

William Respass

*Interview conducted by
Matthew Shindell, Historian, UCSD
August 14, 2008*

SAN DIEGO TECHNOLOGY ARCHIVE



William Respass



Dr. William Larry Respass, Ph.D., J.D., Esq. has been a Senior Vice President, General Counsel and Secretary of Nanogen Inc. since April 2004. Dr. Respass served as Senior Vice President and General Counsel of Graviton Incorporated from 2000 to 2002. From 1988 to 2000, Dr. Respass served as Senior Vice President and General Counsel of Ligand Pharmaceuticals Incorporated. He also held the positions of Vice President and General Counsel of Gen-Probe Incorporated from 1986 to 1988 and Vice President and General Counsel of Hybritech Incorporated and Partner at Lyon & Lyon LLP, a leading intellectual property law firm from 1983 to 1986. Dr. Respass joined Nanogen in April 2004 and has more than three decades of biotechnology experience in intellectual property, licensing and general corporate law. He served as Vice President and General Counsel of Applied Molecular Evolution, Inc. from July 2002 to 2004. He served as Law Clerk and Technical Advisor to the Honorable J. Lindsay Almond, Jr. on the United States Court of Customs and Patent Appeals. Dr. Respass serves as Director of Nautilus Biotech. He has been Director of Applied Molecular Evolution, Inc. since September 2002. He serves as a member of the American Intellectual Property Law Association and has been a frequent Lecturer on intellectual property and licensing law. He studied PhD in Organic Chemistry from Massachusetts Institute of Technology and a BS degree in Chemistry from Virginia Military Institute. Dr. Respass studied JD from George Washington University.

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SAN DIEGO TECHNOLOGY HISTORY PROJECT

1 **INTERVIEWEE:** William Respass
2 **INTERVIEWER:** Matthew Shindell, Historian, PhD
3 **DATE:** August 14, 2008
4 **LOCATION:** San Diego, California

5 **SHINDELL:** The date is August 14, 2008. This is an interview with Larry Respass, done by
6 Matthew Shindell. Mr. Respass, if you could tell us please, how did you become involved in
7 San Diego biotech?

8 **RESPASS:** Well, just for the record my first name is really William. (**SHINDELL:** Ah.) I go by
9 "Larry," but, so most people refer to me that way. But, if we're making an official record, I
10 guess it should accurately identify that I'm William Larry Respass. And, you asked me how I
11 became involved in biotech?

12 **SHINDELL:** Uhm-hmm. Yeah. Going back as far as you like. How did you end up here?

13 **RESPASS:** Okay. Well, I guess it really started when I was an associate in the law firm of Lyon
14 & Lyon in Los Angeles. [1:00] At that time - Lyon & Lyon no longer exists but it ultimately
15 became a very large intellectual property law firm. But, when I joined the firm in 1974 it was
16 twenty-plus lawyers. A few years after I joined the firm a partner in the firm, Thomas D. Kiley,
17 Tom Kiley, asked me to participate with him in representing a new company and that
18 company turned out to be Genentech. I don't know whether people listening to this, if anyone
19 ever does, will know this, but Genentech is generally considered to be the first biotechnology
20 company, and by all metrics one of the most successful. [2:00] And, they were embarking on
21 the, attempting to develop products using what, at that time, was a nascent technology,

22 molecular biology, to make proteins by instructing bacteria how to make the proteins. And,
23 the first meeting I had with Tom and these two, and this company, there were two people
24 there, Bob Swanson, who was the president of the company and I think chairman of the Board,
25 or at least was certainly on the Board, and – well, it's not coming to me right now, but it'll
26 probably come to me later – a scientist from the City of Hope who worked with Genentech.
27 His name was Art Riggs I think. And, well as they say with, I'll say with respect to Genentech,
28 the rest is history. [3:00] They are a hugely successful biotechnology, biopharmaceutical
29 company. But, Tom Kiley and I began to work on their first patent applications for the first
30 expression of a human protein, a functional protein, in a bacterium. It was a very small
31 protein, but it was considered a very important advance at that particular time. What does
32 that got to do, all this have to do with Hybritech. Well ultimately Tom was induced to leave
33 Genentech, I mean leave Lyon & Lyon and become the general counsel of Genentech, and he
34 had just picked up, shortly before that, I'll call it a "new client" called Hybritech. And,
35 Hybritech, I think most people consider it to be the first biotechnology company in San Diego.
36 And, he introduced me to [4:00] Howard Birndorf and Ted Greene, and I undertook to
37 represent Hybritech in its early, early days. Ultimately, like Tom I was, like Tom was
38 persuaded to join Genentech, I ultimately agreed to leave private practice and become the vice
39 president and general counsel of Hybritech, and that's how I got into biotech.

40 **SHINDELL:** So, you left L.A. at that point and came to San Diego?

41 **SHINDELL:** Yeah. That was in 1983, late '83, late 1983 I came down here and started with
42 [Jet plane in background] Hybritech.

43 **SHINDELL:** And, [5:00] you had had some experience with Genentech then with drawing up
44 their patent applications and so maybe knew a little bit more than, than others in this country

45 about biotech and its potentials back in the '70s. So, I wonder, how did you see biotech at that
46 point? What did it seem to you? (RespeSS: Uhm-hmm.) What was the promise of biotech?

47 **RESPESS:** Well, I think obviously – I recall a conversation I had with Brook Byers, who may be
48 on your list of (Shindell: Uhm-hmm.) interviewees. Brook was a partner at Kleiner Perkins
49 Caufield & Byers (Shindell: Uhm-hmm.) and they were an early investor in Hybritech. And, he
50 and I had a discussion that I remember very well, in which he pointed out to me a number of
51 things. One is, that as a lawyer in private practice [6:00] I can only work twenty-four hours a
52 day and that would cap my earnings at whatever my income could be and, but if you, if you
53 participated in a, in a bio, in a company like a biotechnology company that you obviously had
54 an opportunity to be remunerated on the basis of the performance of the stock. (Shindell:
55 Uhm-hmm.) But it wasn't, the conversation wasn't as crass as I may have made it sound,
56 because in the course of that Brook, who had, who's a venture capitalist, and Kleiner Perkins
57 is a venture capital firm, (Shindell: Uhm-hmm.) and again probably the premier venture
58 capital firm in the United States, commented to me that he took particular satisfaction in
59 investing in companies like Genentech – they were an investor in Genentech – and Hybritech
60 because he got particular satisfaction out of the benefits that a successful investment could
61 have for [7:00] humanity. (Shindell: Uhm-hmm.) The, there are things that biotech could do,
62 or had the promise of being able to do, that simply could not be done any other way and the
63 ultimate beneficiary, he thought, and I think I agreed with him, but then I certainly agreed
64 with him at the time, was that biotechnology could provide incredibly important therapeutic
65 and diagnostic products for the benefit of all persons. And I think the promise of
66 biotechnology has, I think biotechnology has, generally speaking, delivered on its promises.
67 (Shindell: Uhm-hmm.) In those particular days, I think it was perceived that a major, the
68 major area would probably be recombinant technology like Genentech was practicing.
69 Monoclonal antibodies, which was Hybritech's thing, was [8:00] not as far along, so to speak,

70 (Shindell: Uhm-hmm.) but had enormous potential also. And, I think both of those
71 technologies have more than paid back the early investors, (Shindell: Uhm-hmm.) rewarded
72 the confidence of the early investors. Ultimately they sort of came together, antibody,
73 monoclonal antibodies began to be made by recombinant techniques. (Shindell: Uhm-hmm.)
74 But, so these two disparate technologies ultimately met each other somewhere and they both
75 have made great contributions for – well, one of the leading cancer products in the United
76 States is Rituxan, (Shindell: Uhm-hmm.) that was developed here locally in San Diego and it's
77 a monoclonal antibody, and I believe it's made by recombinant techniques. (Shindell: Uhm-
78 hmm.) So. Anyway. So, I was, [9:00] I was persuaded that there would be considerable
79 personal opportunity for me if I was willing to consider leaving private practice and run the
80 risk in a small biotechnology company and that I would get – if it was successful I'd get
81 enormous personal satisfaction (Shindell: Uhm-hmm.) out of being a part of that success, and
82 those have all been, have all come true. I feel personally rewarded in both how I've done
83 financially and how I've been able to be involved in a, the birth of an industry, (Shindell: Uhm-
84 hmm.) both originally starting at Genentech, well starting at Lyon & Lyon and working with
85 Genentech, and then with Hybritech, and then subsequently after Hybritech a number of other
86 biotechnology companies in San Diego.

87 **SHINDELL:** And, when you worked at Lyon & Lyon and you drew up Genentech's patent
88 applications, was that your first experience with patent law, or had you studied patent law
89 extensively prior to that?

90 **RESPESS:** Well, I had been a patent lawyer [10:00] for a number of years.

91 **SHINDELL:** Oh, okay.

92 **RESPESS:** And my, my career in patent law, if you will, started when I started, when I entered
93 law school. I had been a, I was in the U.S. Air Force in the '60s and in the, while I was in the Air

94 Force I'd formed the idea that I would like to be an attorney, (Shindell: Uhm-hmm.) and I was,
95 at that time I was assigned to the United States Air Force Materials Laboratory at Wright-
96 Patterson Air Force Base, and I was a doctor of chemistry. (Shindell: Oh.) But, I became
97 interested in potentially doing, having a law career. And . . .

98 **SHINDELL:** Where did you get your chemistry degree?

99 **RESPESS:** At MIT.

100 **SHINDELL:** Oh, okay.

101 **RESPESS:** So, to make a long story short, I, in those days there were, in Washington D.C.,
102 [11:00] many corporations had training programs for budding patent attorneys which
103 allowed you to work in the daytime and go to a, one of the D.C. law schools at night,
104 Georgetown, George Washington, American University, and Catholic University all had night
105 law programs in those days, (Shindell: Uhm-hmm.) and I selected George Washington
106 University and went to law school at night, and worked in the daytime for Phillips Petroleum
107 Company. (Shindell: Uhm-hmm.) And so, before I finished law school I was, I became a
108 registered patent agent. You're not allowed to call, refer to yourself as a patent attorney as
109 long, until you have a law degree but there is an examination you can pass and practice before
110 the Patent Office as if you were an attorney (Shindell: Uhm-hmm.) without being an attorney,
111 [12:00] and I qualified. There's nothing unique about that. Many other people have done the
112 same thing. And so, after I, and so I worked in Phillips' Patent Group in Washington D.C. and I
113 actually began preparing and prosecuting, the term we use is "prosecute" patent applications
114 before the Patent Office, and do sundry other things that are related to that. (Shindell: Uhm-
115 hmm.) Then after I graduated from law school I became a clerk and technical advisor to a
116 judge, Judge Lindsay Almond on the United States Court of Customs and Patent Appeals. That
117 court no longer exists. It was merged into another, it merged with another specialized federal

118 court (Shindell: Uhm-hmm.) to form the [13:00] United States Court of Appeals for the
119 Federal Circuit, which has jurisdiction over patent matters. So, for two years I, I assisted in, in
120 drafting opinions for judges on a patent court, (Shindell: Uhm-hmm.) which is a very
121 concentrated, if you will, graduate school in patent law because every month there would be, I
122 think, in those days twenty-five appeals heard and each chambers would get five and over the
123 course of two years, if you multiply twenty-four times five you assisted in the drafting of at
124 least 120 opinions on a variety of matters, not all of which were patents. Some were
125 trademarks, and some related to customs matters. But, that was the sort of jurisdiction that it
126 had in those days. And then after I finished [14:00] law school I . . .

127 **SHINDELL:** What year was that?

128 **RESPESS:** I mean after, I'm sorry, I finished law school in 1972 and after I finished clerking in
129 1974 I became an associate at Lyon & Lyon in Los Angeles and moved to California. And then I
130 was there until 1983 and I was a partner in 1980, but I resigned from the firm and joined
131 Hybritech, as we've already discussed, (Shindell: Uhm-hmm.) in 1983.

132 **SHINDELL:** That must have been a big decision to leave a partnership, or a position (Respe:
133 Uhm-hmm.) as a partner in a law firm? How did your colleagues think of that?

134 **RESPESS:** Well, it was a, it was a difficult decision. I certainly enjoyed what I was doing and I
135 was [15:00] happy at the firm. I wasn't truly a groundbreaker. I already mentioned Tom
136 Kiley, (Shindell: Uhm-hmm.) who was about three years ahead of me in the partner, in
137 becoming a partner at Lyon & Lyon, two or three years ahead of me in any event, and Tom had
138 already left to go to Genentech and Genentech had gone public, and a very successful public
139 offering, and one of the first of the biotech companies, as I recall, to go public, become a public,
140 public, having stock publicly traded. (Shindell: Uhm-hmm.) And, I think, the firm, the firm as
141 far as I was concerned, they seemed to regret my leaving but I think there was a recognition

142 that, particularly as a result of the relationship we had with Genentech, (Shindell: Uhm-hmm.)
143 [16:00] that is one way that a firm grows is, and which is, was certainly true in those days of
144 the major law firms, because patent law was a, was considered a boutique practice back in
145 those days. (Shindell: Uhm-hmm.) Most big law firms didn't have patent, didn't have patent
146 departments. If your alumni, so to speak, went into a corporate setting then often the parent
147 law firm, if you will, benefited from the business that would come their way. And I mean,
148 again, I don't want to make this sound crass. They don't, in those days, particularly, law firms
149 didn't groom lawyers to put them out (Shindell: Uhm-hmm.) and proselytize for, for business,
150 but that would be a natural result that if, so if, particularly if you leave in good stead I would
151 assume. So, I considered it to be [17:00] a bold move personally, because I gave up the
152 sinecure, if you will, of a, in those days, a major patent law firm (Shindell: Uhm-hmm.) for a
153 risky business. But, it was something I was interested in doing for reasons independently of
154 the success and pleasure of private practice. I considered it a challenge, (Shindell: Uhm-
155 hmm.) a different kind of challenge that I was interested in undertaking.

156 **SHINDELL:** Okay. Can I just backtrack a little bit and ask you about your experiences prior to
157 Lyon & Lyons? When you were at, well doing your clerkship or even prior to that, first
158 practicing patent law did you find that your chemistry background was helpful in that?
159 (Respass: Uhm . . .) Did you use it much or is it more of a technical process regarding the law
160 rather than the actual [18:00] chemistry?

161 **RESPASS:** I think many people gravitate, if they become a patent lawyer – first of all to
162 become a registered patent agent you have to have a technical background. (Shindell: Uhm-
163 hmm.) The Patent Office requires that. And, in the days when I started as a patent lawyer,
164 before the birth of biotech as we know it today, there were three art areas, generally speaking,
165 broadly speaking there were three art areas. One was what we call "mechanical," and that's
166 engines, and turbines, and things like that. And then, there was what we call the "electrical

167 arts" and that included, as technology moved on, the computers (Shindell: Uhm-hmm.) had
168 begun. You're such a young guy, you probably don't remember there was a time when there
169 wasn't a computer on every desk and computers took up whole rooms, (Shindell: Uhm-
170 hmm.) and so forth. But so the, when the, when the computer revolution began the people in
171 the [19:00] electrical arts naturally, I think, became those, the people to whom persons looked
172 for representation in the computer arts, which was a subpart of, in those days, the electrical
173 arts. Well, in the chemical arts I was , by training in chemistry at MIT in what I'll call classical
174 small-molecule chemis, the kind you study in sophomore chemistry at UCSD probably. Then I
175 went to the Air Force Materials Laboratory which was focused on materials for aircraft and
176 for other military applications and these tended to be, other than small molecules, polymers.
177 (Shindell: Uhm-hmm.) You know, think like what carpet's made out of (Shindell: Uhm-hmm.)
178 [20:00] and one thing or another. So, I had a background in classical chemistry and also to a
179 certain extent some exposure to specialized field of high molecular-weight compounds, if you
180 will, polymers and so forth. And so, and one other, one other aside is that within the chemical
181 arts, just like computers fell within the electrical arts, pharmaceuticals tended to fall in the
182 chemical arts. (Shindell: Uhm-hmm.) So, people who had chemical backgrounds gravitated to
183 the, well, if their firm had clients or they secured clients they represented people in the
184 pharmaceutical business. Now frankly, on the West Coast, in those days, there was not a
185 significant presence of pharmaceutical companies, but I personally represented companies
186 that were involved in making polymeric materials. [21:00] Raychem Corporation in the San
187 Francisco Bay Area (Shindell: Uhm-hmm.) was a very successful company in specialized
188 polymers. And, I also, Tom Kiley and I, with another, with another more senior partner at
189 Lyon & Lyon, Jim Garriack, represented a company in the diagnostic business, and so I had a
190 little bit of antibody, immunology background that I acquired from that. Well, at any rate, you
191 asked me the question, and I rambled a bit about, "Did it make much difference what my, what

192 my background in chemistry to my practice?" I think that a lot of young patent attorneys
193 would like nothing better than to do patent work in the area for which they were particularly
194 trained, (Shindell: Uhm-hmm.) and they're, I, it was fairly unusual [22:00] when I started to
195 have a doctor's degree in chemistry, let's say, but it's much more common now for patent
196 attorneys to have advanced degrees. And, but the fact of the matter is that I think in order to
197 be successful you have to go beyond your narrow technical specialization (Shindell: Uhm-
198 hmm.) and but most of the really good patent attorneys are able, with the help of their clients,
199 to gain the grasp of the technology sufficiently that they can do a good, a good job. I
200 personally believe that, in the patent area, a client is better served by a very good lawyer who
201 can adapt to, to the technology (Shindell: Uhm-hmm.) of the, of the client, as opposed to a
202 poor lawyer who is [23:00] highly skilled technically (Shindell: Uhm-hmm.) but doesn't have
203 a broader sense of how to integrate the knowledge of the technology into the business
204 environment. I won't name any entity but I once looked on behalf of a company at some
205 technology that they were interested, it was interested in licensing and the patent application
206 that was up for license was going east when the technology was going west, (Shindell: Uhm-
207 hmm.) and we had to intercede and change the focus of the patent prosecution so that it fit the
208 business model as opposed to some esoteric area of probably extreme interest to the
209 researcher who had come up with it, (Shindell: Uhm-hmm.) but it didn't have, the way it was
210 going would not have had any business application. So, in any event, it is, I think, very
211 important [24:00] that the lawyer function as a lawyer as opposed to a, a legally-trained
212 scientist. (Shindell: Uhm-hmm.) Okay?

213 **SHINDELL:** Let me ask you about what you described just now as sort of adapting to, to the
214 client's sort of technology or science. How did you adapt to biotech and also how did
215 patenting in general sort of adapt to biotech as that explosion began? Because, it wasn't
216 necessarily an easy fit once it really started exploding right?

217 **RESPESS:** That's a very good question because the U.S. Patent Office, for reasons that amaze
218 me, puzzle me, has often resisted examining new area, new areas of technology. [25:00]
219 They've become very rigid in their outlook on new technologies. Probably the – and, so
220 they're very comfortable examining patent applications in areas that have been around a long
221 time, and today they're fairly comfortable examining biotechnology applications because now
222 they, biotechnology's been around a fairly long time. But, back in the days when the computer
223 revolution was beginning, the Patent Office resisted granting patents in the area of (Shindell:
224 Uhm-hmm.) computer technology. And, they threw up things like, "Well, computers basically
225 do the same thing that a brain does and you can't, you can't patent the mental process.
226 (Shindell: Uhm-hmm.) If it can be patented, if it can be carried out by a human brain you can't
227 get a patent on it." That's, they would create those sorts of blocks. And, I remember at a,
228 [26:00] in a seminar course in, in law school we had a guest come in from the Patent Office
229 and he complained about the burden on the Patent Office of having to examine these really
230 thick computer patent applications that, you know, are three inches high when they're, when
231 they're filed, as opposed to an eighth of an inch electrical application. (Shindell: Uhm-hmm.)
232 And, it was putting a big burden on the Patent Office and they didn't like it and they were
233 thinking about using a part of the patent statute that hadn't been used for a hundred years,
234 and that is the requirement that if the Patent Office wants to that they can make you bring in a
235 model of your invention. "So, we're going to, we're going to make all these computer people
236 bring in a model of their invention." Well, if you've, there's a museum, there's a museum in
237 Washington D.C. and you can go look at patent models. They're beautiful things. And the
238 days, and you know, you can look at the, probably. I'm not, I'm making this up to a certain
239 extent, [Laugh] you might look at the, at the, at a model of the reaper [27:00] or the model of
240 an early steam engine, and those sorts of things. But the Patent Office has moved on beyond
241 that. But, the Patent Office, you know, took a sort of what I would call a Luddite view of new

242 technology. It didn't want, it didn't want to change. Well, a similar thing happened when
243 biotechnology began to break out because there was no, there were not people there who,
244 who knew biotechnology and you had to take the people from the chemical arts and
245 specifically, more specifically those from the pharmaceutical arts and adapt them to
246 biotechnology. Well the, that's, that's learning and most people don't want to learn. That's
247 unfair. A lot of people don't want to learn. Institutions don't want to change. And, they tried
248 to fit biotechnology into the old paradigm and it wasn't working, and so you began to get
249 rejections. "Well, this is not patentable [28:00] subject matter because you're patenting living
250 things," (Shindell: Uhm-hmm.) and one thing or another. Well, over time the federal court, I,
251 the CCPA that I referred to and its successor court, the Federal Circuit, they adopted a broader
252 attitude, fortunately. I think it was in a case, in *Re Chakrabarty*, or another case of that era, the
253 Court said something to the effect, "Anything under the sun that man can make is potentially
254 patentable." And, they forced the Patent Office, in effect, to grant patents where they had been
255 resistant. Now, of course, the Patent Office has, by virtue of necessity, it began to, obviously,
256 hire people who had biotechnology backgrounds and they are getting very sophisticated,
257 more sophisticated examination, and we've gotten past their reluctance to grant patents in
258 this area. [29:00] But, for a long time, for a period of time at any rate in the early days of
259 biotechnology they, the Patent Office did not want to be burdened. It wanted to keep on doing
260 what it had been doing for the last, since the birth of the republic. [Laughter] And having been
261 forced to examine computers but it, the Patent Office, wasn't happy about examining
262 biotechnology patents either. I mentioned that you can't patent life. You can't patent
263 products of nature, (Shindell: Uhm-hmm.) and so forth and so on. And, some very innovative
264 things were done by people to, including my colleague Tom Kiley, that I referred to, in order to
265 present the Patent Office with applications for inventions that got around these (Shindell:
266 Uhm-hmm.) sort of arcane objections that the Patent Office raised in those days. For, for, I'll

267 give you an example, which I'm sure [30:00] will mystify people who look at this [Laugh] if
268 they ever listen to this ten years down the road. Take, take an early recombinant molecule
269 like human growth hormone, which before biotechnology was being extracted from cadavers,
270 (Shindell: Uhm-hmm.) and very small quantities were available. And, they were, it was used,
271 as I understand, as I recall, to treat a condition called hypopituitary dwarfism where children
272 don't (Shindell: Uhm-hmm.) gain their natural, what they might be otherwise programmed to
273 in terms of their stature because they don't produce enough growth, growth hormone. So,
274 they would get injections of growth hormone from, from, derived from cadavers. Well,
275 unfortunately, those products were sometimes contaminated with viruses, (Shindell: Uhm-
276 hmm.) [31:00] or, and children became infected from what they were being treated with. So,
277 if you make it, if you could make this material in a, in a bacterial cell, let's say, it would still be
278 growth hormone and it would have the same chemical structure as growth hormone. So, if
279 you tried to patent growth hormone you would get a rejection from the Patent, "Oh, that's just
280 a product of nature. You can't patent that. It's already known." But yet, it has, its economic
281 potential was zero back in the days when you're trying to persuade people to let their loved
282 ones be sacrificed for the production of, of – I'm not – they weren't "sacrificed," but after they
283 died (Shindell: Uhm-hmm.) their body be ravaged to get growth hormone. So attorneys
284 began to do some innovative things. You would, they would claim these products of nature
285 as, let's say, "human growth hormone free of protein, other proteins of human origin, or
286 mammalian origin." [32:00] And, of course the Patent Office had to be persuaded this was, this
287 is – because you, if you purify growth hormone you always leave behind a little bit of other
288 things. (Shindell: Uhm-hmm.) So by, by doing this you achieve what is essential in patents,
289 what we call bare – you achieve novelty, and once you achieve novelty you're a long ways
290 along the way to getting your invention patented. So, the point of the story is that in order to
291 get patents in this area you had to be, you had to be a good lawyer. It goes back to my earlier

292 point, that a good lawyer is, being a good lawyer is perhaps more important than being the
293 greatest technician in the world in this area. If someone hadn't, if people hadn't come up with
294 these claiming paradigms we would still be battling with the Patent Office that we're trying to
295 patent natural products, (Shindell: Uhm-hmm.) which you're not, technically you're not
296 allowed to do. It has to be in some form other than it's found in nature or otherwise has been
297 available to the public. So anyway, there was a, I think, a very [33:00] important period, there
298 was a period in the – there was, fortunately, in the early days of biotech there were lawyers
299 around like Tom Kiley, who were able to create a scheme, in the nice sense of the word, a
300 scheme under which the products of biotechnology could be patented and get around some of
301 the objections, some of which but not all of which were unfounded by the Patent Office in
302 terms of "How is this technology going to be (Shindell: Uhm-hmm.) protected?" Because
303 without patent protection the industry, I think, would have foundered. I'll allude to Brook
304 Byers, another conversation with Brook, or not just a conversation. I'm heard him say this in
305 other, to people other than just me that the investment, the venture capital community looked
306 for three things in, [34:00] in a startup company. They looked for technology that had
307 significant economic promise. They looked at the strength of the management team. And,
308 they looked at whether or not there was intellectual property to protect this little company
309 from competition, sufficient for it to, you know, achieve the level of success that would pay
310 back their investors. Because, the thing that I think has made the biotechnology industry is a
311 little bit like the story we hear about how mammals eventually survived in the era of the
312 dinosaur, they were nimble and quick and were able to get around and avoid these lumbering
313 beasts. [Laugh] Well, the small biotechnology companies were, are, and Howard Birndorf –
314 you've had, I know you had a conversation with Howard – Howard is the perfect example of
315 the [35:00] entrepreneur who has a nose for technology that has promise, seizes the
316 opportunity, works out an arrangement with the institution from where that technology is

317 coming, and maybe the person who developed that technology there, and form the nucleus of
318 a company where the big pharmaceutical companies are, you know, they're still lumbering
319 along. [Tapping table] And I, this may sound unfair to pharmaceutical companies and I'm
320 sure that there are, and there are other reasons why the biotech companies have had more
321 success in licensing technology than they had in getting some of these new technologies off
322 the ground. But one is that they simply were, they moved so slowly that these opportunities
323 come and go before they really get a chance to play in the game. And so, anyway, intellectual
324 property [36:00] is one of the important, I think the, as the, did I mention the three, the three-
325 legged – Brook, I think, used the metaphor of a three-legged stool. (Shindell: Uhm-hmm.) The
326 three-legged stool that you need for a successful company, is promising technology having
327 commercial applicability, a good management team, and then intellectual property that, that
328 protects, protects it so the company can, can grow without having to compete with other
329 people. Because, once they wake up to the idea and see the promise and without intellectual
330 property protection then, of course, they can, they can take it and run with it, (Shindell: Uhm-
331 hmm.) and you don't have, you don't, it won't be your technology to exploit very long.

332 **SHINDELL:** Uhm-hmm. That three-legged stool seems to involve sort of three different
333 professions coming together as well, though. Maybe scientists along with business men or
334 venture capitalists, and finally, well I guess the venture capitalists are looking for the stool,
335 [37:00] so they're not yet involved, but then the legal community as well. When you first
336 came to Hybritech, or even earlier than that when you were working with Genentech, did you
337 find there to be maybe sort of three different communities working together, or maybe in
338 tension with each other, that being sort of the university scientist, the entrepreneur, and the
339 legal community? I mean, did this seem like a novel combination or was this just sort of
340 business as usual as you'd experienced it with other patenting experiences?

341 **RESPESS:** I was a, I wasn't a highly – I'd been practicing about three or four years, I think,
342 when I met the Genentech people. Art Riggs is the other person that I'm, (Shindell: Uhm-
343 hmm.) said I would, it would come to me eventually. The other person that came with Bob
344 Swanson was Art Riggs, a very well known molecular biologist who was, at that time, and I
345 assume still is, [38:00] at the City of Hope. I hope he's still around. Certainly venture capital
346 had been around for a long time. Silicon Valley, where the venture capital firms, in those days,
347 tended to be centered had been around for a while and Kleiner Perkins, as I recall, had been
348 an early investor in Hewlett Packard, (Shindell: Uhm-hmm.) for example. Anyway, so I'm, I'm
349 pretty sure that, if anyone had asked me what, in those days, what, what's it, what do you need
350 to be a successful biotechnology company I, I don't know what I would have said. (Shindell:
351 Uhm-hmm.) I don't think I would have been or could have been very profound because if I'd
352 have been a true visionary I would have been doing it anyway, (Shindell: Uhm-hmm.) and I
353 wasn't. It sort of fell in, fell in my lap. There is an interesting story about how Genentech
354 came to Lyon & Lyon. I won't mention, again, some names, but there was a firm on the East
355 Coast, [39:00] a well-known patent law firm in those days that had basically been offered the
356 opportunity to represent Genentech and turned it down, (Shindell: Uhm-hmm.) and they said,
357 "Well, you know, you, you guys are from California you really should talk to these guys in
358 California," and they gave them some names at Lyon & Lyon and that's how it came to be.
359 And, I'm sure if, if they have an institutional memory at that law firm, I believe it still exists, or
360 at least remnants of it, then they probably rue the day, [Laugh] because Genentech became
361 such an enormous success story. In any event, I don't know when, when, other than hearing
362 someone like Brook tell me, and I don't know when I really appreciated the significance of
363 what he was saying, I don't know when it, if it, it dawned on me that you need, how you had to
364 put together these disparate elements, but (Shindell: Uhm-hmm.) I think to drill down a little
365 bit one of the important things is [40:00] not every scientist is born to be an entrepreneur.

366 And, not every businessman is necessarily capable of, as capable as, for example, Howard
367 Birndorf has been, in locating a technology that has promise and securing an agreement under
368 terms which makes, makes sense to exploit that, that technology. So, you need, in a successful
369 biotechnology company a visionary entrepreneur and you need to access the technology.
370 You're probably going to involve the originator of the technology in some fashion. They rarely
371 give up their academic position to [41:00] come over and, and come over and work for the
372 company, (Shindell: Uhm-hmm.) so to speak. So, you need, ultimately you'll need someone
373 who can translate the technology into something that's commercially real and hopefully
374 you've got good legal representation. Not just patent representation but other representation
375 that's necessary to get a, a company off the ground successfully, and put all those together.
376 And over time the paradigm evolved and it became very commonly applied in a very
377 universal, a universal fashion. I, I think notwithstanding the promise of monoclonal
378 antibodies that from the – I became associated with Hybritech in about 1980 while in private
379 practice, but not much was happening there. And then, [42:00] I think in an inspired choice
380 was made. I don't know who had the inspiration, but . . . can we go off the record for a second
381 here?

382 **SHINDELL:** Sure. Do you want me to pause it?

383 **RESPESS:** Yeah.

384 **SHINDELL:** Okay. [Recording paused.] Okay. Oh. There we go.

385 **RESPESS:** Sorry. Sorry for that pause. An inspired choice, I think I was saying an inspired
386 choice was made to bring Tom Adams in as head of Research and Development. (Shindell:
387 Uhm-hmm.) And, Tom, in a very short time, converted, got the company on the path to
388 making the first, probably the first really successful biotechnology product in the
389 biotechnology industry, and it was an immunodiagnostic that we called the Tandem Assay,

390 that came to be known as the Tandem Assay. So, you need a, you need that combination of
391 people and not, and [43:00] I don't think there's, there's the renaissance. I've never met the
392 renaissance man or woman who [Laugh] possessed all of the attributes that would be
393 necessary to start and have a successful company. You need a partnership of people who have
394 the requisite skills, and the interest, and the energy to do these things, and Hybritech and
395 Genentech, and some other companies were fortunate, I think, in the early days, to have been
396 able to put that package together successfully and, and out of that came, you know, successful
397 companies, (Shindell: Uhm-hmm.) and successful products, and the – once the biotech
398 revolution occurred, it was, it was clear that, to people, that biotechnology was real and real
399 products could come out of it and real money be made from it. Then everybody wanted to get
400 in on it after that. (Shindell: Uhm-hmm.) I mean it was – so, I, I respect many people that I've
401 met over the years in the biotechnology industry [44:00] but I truly look at my colleagues
402 back in the late '70s, early '80s as being pioneers who, (Shindell: Uhm-hmm.) who went there,
403 got there, and showed other people the way, and that, that community is made up of venture
404 capitalists who were willing to put their money in these risky ventures. People who were
405 willing to put prosperous careers maybe, if not on hold to actually leave, you know, positions
406 in which they were very comfortable and take the risk that they would, that they might not be
407 successful. And out of that came the biotechnology industry and fortunately, I feel fortunate
408 that I was able to be part of, part of (Shindell: Uhm-hmm.) that at that particular time. It was
409 a very satisfying feeling to look around San Diego and remember the day when there was one
410 biotech company, [45:00] and today there are a hundred, or (Shindell: Uhm-hmm.) hundreds,
411 maybe hundreds by now.

412 Shindell: Well maybe now then would be a good time to ask, since you've mentioned,
413 mentioned now this sort of, the successful partnership that has to be formed between these
414 difference disparate groups, and how in the early days these sort of, you know, there were a

415 few lucky combinations here or a few skillful combinations maybe. Is there anything about
416 San Diego and the San Diego environment here that, that made these initial partnerships
417 successful? Like say, people often list the presence of the universities and the research
418 institutions here. And then, I guess, a follow-up question to that would be, you know, as you
419 mentioned those early companies sort of showed the way to the companies that came after to
420 the huge number of biotech companies that are now here, (Respass: Uhm-hmm.) you know,
421 to the point where the sort of biotech family trees that people like to draw from Hybritech
422 have now become completely unmanageable. [46:00] (Respass: Uhm-hmm.) [Laugh] It seems
423 like maybe the way that they led the way or the, what's often mentioned is, by building sort of
424 successful networks that still exist today, you know, through which these new partnerships
425 often still today form. So, I (Respass: Uhm-hmm.) wonder if you can talk a little bit about, you
426 know, first of all, what is it about San Diego that made these partnerships possible, if there is
427 anything unique about San Diego? And then secondly, how did these networks that are
428 attributed to the success of biotech, how did they form? What work was done and what
429 individuals participated in that?

430 **RESPASS:** Well, that's a very complicated question. I, and I should point out that in my
431 discussion of the growth of biotechnology (Shindell: Uhm-hmm.) in the past I focused on
432 those elements that I particularly interacted with and I saw routinely [47:00] myself. This, I
433 don't think it's by any stretch an accident that biotechnology found fertile ground in San
434 Diego. (Shindell: Uhm-hmm.) San Diego was blessed at that time by having UCSD, and
435 Scripps, and Salk, and some other research institutes, smaller ones. I don't mean to slight
436 anyone by not (Shindell: Uhm-hmm.) mentioning them all. And, I think also by virtue of the
437 fact that Hybritech was successful it catalyzed other peoples' interest in trying to duplicate
438 that success. But, one of the, one of the things, one of the reasons why biotech is obviously, in
439 my opinion, clearly is in, is in San Diego as opposed to other places is because [48:00]

440 biotechnology in its most primitive state, originally, was heavily dependent upon people with
441 backgrounds in the cutting-edge biological sciences, like molecular biology, and hybridoma
442 technology, and there was a wealth of that in San Diego. So I, I look at San Diego's success a
443 little bit like the, the sandbar metaphor, (Shindell: Uhm-hmm.) you know. Once something
444 anchors itself in the stream then it traps, it traps sand, you know, grits and bits of sand until
445 finally you have a, out of the murky depths come a sandbar. (Shindell: Uhm-hmm.) And, San
446 Diego had the anchor, if you will, of the, of the institutions that I alluded to. It's probably, it is
447 probably an historical accident [49:00] that Ivor Royston and Howard Birndorf were here and
448 decided to form a company around monoclonal antibody technology, (Shindell: Uhm-hmm.)
449 which was a technology which had not really, had some early promise at, but not taken off. I
450 think, hybridoma technology, I think monoclonal antibodies and hybridoma technology sort of
451 had its roots in the UK, but Ivor was interested in looking, as I understand it, looking at that
452 technology for its potential commercial benefit. Ivor didn't want to leave the university and
453 Howard Birndorf was willing to do that, (Shindell: Uhm-hmm.) and the historical accident,
454 Ivor's, I don't believe he was married at that time, or his fiancée knew Brook Byers, (Shindell:
455 Uhm-hmm.) introduced Ivor to, and Howard, to Brook. Brook was interested in making an
456 investment and so I think at that, at that point we have serendipity, an accident, whatever you
457 want to call it, [50:00] working. But once that happened and Hybritech got off the ground and
458 began to be known, being seen as a successful enterprise, I think other people wanted to
459 duplicate that success, and then it, I think if Hybritech had been launched in Kansas City,
460 (Shindell: Uhm-hmm.) all right, I don't think Kansas City would be, today, what San Diego is,
461 because it just didn't have the infrastructure. But once people saw the success of Hybritech
462 then there was a wealth of scientific talent in San Diego. I don't, I don't know where all the
463 postdocs and PhD candidates went before biotech came along in San Diego. They were
464 trained here and they probably went off and taught at the University of Kansas, and the

465 University of Texas, and Penn State, and places like that. But now, there was another outlet
466 for these programs (Shindell: Uhm-hmm.) and the climate, I'm sure, had something to do with
467 it. This life, the California lifestyle, people like living here. [51:00] And then, then I think the,
468 there came to be, which I think is truly unique about San Diego, a spirit of cooperation among
469 entrepreneurs and the academic institutions, the nonprofits. I, I'm not going to say this in
470 order to patronize UCSD, but the CONNECT Program that, you know, tries to put, and other
471 programs that try to put together science, and Biocom down here, (Shindell: Uhm-hmm.)
472 business people and investment. People who want to start businesses, people who want to
473 invest in businesses, and people who have – the technology, they can be contributing to
474 business. Where, where that spirit exists, then it's easier [52:00] to get these things off the
475 ground and get them going, because there's an enormous amount of inertia that has to be
476 overcome in order to bring these things about. And San Diego has established a climate and I
477 think one of the, one of the things that I, that I think has, you talk about the, mentioned the
478 family tree, (Shindell: Uhm-hmm.) of biotech in San Diego is that the people who were
479 successful at Hybritech and other early companies they didn't go someplace else. They stayed
480 here and pursued their dreams in San Diego, and the result, I think, is clearly, you could say at
481 this point, "the rest is history." Too many examples for me to run down. But, I mentioned
482 many of them and I wouldn't think of all of them anyway, but they, San Diego, it may have
483 started here by accident but all the right pieces were in the right place at the right time,
484 (Shindell: Uhm-hmm.) and that's why San Diego's [53:00] one of the, I think one of the leading
485 centers. I've, I know that there are other areas in the Boston area and I've had interactions
486 there and the Bay area, and I know that people are trying to duplicate it in other parts, in
487 other places in the United States, like in, like I think in Austin, Texas and there are little islands
488 here and there. (Shindell: Uhm-hmm.) Seattle had some early success in biotech. But, one of
489 the things that I, I think, and here I may sound like a, like a hometowner, I think there's a

490 cooperative spirit in San Diego that's not present everywhere else and that has been one of
491 the reasons why San Diego is successful in biotech.

492 **SHINDELL:** Where does that come from, that cooperative spirit?

493 **RESPESS:** I really don't know. I don't know how to explain it.

494 **SHINDELL:** Does it come from a few key individuals or just sort of the way the business is
495 done here, or what sets that?

496 **RESPESS:** I'm sure it's, [54:00] it's living in Southern California, [Laughter] the warm
497 sunshine or something, no rain, and you can get out and bump into people at the beach. I
498 really don't know the answer to that. It just seems to me the environment here is, is more
499 cooperative. (Shindell: Uhm-hmm.) I don't, I don't think there's another industry, or
500 regional/industrial organization in biotech as vigorous as the one here in San Diego, (Shindell:
501 Uhm-hmm.) for, and I don't know which is the chicken or the egg here but, because it, there is
502 a synergy in San Diego that I don't think is present in many other, in any other place. Now,
503 there, there's a lot of, there's certainly been a lot of successful companies in other areas and
504 probably in terms of investment in dollars San Diego is not number one, and maybe the
505 reasons those areas are successful, I think, are probably different, (Shindell: Uhm-hmm.) for
506 different reasons than San Diego's success. They have their own synergy [55:00] or their own
507 combination of factors which made those areas successful. If you look around the D.C. area
508 then you have the National Institutes of Health, sort of a natural magnet for the – you know,
509 because you really need, I think you need that scientific talent and it's, I think the reason that
510 Boston, San Diego, the D.C. area, and San Francisco have been successful is you have, in the
511 Bay Area, a pool of scientific talent, (Shindell: Uhm-hmm.) like at UCSF, and Berkeley, and
512 Stanford. In the D.C. area you have some university talent, but you have the NIH, the National
513 Institutes of Health and all those institutes within it, the Boston area has Harvard, and MIT,

514 and all those sort of things. So I, it seems to me at one factor common in all, all of these, is you
515 have a wealth of scientific talent in areas of the biological sciences. That's where it happens,
516 this is where it's happening (Shindell: Uhm-hmm.) [56:00] is in those places. And so, it's no
517 accident. You, you can't, you can't create that environment overnight anyplace else and so the,
518 it's one of those situations where the rich get richer, so to speak. [Laugh] Success breeds
519 success, (Shindell: Uhm-hmm.) and so to the best I can, I don't know that I'm very insightful
520 about it, but I think that's the common denominator, that venture capital, it, money can move
521 around but people are less fungible than (Shindell: Uhm-hmm.) money and you need people –
522 business people will move. Ted Greene, I believe, was maybe, may have been, I can't
523 remember, may have been living in the Bay Area, (Shindell: Uhm-hmm.) or someplace. He
524 certainly wasn't, I don't think he was living in San Diego when he came down to be CEO of
525 Hybritech. I don't know where Bob Swanson at Genentech came from. I think Bob was a
526 venture capitalist up in the Bay Area (Shindell: Uhm-hmm.) [57:00] and met Boyer of Cohen-
527 Boyer fame and they had this, maybe at a cocktail party. Who knows? These things they
528 happen in mysterious ways. But, once, again once the example was set then it was easy for
529 other people to see the, to see the way to go and, and you know, why not, why not leave your
530 company and stay in the house you're living in and start a company over here if you have a
531 dream. And so, San Diego has, has sort of, like cell division, mitosis, (Shindell: Uhm-hmm.) or
532 whatever it is, [Laugh] you know, it subdivides itself into other companies and then they
533 ultimately, people get whatever satisfaction they're going to get out of that company and if
534 they have the dream then they'll look for an opportunity of their own and that'll, and I think
535 that's the, why there is a family tree in San Diego, is that people have had the opportunity and
536 [58:00] the energy to pursue opportunities here and San Diego and they didn't see any reason
537 to go anywhere else.

538 **SHINDELL:** Now, let me ask you sort of a patenting question based on your experiences here.
539 From, from when you came here until the present, have you witnessed the biological talent
540 that exists here maybe becoming more savvy about patenting or the prospect of patenting?
541 Because, it seems like there wasn't really a tradition of patenting and biology before biotech
542 came around whereas there was sort of in physics and chemistry already existing sort of
543 pathways for that. Were biologists sort of maybe skeptical in the beginning about patenting
544 their discoveries and did they become more eager once they saw sort of Hybritech's success
545 or the success of other biotech companies?

546 **RESPESS:** Well, I, that's a very good question and I'm not sure I have the answer, but let me –
547 [59:00] the more empirical a science is I think the less likely you are to get a lot of impetus
548 from patenting. (Shindell: Uhm-hmm.) A lot of – but when, once, once the science is
549 understood and you can draw a line from the science to commerce then there becomes an
550 interest in protecting discoveries, and I, I think it's fairly, it's fairly interesting that, I'll call it
551 the birth of biotechnology I think was probably the Cohen-Boyer (Shindell: Uhm-hmm.)
552 technology where they demonstrated that you could express a foreign protein. What do they
553 call it? I'll call it "heterologous" - I think that's the term they use -- protein in an organism that
554 didn't normally produce that protein. And, you could produce human [1:00:00] proteins in
555 bacteria and yeast, for example. And, certainly bacteria and yeast have been used biologically
556 but they were from processes that nature invented, you know. (Shindell: Uhm-hmm.) We
557 ferment wine. We, you know we ferment, get out, create alcohol out of corn and barley and
558 things and we make fine whiskey. And people found bacteria that expressed antibiotics. But
559 those are sort of one-off things, you know. (Shindell: Uhm-hmm.) It takes, you have to, some
560 guy goes out and he sifts through dirt and you don't, that one product may be successful but
561 you don't, you, it's very difficult to go beyond that product unless you can, unless that product
562 is simple enough that you can synthesize it by chemical, by ordinary (Shindell: Uhm-hmm.)

563 chemical means. Once it was, became, once we understood the genetic code, [1:01:00] and
564 once we had the ability to sequence genes, and once the Cohen-Boyer technology had proven
565 itself then it becomes, you could say, even a blind man can see the opportunities here. And so
566 the, the growth of the technology brings along the interest in obtaining intellectual property
567 on it. I think as long as people didn't have the vision that, in biology, that there was anything
568 significantly, of significant commercial interest then there was no reason to patent. And, there
569 were probably lost opportunities in there (Shindell: Uhm-hmm.) because there, I, and I, but I
570 think they would have tended to be one-off opportunities. I remember as a chemistry major
571 one of my professors, I think, synthesized elements of penicillin. But, you know, [1:02:00] it
572 was a very tedious, complex process and maybe you can get penicillin out of bacteria easier
573 than the (Shindell: Uhm-hmm.) – but the chemistry was interesting, (Shindell: Uhm-hmm.)
574 and so forth. But, in biology, probably people in biology just weren't thinking that way until
575 the opportunity presented itself that, and Cohen-Boyer, again it may have been serendipitous
576 but here was a breakthrough molecular biology at the University of California, and I don't
577 know who at the University of California, and Stanford, were, was inspired to do this, whether
578 Cohen and Boyer got together or whether someone said to Cohen and Boyer, you know, "Hey,
579 you guys, the university ought to patent this stuff." (Shindell: Uhm-hmm.) So that was, that
580 was one, again, serendipitous thing. Somehow those guys decided to do their thing. And then,
581 I think one other thing happened that, the importance of which can't be, in my opinion,
582 overestimated. And that is, [1:03:00] that for one reason or another Stanford and the
583 University of California decided to pool their efforts and put the, the exploitation of that
584 technology, as I recall, in the hands of Stanford. It could have gone the other way, but the, I
585 don't think the result would have been necessarily different. And they, they evolved a
586 licensing strategy which probably went against the grain, even in the day, in the early, early
587 day, even in the early days people probably said, "The way to maximize your return from

588 technology, that you're not going to exploit yourself is to license someone, and the biggest
589 return comes from exclusive licensing." Stanford and the University of California decided to
590 grant nonexclusive licenses to this technology. I think had they licensed exclusively Merck,
591 and I'm not picking on Merck, or Pfizer, or Upjohn, or some other company in those days,
592 (Shindell: Uhm-hmm.) I don't know how successful Pfizer or Upjohn would have been. But,
593 there are hundreds of thousands [1:04:00] of molecules that can be made by recombinant
594 techniques and no company could, operating exclusively, could have exploited that technology
595 to the full extent. By making that technology available to everyone on reasonable terms I
596 think it, it was one of the important factors that would ultimately cause biotechnology to be
597 successful. Hybritech in San Diego, as I said, was monoclonal antibody technology, which in
598 those days didn't benefit from the molecular biology revolution that we were just talking,
599 (Shindell: Uhm-hmm.) the recombinant revolution. But interestingly, that technology was not
600 patented by the British inventors of monoclonal antibody technology. The names, they, the
601 names escape me at the moment who they were, but Kohler-Milstein, I believe it was,
602 (Shindell: Uhm-hmm.) Kohler and Milstein. Anyway, they didn't patent that technology and
603 so to a certain extent [1:05:00] that technology didn't have the same kind of birth that
604 recombinant did. There was no fundamental patents on, on fusing cells to make hybridomas,
605 and so you had to, you had to begin to say, "Well okay, if I can't get the fundamental position
606 I'm going to have to find some application of that technology that can be patented and be the
607 basis of a business, and Hybritech was successful in doing that with Tandem, so-called
608 Tandem Assays and some other innovations. So at any rate, bio, biotechnology has been
609 successful for a number of, of reasons including the foresightedness of people in the early
610 days that had, had they done things differently I think the outcome might have been, might
611 have been different, (Shindell: Uhm-hmm.) might have been substantially different. Because
612 all the, the early, the early success of biotechnology was because of the biotechnology

613 companies, Genentech, I mentioned growth hormone and their collaboration with Lilly for
614 human insulin, [1:06:00] and Amgen with EPO and TPO, whatever the other molecules they
615 came up with, and so forth. I really doubt that the companies like Eli Lilly and others would
616 have pursued this technology as aggressively as the biotechnology companies did, until it,
617 until they saw the bet to be a fairly safe one, (Shindell: Uhm-hmm.) and then they wouldn't,
618 they went, they didn't go out and try to do it themselves. They made agreements with the
619 companies that had established positions and that's how biotechnology (Shindell: Uhm-
620 hmm.) tends to prosper. It pioneers and then it finds a wealthy partner, hopefully, that, that is
621 willing to take a chance and take it to the next level. Biotechnology is filled with stories
622 (Shindell: Uhm-hmm.) like that. San Diego has its fair share.

623 **SHINDELL:** Okay. We've now gone about an hour and I, [1:07:00] I wanted to let you know
624 where we were. (Respass: Uhm-hmm.) I don't know, how long do we have?

625 **RESPASS:** Well, we can longer. I don't know what, I don't know what your goal is. So, I can
626 spend some more time, but if you've, if you've gotten from me what you think you want to get
627 then [Laugh] we can, we can call it quits.

628 **SHINDELL:** Well, we've been through most of the major categories, (Respass: Yeah.) I think,
629 and so, so if you want I can just ask you the, the sort of concluding questions?

630 **RESPASS:** Sure. Go ahead.

631 **SHINDELL:** Okay. Well, this is sort of a catch-all question. Is there anything that I should
632 have asked you [Laugh] that I didn't, and, or is there anything that you just would like to, to
633 say?

634 **RESPASS:** No. I'm not interested in making a speech about it. [Laugh] I've probably made
635 long speeches throughout this presentation and you've caused me to think about things I

636 really don't think about as much as maybe I should. I think your project is a commendable
637 one. I'm not sure that, how much interest people will have in, down the road, in how San
638 Diego [1:08:00] came to be. I have a feeling that we will be eventually taken for granted, if not
639 already, (Shindell: Uhm-hmm.) as being one of the assets of San Diego. I would, I would think,
640 I would say that the promise of biotechnology is phenomenal, but the opportunity to achieve
641 that success is becoming increasingly difficult. (Shindell: Uhm-hmm.) There are, the amount
642 of money it takes to be successful in this business is such that I think the original paradigm
643 has become nearly unworkable. (Shindell: Uhm-hmm.) There was a time when
644 biotechnology, you, you put in some seed money, you achieved a certain amount of success,
645 you hopefully were able to enter into a [1:09:00] collaboration with an established company
646 and that gave people a, the fact that you had that relationship gave people some greater
647 assurance that you were going to be successful. (Shindell: Uhm-hmm.) The company could
648 go public and raise large amounts of money and, and unfortunately the cost of taking products
649 from the laboratory to the market has become enormously greater than it was twenty years
650 ago.

651 **SHINDELL:** What has attributed to that?

652 **RESPESS:** Well, there's a lot of things. One, we're now, the low-hanging fruit has been picked.
653 (Shindell: Uhm-hmm.) Okay? That's one. I think, two, the regulatory environment in which
654 we work has become extremely difficult and the FDA is, and I, I'm prepared to be quoted on
655 this I suppose because no one really cares what I think, [Laugh] is I think an organization that
656 is simply not up to the job in terms of processing applic[ations] – it's risk averse, [1:10:00]
657 (Shindell: Uhm-hmm.) and the FDA only, never gets praised for what it achieves. It only gets
658 criticized for what mistakes it makes, and so it, it makes it very difficult. You have to be –
659 they're so risk averse that the cost of bringing a product to market is so phenomenally, it's so
660 phenomenally expensive that early investors are no longer able to see the promise of, of

661 making money on their investment because success is postponed so far down the road.
662 (Shindell: Uhm-hmm.) And so I think, I think, I personally believe that the golden age of
663 biotechnology is probably behind us and now we're, we're becoming a mature industry and
664 people are going to have to invent new ways of incentivizing – there are plenty of people with
665 ideas who want the, want to exploit those ideas but finding the [Tapping table] resources to
666 exploit them, I think, is becoming increasingly difficult. And now the, [1:11:00] and now the
667 model is, "Let's, let's," and I've talked to people about this recently, the model is, "We're not,
668 [Tapping table] we're not going to build this company and, to become another Hybritech and
669 another Genentech. (Shindell: Uhm-hmm.) We're going to build this company and before
670 ever going to private, going public we're going to sell it. (Shindell: Uhm-hmm.) We're going
671 to find somebody [Tapping table] to buy that and then we, and maybe, and maybe we'll do
672 another one, and another one, and another one." [Phone ringing] And so, there's not, there's
673 never been, there's not, I don't think, I don't think it's likely there will be [Phone ringing] other
674 Genentechs, Hybritechs in my lifetime. [Phone ringing] (Shindell: Uhm-hmm.) So, with that,
675 I'm glad I had a chance to be part of it when it was like it was twenty years ago, and twenty,
676 going on – no, actually longer than that I guess – twenty-eight years ago, and I'm glad I had
677 that opportunity but I think I won't see it again in my lifetime, that same sort of energy, and
678 enthusiasm, and (Shindell: Uhm-hmm.) explosion of creativity. It was truly, it was truly
679 remarkable to be a part of that. [1:12:00]

680 **SHINDELL:** Okay. Then, if you don't have anything else to add or . . .

681 **RESPESS:** No. You've got to be specific. I don't, I can, (Shindell: Yeah.) I can, [Laugh] I can fill
682 the air with sentences but I can't, I don't, I'm not thinking about anything that I think that you
683 would really be that interested [Laugh] in, specifically.

684 **SHINDELL:** Well, you never know what people will be interested (Respess: Yeah.) in. But, I
685 think we have quite a bit of, of material now. So.

686 **RESPESS:** Okay. Well, good luck on your, in your quest for getting all the [Laugh] people that
687 you want to talk to.

688 **SHINDELL:** Well, on that note, actually, is there anyone that you would recommend we talk
689 to?

690 **RESPESS:** There, there are some people I think are interesting, you should be interested in. I
691 don't know if his name has come up, but Tom Sparks? (Shindell: Hmm.) Is that a name? Tom
692 Sparks is a partner in Pillsbury, Winthrop. I don't know the name of the firm. Tom was
693 outside counsel to Hybritech, and I, general counsel. His firm may have been involved with
694 Genentech. I'm not sure. But, they were, at that, at that time, you know, [1:13:00] putting,
695 putting these, putting these corporations into existence and, and marrying the interest of the
696 investor and the entrepreneur, and so forth, fell to a very small number of law firms. I think
697 Tom Sparks is one of the pioneer corporate lawyers in this area. And his area code, 415-482-
698 1191, I think. I can't remember his number. Thomas Sparks is, I think, one of the heroes of
699 early biotechnology. (Shindell: Uhm-hmm.) And, I would, I would certainly talk to someone,
700 if you want a, the corporate, the corporate lawyer view, they were certainly an essential part
701 of, part of this. They're the ones who took the companies public in the early days. And, you'd
702 probably want to talk to some of the venture capitalists if you haven't already, like Brook
703 Byers would be one, would be, I would think, very high on your list (Shindell: Uhm-hmm.) if
704 you haven't talked to Brook and get his perspective. [1:14:00] Here in town, I, I'm sure you've,
705 Tom Adams' name has come up. [Exhales] Uh, Ivor. [Sound effect] [Pause 12 seconds] Well,
706 again, going, if we're looking back to the, for the roots of biotechnology in San Diego I would
707 certainly talk to Brook, and I would talk to Tom (Shindell: Uhm-hmm.) Sparks, and you've

708 talked to the, you probably have the list of the Hybritech people you want to, you want to talk
709 to. Is there anybody? Who's, who's on your short list? Maybe that'll, maybe the omission of
710 someone will trigger my thinking.

711 **SHINDELL:** Oh, let's see. Well, who we've interviewed so far, Bill Rastetter, (Respass: Sure.)
712 [1:15:00] who else? (Respass: Sure.) Why am I blanking? [Laugh]

713 **RESPASS:** Let's see.

714 **SHINDELL:** We did Karen Klaus.

715 **RESPASS:** Karen.

716 **SHINDELL:** We're doing Ivor. We're maybe doing Fred Gage. Bill Comer we did.

717 **RESPASS:** Oh yeah. Bill. I know Bill.

718 **SHINDELL:** Uhm-hmm. Jay Short.

719 **RESPASS:** I don't know him.

720 **SHINDELL:** Hmm.

721 **RESPASS:** At least I can't think of it. Where would I have met Jay Shorts. Who's he with?

722 **SHINDELL:** God, I'm blanking on all of this stuff right now.

723 **RESPASS:** Cam Garner. You might want to talk to Cam, if you haven't talked to him.

724 **SHINDELL:** I think we have, on our list, I think we've been trying to contact him.

725 **RESPASS:** [Sound effect]

726 **SHINDELL:** [1:16:00] Well, this is a pretty good (Respass: Uhm-hmm.) list, sort of a,
727 (RESPESS: Yeah.) you know, top five maybe. Okay. Well then, thank you for your
728 participation.

729 **RESPESS:** My pleasure.

730 **SHINDELL:** This was a great interview. I mean, you did a great job. I don't know about me,
731 but – [Laugh] so, thank you very much.

732 **RESPESS:** Yeah. You're welcome.

733 **END INTERVIEW**

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The San Diego Technology Archive (SDTA), an initiative of the UC San Diego Library, documents the history, formation, and evolution of the companies that formed the San Diego region's high-tech cluster, beginning in 1965. The SDTA captures the vision, strategic thinking, and recollections of key technology and business founders, entrepreneurs, academics, venture capitalists, early employees, and service providers, many of whom figured prominently in the development of San Diego's dynamic technology cluster. As these individuals articulate and comment on their contributions, innovations, and entrepreneurial trajectories, a rich living history emerges about the extraordinarily synergistic academic and commercial collaborations that distinguish the San Diego technology community.