it was Codon [Code company]. It was the one started up by the ex-Genentech founder, one of the other early Genentech guys, right by Genentech—

JONES: Oh, was it called Codon?

BOCK: Not Codon. Is it Codon?

JONES: There's a company that I think the woman's name was—well there was Cetus [Corporation], is that it? Sharon Carlock was the person and the manufacturing guy from Genentech started –

Bock: Not Cetus. I did apply to Cetus as well.

JONES: Yes, there was a small company and I think Sharon Carlock was the person and the manufacturing guy from Genentech so was it—

BOCK: Yes, exactly, and it was right there in South City. In fact, they rented an old Genentech building in the process.

JONES: So, you talked to them.

BOCK: I talked to them. Then I talked to a lot of academic-type, genetic engineering type jobs, but I really wanted to be in a small company. I went up to Genentech. I can remember the first interview, sitting in the lobby and it was just this warehouse kind of building. I didn't really know what to expect and while waiting for my interview, and I heard over the loud speaker—the employees had access to the PA [public address] system—and they were broadcasting messages like "Kirk to enterprise," over the general PA system. [Laughter]

I go, "What a fun place. I really want to work here."

JONES: Yes, the culture was famed, wasn't it?

BOCK: It was just an amazing. I mean I can't remember what the average age was, but it seemed like it was under twenty-eight and they were all kind of goofy, funny people and it was this environment where you felt like you wanted to work all day. I mean I spent hours and hours a day there, but I never thought I was working.

JONES: Yes, the flip side of the fun part is that—and I talked to David Goeddel about this—they're really driven and focused and get it right. It was really important to be good.[1]

BOCK: To be good and they were competitive within. They created this culture within the company where different groups **<T: 10 min>** were working on the same project. They were literally competing with each other, which is kind of an odd thing. You think that they would be working together, but I think it ended up being kind of an effective strategy. That's the good news. The bad news is that there was some dysfunctionality in that projects would wax and wane in popularity depending on where they were in the thing. Genentech probably gave up on some real interesting programs because that program had waned because it hit some technological snafu, or another one waxed and so—

JONES: Can you remember any examples you think would be?

[1] David Goeddel, interview by Arnold Thackray and Mark Jones on 29 May 2012 at Column Group, San Francisco, California (Philadelphia: Chemical Heritage Foundation, Research Interview Transcript #0108, in process).

BOCK: I worked in a group that worked on a lot of the blood, like plasminogen activator and things like that. Urokinase plasminogen activators were always kind of waxing and waning. EPO [erythropoietin], I remember days when EPO was a project that we were working on, but Amgen got way ahead, and I can even remember days when they had a chance to license EPO from Amgen for probably a dime.

JONES: Really? Amgen was ready to give up on it?

BOCK: Well, not ready to give up. But they were strapped for cash and Genentech could have been their partner in the process. I was working in a program in the vaccine group that waxed and waned so many times. We were both doing animal and human vaccines, but with hepatitis B we were competing with Chiron [Corporation] on that and they obviously succeeded in that. Then we were doing all these animal vaccines and they were interested in animal vaccines, they were not, they were. There's probably—I know there's an interesting story, I don't know all the details of it, but Genentech had a lot of good, dumb luck in the process. One of which was, as I recall right at the key point with hGH. Some kids came down with the Jakob-Creutzfeldt syndrome from the bovine derived form. If that had not happened Genentech might not have been the company it is today.

JONES: Right, that's interesting. You mentioned urokinase. Was urokinase already a product?

BOCK: While I was there, they were all research projects. I think I left even before—I think I left right as tPA was being approved. Urokinase had even dropped down as a not a major program.

JONES: Yes. You arrived at this point in your career. You're just getting started.

BOCK: Yes, first job.

JONES: And you're working hard at the science. Is it your plan to be an industrial scientist or did you have an idea of where?

BOCK: I thought about reapplying to medical school, which I did, but partially through that whole David Blech thing, I ended up applying to business school. But I wasn't really good—with science you have to be really good with your hands, particularly back then because you are washing glass plates and pouring agar in them. It was an art as much as a science. So and I was good at certain things, but not great at all things. I decided to go down the business route.

JONES: Yes. I'd be interested in to hear just a bit more about some of the projects that you worked on at Genentech. When you arrived, who did you talk to when you first got there? Who interviewed you?

BOCK: Dennis Kleid was probably the main person. I worked for a scientist named Steve Shire, who reported up to Dennis Kleid, up to and another guy named Jackal Bijeski. Dennis was an early founder of the company and so yes, most of the programs that we were involved in were his vision, so a lot of the animal vaccines and so forth. I predominantly worked on foot-and-mouth disease at the company.

JONES: And how did that go? When you first walked into the lab, what did they have you do?

BOCK: I was a protein chemist. They had just gone to Plum Island [Animal Disease Center of New York], which was the only place where you were allowed to work on foot-and-mouth disease and taken the various fragments of the foot-and-mouth disease virus back.

JONES: So you couldn't take—you did take it back?

BOCK: They did, but they had to take it to pieces.

JONES: I see. Yes, that's interesting. **<T: 15 min>**

BOCK: Yes, so there was a lot of fear about taking anything off of Plum Island. That's kind of right about the time I arrived when there were dozens of subtypes of foot and-mouth disease. We were working on the first one, and so I was in the group that was responsible for purifying it from *E. coli* and then getting it ready for injection into cattle. First into rats just to see if it raised a tiger and then into cattle. That early work was one of the first vaccine projects that ended up winning the Science Magazine's kind of Newcomb Cleveland Prize for best—

JONES: Is that after you cloned it?

BOCK: They had gone from cloning it to purifying it to injecting it into cattle and showing it with protective in cattle, and that was what the science paper was about.[2] I wasn't responsible for all of those. I was responsible for just a small part of that. So yes, that was—

JONES: From there, you're still working with Dennis Kleid and the next thing?

BOCK: At Genentech, your kind of pulled from project to project depending on—I remember one point—

JONES: Depending on need?

BOCK: On need. I remember at one point they were working on bovine growth hormone, and it was right around Christmas and they when they had hit a milestone from what I believe was Monsanto [Company] for like a million-dollar payment. Everybody had to stay there for basically all of Christmas to purify enough of this bovine growth hormone to, I think it was to get a milligram of it in order to be able to hit the milestone payment. You are pulled from project to project. I was a researcher associate. I wasn't a senior scientist or anything. I was pretty low down [Laughter].

JONES: Right. But it was enjoyable?

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[2] Harold M. Schmeck, Jr., "Vaccine Developed by Genetic Splicing," *New York Times,* June 19, 1981, http://www.nytimes.com/1981/06/19/us/vaccine-developed-by-genetic-splicing.html.

BOCK: Oh loved it, truly loved it. Best job I've ever had.

JONES: And at some point, you start thinking business—well you're thinking about also med school, but are you paying attention to the business aspects?

BOCK: Not a lot, but a young person, if somebody says, "Go think about business school." I don't know about business school.

JONES: Who said it?

BOCK: Probably my dad. I applied to a number of business schools. I got into UCLA [University of California, Los Angeles], didn't get into some of the others. Went there. [. . .] They had a program between your summer of your first and second year to become a venture capital [VC] fellow, where you got to work with a venture firm for the summer. I was fortunate enough to work for this guy named Jean Deleage, who was one of the early VCs in the industry. I got to see—go with him to lots of board meetings for different biotech companies and so forth.

JONES: Tell me a bit about that experience. Certainly, that's an eye-opening thing to see how that stuff works.

BOCK: Yes, there were early investors in Chiron. Got to go to Chiron a lot. , and I was an observer at board meetings and stuff.

JONES: What do you remember observing?

BOCK: What do I remember observing? That's a good question. Let me say the ones that they were really involved was Chiron, Plant Genetics [Inc.]. At the time, they were involved in gene.

JONES: Plant Genetics. Was that Peter Meldrum?[3]

BOCK: Was it who?

JONES: Meldrum? Was that --?

BOCK: It was Alton Davis, and they had the tubers. They were like tiny little potato things that were encapsulated in some resin. I guess the part that I learned from Jean Deleage and I can remember it distinctly is he was all about the people and he had a particular phenotype of person that he was going after to be invested in and that's probably the most important thing.

JONES: Did he articulate that? What was the phenotype?

BOCK: Well, he probably did articulate it. He was very French. It was really hard to understand. [Laughter] He's passed away recently. I don't know, did you guys get to do an interview of him?

JONES: No, we didn't. I think it actually was in 2009 or something, wasn't it? **<T: 20 min>** That's been about five years.

BOCK: It's been a while, yes. Interestingly, there was another guy in that office and I'm forgetting his name, but it was two VCs that were sharing an office: Burr, Egan & Deleage [& Company] and Sofinnova [Ventures].

JONES: Oh right, yes.

[3] Peter Meldrum, interview by Mark Jones on 25 October 2013 at Salt Lake City, Utah (Philadelphia: Chemical Heritage Foundation, Research Interview Transcript #0040, in process).

BOCK: And there was a guy and I think at that point it was Wells Fargo Ventures, who relayed to me the story, because Jean Deleage was an early investor in Genentech and so forth. But this guy, and I'm trying to remember his name, was really—he was an elderly gentleman. But he was the guy that Bob Swanson apparently went to and said, "Look, I'm thinking—"

He was apparently the guy that Bob Swanson was thinking about interning or doing something in the VC world and he was talking to Kleiner Perkins [Caufield & Byers] and he went and met with this guy. This guy claims that he was the guy who introduced him to Herb Boyer and said, "You ought to take a look at this stuff."[4]

JONES: I've never heard that before.

BOCK: Yes, I mean, and I believe him somewhat. I believe him because in the Burr, Egan, Deleage files, where one of the things I found most fascinating was looking at the business plans of all these companies that had gone on—like Genentech—to be successful. But the original business plans were in there, and plus everybody's notes and everything. I remember reading the notes and it did confirm what—

JONES: Well, I'll track down the names. Is he still around?

BOCK: I imagine he passed away.

JONES: He was elderly.

BOCK: But he was in the offices with Burr, Egan and Deleage and he—I believe he was with Sofinnova because he was French as well, but I think at that point also he somehow was associated with Wells Fargo Venture Funds. And. . .

JONES: So, you're looking at these business plans. You had worked at Genentech and then?

[4] Herbert W. Boyer, interview by Arnold Thackray, Hugh Sally Smith and Mark Jones on 28 March 2000, 24 April and 21 May 2013 at Michigan Molecular Institute, Midland, Michigan, San Francisco California, and by phone (Philadelphia: Chemical Heritage Foundation, Oral History #0193).

BOCK: Now I can go look at the business plans of what it looked like at the beginning much less they had in their files Apple Computer and all these other just, Tandem Computer Inc., all these business plans that companies had. Not that had totally been successful but had gone a long way. I got to look at these things and see really what it was that they were pitching at the earliest point. And that was probably the most valuable thing that I got access to that summer.

JONES: So, did you feel like you were taking to this? You had spent a lot of time doing science, thinking about med school, and this is something completely different, but it sounded good to you?

BOCK: Yes, it definitely sounded good, and I got involved while I was at UCLA in the Entrepreneurship Club and the most valuable experience, I had was the business plan competition. Did that and won that competition. So that was kind of the impetus to kind of getting into this VC world and the entrepreneurship world.

JONES: Yes, well when you were at UCLA, is there anybody there talking about biotech or was it still too small to track?

BOCK: Oh, no. At that point, people were talking about biotech. Biotech had matured in some sense at that point. The companies were here to stay. They were here to stay even when I joined them. I would say I thought it was rocky, but they were here to say.

JONES: Anything else to note about your time at UCLA?

BOCK: I got that internship with Burr, Egan and Deleage and I was looking at a spin-out of Hybritech for Burr, Egan and Deleage called Cytotech which was –

JONES: That was an early one. Paul Rosinack?

BOCK: Paul [A.] Rosinack, exactly. It ended up not being successful, but I done a whole due diligence package on it for Burr, Egan and Deleage. The venture firm that I eventually was going to join, Fairfield Ventures got ahold of that and then they contacted me. Then when I graduated from business school, I ended up working for them full time.

JONES: So it was on the strength of that report?

BOCK: On the strength, yes, exactly.

JONES: And Fairfield was located—

BOCK: Fairfield [Venture Partners] was located in Connecticut. **<T: 25 min>** and Fairfield was an older, kind of older venture fund but it merged with a venture operation coming out of Corning Life Sciences and at that point of that merger, they raised a new fund and they opened a West Coast office and I joined a guy named Ned [Edmund M.] Olivier. I don't know if you knew him.

JONES: Yes, I have an interview.

BOCK: He's very interesting—to open up the Costa Mesa, [California] office. So that was my first job out of business school.

JONES: Yes, and Corning [Inc.] at that time had gotten into Genencor [International, Inc.]?

BOCK: Genencor was probably even started while I was still at Genentech. Yes, I think the early stages of Genencor had gotten started because Herb [Herbert] Heyneker who was at Genentech and in the same protein chemistry group that I was part of and was a co-founder, I think, of Genencor with Jonathan MacQuitty, whom my path later crossed at a later point.

JONES: Yes, and working with Herb Heyneker, he was one of the original cloners, right?

BOCK: Yes, absolutely.

JONES: So, you learned a lot from that about the science?

BOCK: Yes, and also the enthusiasm and the rigor and so forth. So, after I left, I joined Fairfield Ventures.

JONES: Well, what kind of offer did they make you? What did they say? We want you to open up this office?

BOCK: Join as an associate? I was an associate. I wasn't a partner. I was working directly for Ned. Fairfield was new to the biotech arena and Ned was spearheading that and it was always a tension within Fairfield about these biotech companies: "They don't have any revenue, why are we investing in them? Let's invest in more of the computer hardware type things."

JONES: So, you're making justifications?

BOCK: Yes, we're making justifications and Ned was the ultimate salesperson. Plus, Ned did something and said, "Look, we're not known in the biotech arena." He kind of strung himself to the coattails and got into a couple of deals that Kleiner Perkins was involved with early on. Those included IDEC [Pharmaceuticals], Gen-Probe. I'll think of them in a second— Gensia [Sicor Inc.]. Then, so we're kind of riding the coattails of Kleiner Perkins in those deals and I really wanted to do some start-ups. I was looking at doing something in the neuroscience field and it was in that area that I bumped into Kevin Kinsella who will become my future business partner and we had collided in the lab with a guy named Dennis [J.] Selkoe at Harvard.

JONES: When you say collided, did you actually meet—

BOCK: Well, we were both talking to him, and we both thought he'd be a good person to start a company around. Kevin was a lot more senior and had done this many more times. So, Avalon [Ventures], where Kevin was with, and Fairfield decided to kind of collaborate to form Athena Neurosciences and then Kleiner Perkins and IVP [Institutional Venture Partners] joined in. Then the same thing happened. Kevin then became my role model. He and another guy that I had met in this whole process were the people I wanted to be like.

JONES: Who was the other guy?

BOCK: Howard [C.] Birndorf. He was a founder of Hybritech, [Inc.] with Ivor [Royston] and then founded Gen-Probe and so I got to see him in that Gen-Probe context. Then I believe he was also—Ivor was a founder of IDEC. I don't remember if Howard was involved.

JONES: I think he was involved.

BOCK: I think he was. Then I would see Howard at Gensia and Viagene [Biotech, Inc.] and several others. So, Kevin and Howard were the people I wanted to be like, very different personalities [Laughter]. I started trying to put together another company in the area of. . . I'm trying to remember the order. **<T: 30 min>** I think it was in the area of transgenic animals called GenPharm [Services] and Kevin and I did that together and that's when I re-crossed paths with Herb Heyneker and Jonathan MacQuitty because they were trying to do the same thing out of Genentech.

JONES: They were at Genencor by that time, right? What was Genencor doing with transgenic animals?

BOCK: They were at Genencor. Because they were looking at vehicles to produce proteins even more complex proteins even more cheaply and transgenic animals offered that potential hope. Kevin and I corralled the leading transgenic scientists out there into a company called Chimera [Biotech] and they had a company, I can't remember what it was called but the two merged together to become GenPharm. That was the second company I was involved with Avalon while I was still at still at Fairfield and then the third was Vertex Pharmaceuticals [Inc.]. Then it was after that I joined Kevin full-time.

JONES: So, for those companies, you're doing the due diligence and—

BOCK: Kevin had a model of proactively creating companies from scratch themselves, as opposed to a business plan that would come in. The model that I learned from Kevin was, he was spending a great deal of time figuring out who the world's leaders were in those fields. It was just the time of my life because we'd be running around the world interviewing and meeting with all these people, and then figuring out who were the ones to create the constellations of the company around. That's a process I learned through Kevin, through GenPharm, Vertex, and Athena. Then I joined them full time after that to do it on my own, but with under the auspices of Avalon.

JONES: Yes, well, it's an interesting approach and when you went to Harvard, you're talking to the name of the—

BOCK: Dennis Selkoe.

JONES: Selkoe. This is Athena, the beginnings of Athena.

BOCK: Right.

JONES: Kevin is already lining people up.

BOCK: Right.

JONES: What was the purpose of your visit?

BOCK: To do the same thing. I was trying to do the exact same thing.

JONES: Just because you had an idea that you wanted to do something—

BOCK: I wanted to do something in neuroscience, and I was working in particular with some people at UC [University of California,] Irvine that ended up forming Cortex [Pharmaceuticals Inc.], and Dennis Selkoe at Harvard, which became Athena.

JONES: So, did you have this idea, too, at the same time, like maybe we can start something?

BOCK: Yes, absolutely and maybe we can start something, and Kevin was doing it and then we joined forces.

JONES: And then what was the plan for—I mean you are lining up the scientific people. What's the plan for lining up the businesspeople or putting organizations together?

BOCK: In the case of Athena the person that we came across who had a similar sort of vision was trying to do that at a company and I'm forgetting, it's called Sicor [Biotech UAB]. It was up in the Bay Area—named Larry Fritz and he became the first full time employee of Athena and actually held his offices—the original Athena offices were in the offices of Kleiner Perkins up in the Bay Area, because Kleiner Perkins, Venrock, IVP, Avalon and Fairfield were the original—

JONES: Everybody was in it. You would get the scientist first and then go find somebody—

BOCK: Kevin's model was to lock up the key scientific visionaries in the form of an SAB [Scientific Advisory Board] and gain access to the core technology of the company through doing that. They would form kind of a warm nest in which probably the full-time scientific visionary would become part of. And often that group of scientific visionaries knew that Larry Fritz was in their network and that was the basis of the company really to write the business plan and go out and get the first round of major round of financing.

JONES: Yes. How—

BOCK: It was that simple.

JONES: Yes, how important was IP [intellectual property] in this equation?

BOCK: It wasn't as important in the early days. It was really more of an idea and scientific founders and science visionary; it became more important at least for the companies I was involved with as time went on.

JONES: Yes. **<T: 35 min>** Well, you had to make a departure at some point from Fairfield to you decided Kevin had Avalon?

BOCK: Kevin had Avalon. It was called the Avalon III and Kevin's funds were really small by venture standards. I think Avalon I, II, and III probably cumulatively raised about two to three million dollars. Then I joined him to raise Avalon IV, which was about a four million dollars venture fund, as I recall.

JONES: So, was it just the two of you at that point?

BOCK: No, there were two other people that he brought in at the same time to do Avalon IV that were on the more high-tech type of side and Dennis Altbrandt and Dean Hovey. And but Kevin and I mostly focused on the biotech and that was when I had to do my first company by myself, and I learned a lot of lessons in that.

JONES: So, tell me about that.

BOCK: It was called Metrad Biosystems [Incorporated] and it was a company in the area of diagnostics for osteoporosis and it ended up going public and being acquired. But it was the hardest project. I almost died in doing it. Probably had to go one hundred and fifty VCs before I raised the first round of financing for it. And it was a big learning process.

JONES: Yes, what was the obstacle?

BOCK: Ironically, I went to the VCs that I knew early on: Kleiner Perkins and Delphi Bioventures, who had been part of a lot of the things. I had it focused it as both diagnostics and therapeutics and they didn't really like that and I just kept with that vision and talked to all these other VCs, and eventually I just focused it just on diagnostics and they became the first two investors. They were the first two I approached, and I approached a lot of them afterwards. Then I re-changed the vision to be more what I listened to what I should have been listening to early on and just had it focused on diagnostics. I think it turned out that one of their grandparents tripped down the stairs and died of osteoporosis. All of a sudden. [Laughter] "Oh, gee, I remember something about osteoporosis." So, a couple of things came together at the same time. Yes, that was the first one in—

JONES: So, you had trouble raising the money sort of pitching it the right way?

BOCK: Pitching it, but I learned everything I needed to do in that deal and then it became easier after that.

JONES: But you ran into every other objection or every—

BOCK: Every objection, yes, and all the ones before that. I was kind of tagging along and following Kevin and helping but I didn't have. I wasn't doing it myself. This was the one I had to cut my teeth on and really do it myself and then the other one in that partnership was a company called ARIAD Pharmaceuticals, [Inc.] that I did. And then—

JONES: What were they doing?

BOCK: They are involved in intracellular signal transduction.

JONES: That was pretty early on in that field, right?

BOCK: Yes, exactly. ARIAD still exists today, but it's had a rocky sort of history. Then at that point some of the other technology partners did some other high-tech things and stuff like that. That whole fun was only about two years long. Then we went out and raised a venture fund called Avalon Medical Partners and that really was—

JONES: Is this Avalon V? Is this the one called?

BOCK: It was going to be the Avalon V, but it was called Avalon Medical Partners.

JONES: Well, tell me Kevin is telling me this is—Sandoz [Inc.] is involved in this.

BOCK: Exactly, Kevin was out doing things and I had this idea for a medical— Avalon Medical Partners were a medically focused venture fund, and I was calling some major pharma companies and literally I picked up the phone to call Sandoz and get the name of their chief technology officer.

JONES: So, you're trying to go to the technology people to sell them— And then they'll go get the—

BOCK: To get the funding and I called Sandoz and in Switzerland **<T: 40 min>** and the chief technology officer picks up the phone and I said, "Well, I'm trying to get the contact information for Stephan [M.] Geutman."

"Well, I am Stephan Geutman. What is this regarding?" I pitched him on the idea on the phone and a week or so later, we're out there pitching them in person, and they became pretty much the so—they were the sole limited partner of Avalon Medical Partners which was it was intended to be a ten-million-dollar fund over five years. Basically, two million dollars a year.

JONES: Was it Medical Partners prior to Sandoz or did—because my understanding is—this is what Kevin told me yesterday that Sandoz said, "Yes, we'll go into this, but just therapeutics, that's what we want." So was it Medical Partners prior to Sandoz?

BOCK: Well the package that we were presenting to them was called Avalon Medical Partners but it was all biotech.

JONES: Yes, well that's interesting that—I mean you had the prior fund had a couple of successes with tech companies?

BOCK: Kevin had multiple successes prior to my joining him with various tech companies like Landmark Graphics [Corporation], Spectrographics [Inc.] and things like that. Then the fund I joined him with, the biggest winners in that fund were Metrad and ARIAD and one tech company and then Avalon Medical Partners.

JONES: I see. So did those successes with ARIAD and I'm sorry the other one was?

BOCK: Metrad.

JONES: You guys got together and said this is where it's going? So, let's just do bio?

BOCK: Yes, biotech was hot right at that moment. The interesting thing is right after we closed the fund, biotech went into a kind of a nuclear winter.

JONES: Was this '87?

BOCK: It was about '87. Sandoz gave us this money to create two companies a year over five years. Then pretty much at the end of that timeframe, we had like ten companies created and then the biotech market opened up and we were very lucky in that in that we had some ten great companies right at that timeframe, all of which were going public one after another.

JONES: Yes, no phenomenal success in that.

BOCK: It was the best thing that Sandoz ever gave in their ten million. I don't remember what it was, but it was about a couple hundred million dollars that they got back from their ten million in it.

JONES: Right. I'd like to talk more about each of the companies actually, but the idea from the beginning, how much input did Sandoz have on the project?

BOCK: Yes, so it was very interesting. So, the good news was that Sandoz really—I mean they're Swiss and they kept us to the letter of agreement which was to create two companies per year. But we gave them certain rights that are probably not a good thing, and they had a right to be a first-round investor in a company. That was not a problem. They had a right to kind of a first look to potential product application to potential corporate partnerships with the companies. That was a problem. So, in each one of the deals, we pretty much had to negotiate to waive that right, and that kind of irritated them in the process. They're checking on us all the time but and they made some incredible blunders, Sandoz did in this sort of sticking to the letter of the agreement. One of them was with Onyx Pharmaceuticals [Inc.] Onyx Pharmaceuticals. They said because Onyx was basically a spin-out of Chiron, which was like kind of their arch nemesis, at that time because Chiron was backed by Ciba Geigy [Corporation]. They were not used to do the fact that they were funding something that was spun out of Ciba Geigy and **<T: 45 min>** asked for their money back for that deal, which we got Institutional Venture Partners to do because they loved the deal. The amount of money that Sandoz left on the table just from those type of maneuvers was astronomical, so in retrospect.

JONES: Yes.

BOCK: So yes, so there was a little bit of a battle on each of the companies that got created in the fund. Then there were some companies that got started that didn't fit into the model that they didn't really want to be involved in. One of them was called River Medical [Recruiting Inc.] that was a medical device company. So, it wasn't a therapeutic entity so they and that ended up having a successful product, so successful it acquired IVAC [Inc.], the big medical device company, which then was merged with iMED [Global Corporation] to become. . . I can't remember the name of the company now.

JONES: Right, all of this is really interesting if we go back to the start of this fund as a kind of novel arrangement.

BOCK: It was a completely different venture model, too, because we had these great economics. The deal with Sandoz was that they put two million dollars a year into Avalon, one million to be invested in the two companies, so half a million in each and one million to operate pay the salaries and the running around money for the general partners of Avalon. Then we had this other fund called Avalon Bioventures with Institutional Venture Partners where if we created a company, it automatically put a half a million dollars into that company.

JONES: And that was okay with Sandoz?

BOCK: Yes, because they supported it. It just helps. But our economics where we had a 50 percent carried interest. Most VCs have a 20 percent carried interest and they have to return a one hundred-million-dollar fund before they see anything. We only had to return like a million of that two million each year before we saw anything.

JONES: How did you get that figure?

BOCK: Because Sandoz, they were not interested in return money.

JONES: In making money, they wanted to access—

BOCK: To access the deals. And the way it was sold to them, it was a window on technology. In the end, it became kind of funny because when the first checks started coming in, they kind of go, "Well, you get a return on these things?" They didn't really get it [Laughter]. Literally, I mean, this ten-million-dollar investment. I can't remember numbers, but it was in the hundreds of millions, over a hundred million now coming into the R&D [research and development] group at Sandoz, not the pension fund. All the sudden all these other arms at Sandoz are trying to grab at the money. [Laughter] So it was a very successful financial deal for them. It ended up

not being a successful source of products but that was because they chose not to do it. They ended up being a successful source of product for other pharma companies.

JONES: So, this fund and the previous fund, there were four people involved, two doing tech. Is this just you and Kevin?

BOCK: It's me, Kevin, and a guy named John Hendrick, who's kind of the chief financial officer of it. Yes, so it's just the three of us and we had a couple of associates that came and went over time.

JONES: So, it's mostly you and Kevin who are searching out the deals and evaluating them and doing all that stuff. So where did you start? What was the first company?

BOCK: The first company I did was Neurocrine Biosciences [Inc.].

JONES: Well, tell me about that. How did that come about? Howard was in that, wasn't he?

BOCK: Howard was an investor in that. Howard was an initial board member and investor in that and so was Harry [F.] Hixson, who was an Amgen kind of fame. It was based upon the work of a guy named Wylie [W.] Vale [Jr.] at Salk [Institute for Biological Studies], who later on did another company I was involved with Acceleron [Pharma Inc.], which is a recent public company.

JONES: So, this is your carrying on, you're interested in doing brain stuff?

BOCK: Yes, it was a neuroendocrine immunology company, so the brain-immune system kind of connection. And the principle founder was a guy named—technical founder was a guy named Wylie Vale at Salk and another one named Larry Steinman, **<T: 50 min>** who did multiple other companies out of out of Stanford [University].

JONES: Yes, so Sandoz took a look at this and said, "Yes, okay"?

BOCK: Yes, well I mean they didn't really have the right to sort of say, "We weren't going to do." We just had to create companies and I don't think Sandoz did they have any deals with—I can't remember if they had any specific deals with Neurocrine. I don't think so. But yes, that was the first one that got funded. I should drop back. In ARIAD, when we formed ARIAD it was an interesting financing thing in that the first major venture investor, besides Avalon, was Kleiner Perkins plus and David Blech. The idea was Kleiner Perkins, and Avalon put a small amount of money in it and then we would do one of these Reg D private placements as a way of getting the company well financed right at the beginning through David Blech. That became the largest Reg D private placement at that time, in ARIAD, and that was the strategy we used in Neurocrine again. It was David Blech was part of that, as well as Kleiner Perkins.

JONES: So, you got that going?

BOCK: Got that going. The next one was a company called Pharmacopeia [Inc.] that I did and meanwhile Kevin was doing Onyx as his first company and then Sequana [SA]. No —

JONES: Sequana was not until. . .

BOCK: Onyx–Kevin did three companies in Avalon: Sequana, Onyx, and Aurora Biosciences. I did, Neurocrine, Pharmacopeia, Idun Pharmaceuticals [Inc.], Caliper Technologies [Corporations].

JONES: And Caliper. What Kevin told me yesterday was Sandoz is only interested in therapeutics, but what did Caliper do?

BOCK: It was a lab on a chip— microfluidics lab on a chip technology.

JONES: Yes? Did it take any work to persuade them?

BOCK: No, I think they were fine with that. They didn't I don't remember them kind of. . . another one, Argonaut Technologies [Inc.] before Caliper.

JONES: Tell me a little bit each of those and how they developed?

BOCK: Pharmacopeia was the most fun, easiest project I ever did. It was a combinatorial chemistry area. Nothing ever went wrong with Pharmacopeia. Just everything went great, signed lots of corporate partnership deals, went public. It was just a gem to work on. Argonaut was somewhat of a spin-out of Pharmacopeia in that it also worked in the combinatorial chemistry area, but it automated it with instrumentation. It was not as big an idea but kind of a spin-off of Pharmacopeia. Then Caliper Life Sciences was also a total fun project. [. . .] I had a slow start in that we had to do a couple of mergers with some other companies but once it got kind of going, it was a big success. It was a valuable one for me, financially valuable one. It was the most financially valuable one for me because it got pulled along with this whole internet boom at the time. Kevin had left Avalon to become the full-time CEO of Sequana.

So basically, Kevin and I and John shared things, forty percent, forty percent, twenty percent. Kevin left. Kevin's forty percent was shared by John, and I interest in Caliper because he had left to do Sequana, and that ended up being a huge financial success for me.

JONES: Yes, well, what did that mean at that point when he goes to be CEO of Sequana? What were your—

BOCK: It was near the end of the Avalon fund. So, it was kind of a shame thing because he totally believed that this genomics thing was the way to go and probably the best thing for Sequana to have him as a CEO, but **<T: 55 min>** it was a good thing for me in retrospect from a financial standpoint. [Laughter]

JONES: So, you started the companies but the success with the companies—

BOCK: The success with the companies all started around that 1992 timeframe, I think. It's just one after another. Either they were acquired, or they went public, and I mean, so Onyx obviously went public, Neurocrine went public, Pharmacopeia went public, Aurora went public

and then was acquired by Vertex [Pharmaceuticals] for a lot of money in a very short period of time. The River Medical thing happened. There was no failure or anything within that Avalon fund. They were all huge financial successes.

JONES: Yes, which is kind of phenomenal.

BOCK: No, it was a combination between being smart and a lot of dumb luck. [Laughter] So yes.

JONES: So, what are your thoughts personally? Kevin is going to go off and go do something else. It's like you've had so much success you don't really—that's all taken care of itself and then.

BOCK: I'd like to think that— Kevin and I kind of grew apart, but I'd like to think that in retrospect, we probably should have stayed together. [Laughter] He went on to Sequana, I finished out the Avalon fund with Caliper, and then at that point I went and raised the funds just with IVP and Kleiner Perkins to do one start up in the bioinformatics area. They ended up funding a company called DoubleTwist [Inc.] that they were more interested in what we were doing. That kind of left what we were doing as kind of a—

JONES: So, you didn't get it off the ground? Or?

BOCK: Well so DoubleTwist ended up buying this entity that we were doing I think, for about seven hundred thousand. So, it was good for us. DoubleTwist eventually went under, but we were lucky because we got cash out right from the beginning. So that was a success. And then I went on to do another company called Illumina before changing fields completely.

JONES: Well, Illumina [Inc.] was obviously this is another huge thing. So, tell me the Illumina story, the beginnings of Illumina in detail.

BOCK: So, Illumina had an interesting beginning. What we were actually looking at was not a genomics company. It was a sensor on a chip idea, and it was the ability to put highly parallel—lots of sensors on a chip all at once.

JONES: So, this is for?

BOCK: Kind of like the Affymetrix kind of idea but not necessarily DNA. The ability to detect on one chip many, many different things. We had come across this technology out of Caltech [California Institute of Technology] that we thought was the be-all and end-all.

JONES: Who was it?

BOCK: It was a guy named Nate [Nathan S.] Lewis, a big-name guy at Caltech. Nate did not want to do a company with us. There was somebody else approaching him and he wanted to do a company.

JONES: Do you know who that was?

BOCK: It was a company called Cyranose it basically Cyranose because it basically was a nose on a chip. I don't remember who the original investors in it were. I think it was not Oxford Biosystems, but the other Oxford. I may be wrong on that. [. . .] Our feelings were hurt. So, we went out.

JONES: You had gotten to a certain stage?

BOCK: We were so convinced we wanted to do a company in this field based on this technology and so forth and—

JONES: When you say we, who was it? It was John—

BOCK: Me and John [R.] Stuelpnagel.

JONES: Well, how did you get hooked up with John?

BOCK: So, John worked for me as a summer intern and he was at UCLA and he was in the same program that I was originally when I did the Burr, Egan & Deleage thing and I always would hire summer interns out of this UCLA system. **<T: 60 min>** Then we worked on this bioinformatics company, and I really thought John was great. I convinced him not to go back to UCLA to finish his second year and to work full time here and he convinced UCLA to let him work here, not even take a leave. Do almost his whole thing remotely. So, and he still ended up being valedictorian of that class. So yes, so he came—

JONES: You weren't giving him enough to do. [Laughter]

BOCK: Well, I don't know, he's a pretty hard worker. So, and then so the Cyranose thing we kind of—Nate Lewis and this other guy who I had done some other project with, Bob Grubbs, who I knew well because he was a founder of Pharmacopeia and he was with Nate Lewis and they just, they didn't—

JONES: So, he was Caltech?

BOCK: He was also Caltech. He's a Nobel laureate in chemistry at Caltech. They didn't want to do it. So, we started looking for other—

JONES: You had this experience with Pharmacopeia. That was a great success, right? Everything worked. And but they—

BOCK: Yes.

JONES: But you couldn't get—

BOCK: They really wanted to do it with the other group, yes. Go talk to Nate about it. I think he regrets it. [Laughter] But let's see. So, we then started looking for competitive approaches to the Cyranose one and approached this guy named David [R.] Walt, who actually I had seen years and years ago because Avalon looked at one point, doing a deal with David Walt based on this fiber optic technology he had, but it wasn't developed enough. That was probably five or six years before and at this point, it had [become] well enough advanced. So, we used David Walt's technology as the basis of a new company, and it wasn't going to be focused on genomics per se. It was actually going to be this sort of nose on a chip technology.

JONES: Yes, what kind of particular applications did you have in mind?

BOCK: It could be anything, industrial, where you were wanting to detect, where you didn't really know what you were trying to detect.

JONES: Because you could detect…?

BOCK: You could look at a whole signal because you were taking so many inputs and everything had a unique signature you could the isolate what it was, was a general idea. We licensed this technology from David Walt. Meanwhile, there was this guy that we were trying to recruit to Caliper, who was a genomics, really smart genomics guy, out of Affymetrix named Mark [S.] Chee and he wanted to do his own thing and we exposed him to the technology at Illumina and he said, "Well you could use this for genomics." Then with the—

JONES: So, none of the chemistry guys had been thinking in those terms?

BOCK: At that point Mark Chee was probably the person who kind of thought this could be used for genomics and came up with this unique way of tagging these beads so that you can go back and figure out what bead was what, like at some later point. And there was this other guy named Tony [Anthony W.] Czarnik who had done another combinatorial chemistry company called Irori [Limited] who we recruited. That was the original team of Illumina.

JONES: Those are the technical people?

BOCK: Those are the technical people. And then Jay [T.] Flatley came in about probably, I guess, about a year and a half after that John was the acting CEO [chief executive officer] of the company prior to Jay coming in.

JONES: And so, recruiting, how did you select Jay Flatley?

BOCK: He came through a search firm. I don't remember which one, but his name came up through a search firm and there weren't a lot of analytical instrumentation companies at that time, but Molecular Dynamics was one of the more successful ones. He had come into that method. And yes, so that's how Illumina got started.

JONES: Now that's the beginnings. How long did you stay involved?

BOCK: Only about two and a half years. I got a medical condition had to take off to get some treatments for a time. **<T: 65 min>** At that point, let's see. No, I ended up switching fields completely and decided to go into [and] start something in the nanotechnology field called Nanosys and then after that, I kind of called it quits and haven't been doing anything for twelve years.

JONES: Well, CW Group, that's the successor to Avalon?

BOCK: Right—no. [. . .] There really wasn't a successor to Avalon. Avalon kind of stopped at the end of Avalon Medical Partners and then Kevin restarted it again to create Avalon VI several years later. Catalyst BioVentures was the thing that we created this bioinformatics company in. Then so that got acquired and right then I got approached by CW Ventures, which is a long-term, long time healthcare venture fund, about joining them as a partner.

JONES: I see.

BOCK: And John joined as an associate at that time and Illumina was the first company that got created in that partnership.

JONES: So Nanosys, tell me how did you get interested in nanotechnology?

BOCK: Biotech to me started getting too crowded. It used to be you form an advisory board, hire, or find a scientific visionary, you have a company.

JONES: So that was your model from the beginning?

BOCK: Yes.

JONES: And you were finding that didn't—

BOCK: That was not working in biotech anymore. There was just, I mean some of the last companies I did in the biotech arena, we ended up having to get lots of license agreements. Idun Pharmaceuticals [Inc.], I think we had about close to twenty license agreements just to start up the company. So, it was becoming more work and then they were more people were doing the same types of companies at the same time. I just went to look for something, new territory.

JONES: So, things had changed at universities where people are doing this basic research?

BOCK: Yes, well, and the same professors were starting multiple companies over and over again and Leroy [E.] Hood and Lander, Eric Lander, and Bob Langer.[5] It just, it was neither

[5] Leroy E. hood, interview by Mark Jones at Institute for 19 March 2002, 27 April 2006, and 25 March 2012 at Systems Biology, Seattle, Washington (Philadelphia: Chemical Heritage Foundation, Oral History Transcript #0243, in process); and Robert [S.] Langer, interview by Thakray Arnold, Mark Jones, David J. Caruso, and Jody

virgin territory, where it could be done. Now this was the early days of nanotechnology and it offered all it had all the same elements of the early days of biotech, but without that kind of competitive feel to it.

JONES: How important for you is sort of the technical sweetness of the—

BOCK: Everything. And the people. Those are the two most important things.

JONES: Personally, are you really jazzed by the technology?

BOCK: Oh, yes, absolutely. I mean I was mesmerized by the technology, and everyone. I kind of thought "Wow, there's never going to be a better technology than this one." And sure enough, two years later, there is something.

JONES: So, and Nanosys [Inc.], what did they do exactly?

BOCK: It was a platform technology company in the space of what were called inorganic nanoparticle semiconductors and it took Nanosys a long time to figure out what the best application of that technology is. Nanosys is just at the verge I think they had their second profitable year this year. They're becoming the technology that provides most of the color in most flat panel displays.

JONES: Well, you say you retired, but in my notes, I've got all kinds of stuff here. All kinds. It looks like all kinds of—

BOCK: Well, I've retired but I'm still a venture partner of a venture firm called Lux Capital. I still invest in things through that. But after Nanosys, I took my family abroad for two years for

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A. Roberts on 28 December, 2013, 23 and 24 October 2014, and 3 April 2015 at Massachusetts Institute for Technology, Cambridge, Massachusetts (Philadelphia: Chemical Heritage Foundation, Oral History Transcript #02982, in process).

fun and I checked out. Then I came back, and I completely changed. I'm now focused on this science education world.

JONES: But when you checked out for two years, what was that experience like? Specifically, well my question is when you come back, have you really checked out? **<T: 70 min>** Is it almost like you never existed, maybe to everyone or?

BOCK: Well, no, we went to London to live on a gap year for my younger daughter's gap year before college. I was miserable when we got there because what was I going to do with myself all the time. And about three months later, I didn't want to move back. [Laughter], so.

JONES: Well, what did you find to do with yourself?

BOCK: Well, we just traveled and had fun.

JONES: And you got involved with Venrock [Healthcare Capital Partners] at some point? Are you?

BOCK: I'm a limited partner.

JONES: You're a limited partner I see. But you had seeded some things. 2003 is Acceleron.

BOCK: Yes, Acceleron.

JONES: Why did you do that one?

BOCK: Because Wylie Vale was a founder of it and I did Neurocrine with him.

JONES: So, he's a friend?

BOCK: A friend, yes, but I was not an active investor in that seed.

JONES: And Bock Family Ventures, that's 2006. There's a bunch of companies in there.

BOCK: That's a holding company. So, I mean. In fact, some of these things keep coming back, I mean like Conforma [Therapeutics Corporation] is a company there. Larry Fritz, the guy I originally did Athena with I did another company with him called Idun Pharmaceuticals and then I did Conforma with him, where he really was a founder of Conforma. I was just an investor. So, there are a lot of examples of people from the past.

JONES: So that's what most of these—

BOCK: In fact, there's one in there called Protia [Biosciences] that Tony Czarnik was one of the four original founders of Illumina and he got crosswise with some of the other founders of Illumina and they had a falling out. There was a wrongful termination lawsuit.

JONES: What was the issue? Was it a control issue?

BOCK: No, I think John just didn't like him, didn't think he was performing. They fired him, but they probably didn't fire him right way. Tony won like a seven-million-dollar lawsuit against Illumina, which is a big amount of money for Illumina at that time, but then he went in and founded another company called Protia and approached me to be a scientific advisor to that.

JONES: A scientific advisor?

BOCK: Yes. I mean, an advisor to that and it was a brilliant idea and I never heard from Tony. He called me up and asked me a few questions every once in a while and the next thing I know I'm getting this K-1 that have all this quote/unquote, income, and I hadn't seen any checks and I called Tony. I go, "Well, why am I getting this K-1 on Protia?" He had just sold a tiny sliver of Protia to Celgene [Corporation]so, and a company that he had spun off called Deuteria.

JONES: So, I guess around 2007, is that when you start to get into the education stuff: San Diego Science Festival?

BOCK: Yes, exactly.

JONES: So, tell me about that.

BOCK: When I was abroad in England, when I was abroad in Europe, I saw the science festivals as opposed to a science fair. They were more of a celebration of science and engineering, more like an art or music or film festival than like a science fair competition poster session. I thought, "Well, that's a cool idea." Then I heard this guy give a speech, Dean [L.] Kamen who is the inventor of the Segway. He said this quote that just really resonated with me it's that, "You get what you celebrate." You celebrate Britney Spears and Lindsay Lohan, and you generate a lot of them, but we don't celebrate science and engineering. I wanted to put on the largest celebration of science and engineering. I created this event here in San Diego, [California] called the San Diego Science Festival. That went really well and my main sponsor of that came back to me afterwards, Lockheed Martin, and said, "Hey, let's do it in Washington, DC, and do it as a national event." That's really what I've been working on for the last five years.

JONES: So, you've been involved in every one of those? That's your thing?

BOCK: Yes, we just had our last one about four weeks ago and we had three hundred twenty-five thousand attendees over a weekend to it. **<T: 75 min>** So it has kind of grown and grown and grown.

JONES: You have fun doing that?

BOCK: Yes, I mean, I'm not getting paid. [Laughter] I better be having fun. There are times when I'm not having fun, but.

JONES: Yes, it seems it could be a logistical nightmare.

BOCK: Oh, it is. It is huge. We are the single largest events in the Washington Convention Center's history. So, and this year on our sneak peek day, we had close to fifty thousand kids come and if you take that amounts to about eight hundred school buses. Eight hundred school buses and you take the length of a school bus, it's about five miles worth of school buses. Well, that's a huge logistical thing getting into Washington, DC. Lots of challenges.

JONES: What do you want to do with it? I imagine it evolved over time a bit. What have you learned about sort of reaching out and?

BOCK: Yes, it's kind of a grassroots type of thing. We have close to a thousand organizations that participate in it including companies like Illumina and some of the other companies that I've been involved with. But it's just to get kids excited about science and engineering. It's now Lockheed has come back and upped their ante again. They make it harder and harder each time to not do it again.

JONES: Well, I know Ian was very pleased to have the opportunity to do something for it.

BOCK: Who was that?

JONES: Ian with Life Sciences Foundation.

BOCK: With Life Science Foundation. Oh, yes, oh yes, yes, they presented at it. So, he would know what it was like. If it was a success for them or not, I don't know.

JONES: Well, he was saying he got Francis [S.] Collins to show up.

BOCK: Yes, Francis was there and is the exact icon of the type of person that we want to have at the event. He's really good in inspiring kids and then he pulls out his guitar and sings science rock songs.

JONES: I see that you also did something with or are still doing something with [Life Science Connect] Connect. You're helping?

BOCK: Yes, I've been on the various Connect Springboard's stuff over time. And I was much more involved with Connect when Duane [J.] Roth was still there because he was instrumental in helping me get the San Diego Science Festival going.

JONES: Yes. What's going on there now, do you have any idea?

BOCK: I don't.

JONES: Let's see, Cambridge. This is in England, or is this in Massachusetts?

BOCK: No, Cambridge, England. So, yes.

JONES: Doing the same thing over there?

BOCK: Well, I didn't do that. That's the one I saw in England that I thought was a good idea that I wanted to bring that idea back here.

JONES: Yes, I got the note here. Anything else that?

BOCK: No, that sounds like it. [Laughter]

JONES: Well, I appreciate it.

BOCK: I hope my stories were consistent with Kevin's. [Laughter]

JONES: Sure. And there's so many companies here. I hope if we could get back with you at some point. To maybe ask specific things about specific companies— To help our historical research efforts. That would be much appreciated.

BOCK: Yes. Well, it's interesting. I mean these companies, some of them, like Athena, do not really exist anymore but it's—I mean it's within Allon [Therapeutics Inc.] in some ways. So, it's hard to even though what happened with a lot of these things. Onyx now –

JONES: Amgen now, yes.

BOCK: –is part of Amgen. So, they disappear. Caliper is part of Perkin Elmer [Inc.].

JONES: Yes, well, it's interesting, a lot of. Talking about public companies in these cases, but even over the course of I think it was just a few years ago, right, that the biotech industry started to break even?

BOCK: Is that right? As an industry, right?

JONES: Yes, in the aggregate. So, there was a lot of money lost along the way, but those firms that were acquired, they've got technology. I don't know if there is any way to really assess the value of what came out of the whole thing.

BOCK: But it is such an amazing thing, I remember going to that first H and Q [Hambrecht and Quist] Conference that I went to and it was tiny.

JONES: Were you there for the first one?

BOCK: Not for the very first one but or probably even the second or third one. I mean, it was tiny and now it's just packed, so I don't even want to go near that place. It's such a nightmare. Or BIO. BIO is a good example. I mean that thing was like nothing. So, in fact, I remember ABC and BIO –there were a couple of these different, associations being formed sort of simultaneously and nobody thought they would ever get critical mass to really be an industry association. Now you go to BIO and it's a massive event for San Diego. **<T: 80 min>**

JONES: Well, that's interesting. That was the talk at the time that there wouldn't be a critical mass?

BOCK: Oh, sure. I mean I think one of them was IBA, Association of Biotech Technology Companies and one was—

JONES: There was IBA and ABC.

BOCK: ABC.

JONES: Those are the two.

BOCK: Yes, and one of them didn't succeed. I think it was ABC.

JONES: Well, they wanted to make BIO.

BOCK: Yes, but one really focused on the small companies and one focused on the big, and the one that focused on the small companies wasn't really going to succeed or whatever, so. I see that same thing happen in the nanotechnology for these industry associations to get enough critical mass. It will happen, but it takes a while.

JONES: Well, it's interesting you really did check out. You're a little bit of a rarity in that respect. I mean, a lot of these guys won't check out.

BOCK: Howard, I think checked out.

JONES: Yes, I guess pretty recently.

BOCK: Kevin checked out a little bit. I mean, he started doing these international investing for a while before he came back into the high-tech world, so.

JONES: Well, maybe it's something about San Diego, but I think up in the Bay Area and Boston, [Massachusetts,] it's so hard for people to check out.

BOCK: Brook Byers checked out for a while and then—

JONES: Did he? He was always officially sort of. . .

BOCK: Well, he left, and wasn't doing anything active for a while and then came back.

JONES: Okay.

BOCK: I'm not coming back. [Laughter] I'm having too much fun.

[END OF AUDIO, FILE 1.1]

[END OF INTERVIEW]