Regional Oral History Office
The Bancroft Library

University of California
Berkeley, California

Program in the History of the Biological Sciences and Biotechnology

G. Kirk Raab

CEO AT GENENTECH, 1990-1995

Interviews Conducted by
Glenn E. Bugos
in 2002

Since 1954 the Regional Oral History Office has been interviewing leading participants in or well-placed witnesses to major events in the development of northern California, the West, and the nation. Oral history is a method of collecting historical information through tape-recorded interviews between a narrator with firsthand knowledge of historically significant events and a well-informed interviewer, with the goal of preserving substantive additions to the historical record. The tape recording is transcribed, lightly edited for continuity and clarity, and reviewed by the interviewee. The corrected manuscript is indexed, bound with photographs and illustrative materials, and placed in The Bancroft Library at the University of California, Berkeley, and in other research collections for scholarly use. Because it is primary material, oral history is not intended to present the final, verified, or complete narrative of events. It is a spoken account, offered by the interviewee in response to questioning, and as such it is reflective, partisan, deeply involved, and irreplaceable.

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It is recommended that this oral history be cited as follows:

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G. Kirk Raab

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BIOTECHNOLOGY SERIES HISTORY

Genesis of the Program in the History of the Biological Sciences and Biotechnology

In 1996 The Bancroft Library launched the Program in the History of the Biological Sciences and Biotechnology. Bancroft has strong holdings in the history of the physical sciences--the papers of E.O. Lawrence, Luis Alvarez, Edwin McMillan, and other campus figures in physics and chemistry, as well as a number of related oral histories. Yet, although the university is located next to the greatest concentration of biotechnology companies in the world, Bancroft had no coordinated program to document the industry or its origins in academic biology.

When Charles Faulhaber arrived in 1995 as Bancroft's director, he agreed on the need to establish a Bancroft program to capture and preserve the collective memory and papers of university and corporate scientists and the pioneers who created the biotechnology industry. Documenting and preserving the history of a science and industry which influences virtually every field of the life sciences and generates constant public interest and controversy is vital for a proper understanding of science and business in the late twentieth and early twenty-first centuries.

The Bancroft Library is the ideal location to carry out this historical endeavor. It offers the combination of experienced oral history and archival personnel and technical resources to execute a coordinated oral history and archival program. It has an established oral history series in the biological sciences, an archival division called the History of Science and Technology Program, and the expertise to develop comprehensive records management plans to safeguard the archives of individuals and businesses making significant contributions to molecular biology and biotechnology. It also has longstanding cooperative arrangements with UC San Francisco and Stanford University, the other research universities in the San Francisco Bay Area.

In April 1996, Daniel E. Koshland, Jr. provided seed money for a center at The Bancroft Library for historical research on the biological sciences and biotechnology. And then, in early 2001, the Program in the History of the Biological Sciences and Biotechnology was given great impetus by Genentech's generous pledge to support documentation of the biotechnology industry.

Thanks to these generous gifts, Bancroft has been building an integrated collection of research materials--oral history transcripts, personal papers, and archival collections--related to the history of the biological sciences and biotechnology in university and industry settings. A board composed of distinguished figures in academia and industry advises on the direction of the oral history and archival components. The Program's initial concentration is on the San Francisco Bay Area and northern California. But its ultimate aim is to document the growth of molecular biology as an independent field of the life sciences, and the subsequent revolution which established biotechnology as a key contribution of American science and industry.

Oral History Process

The oral history methodology used in this program is that of the Regional Oral History Office, founded in 1954 and producer of over 2,000 oral histories. The method consists of research in primary and secondary sources; systematic recorded interviews; transcription, light editing by the interviewer, and review and approval by the interviewee; library deposition of bound volumes of transcripts with table of contents, introduction, interview history, and index; cataloging in UC Berkeley and national online library networks; and publicity through ROHO news releases and announcements in scientific, medical, and historical journals and newsletters and via the ROHO and UCSF Library Web pages.

Oral history as a historical technique has been faulted for its reliance on the vagaries of memory, its distance from the events discussed, and its subjectivity. All three criticisms are valid; hence the necessity for using oral history documents in conjunction with other sources in order to reach a reasonable historical interpretation.[1] Yet these acknowledged weaknesses of oral history, particularly its subjectivity, are also its strength. Often individual perspectives provide information unobtainable through more traditional sources. Oral history in skillful hands provides the context in which events occur--the social, political, economic, and institutional forces which shape the course of events. It also places a personal face on history which not only enlivens past events but also helps to explain how individuals affect historical developments.

Emerging Themes

Although the oral history program is still in its initial phase, several themes are emerging. One is "technology transfer," the complicated process by which scientific discovery moves from the university laboratory to industry where it contributes to the manufacture of commercial products. The oral histories show that this trajectory is seldom a linear process, but rather is influenced by institutional and personal relationships, financial and political climate, and so on.

Another theme is the importance of personality in the conduct of science and business. These oral histories testify to the fact that who you are, what you have and have not achieved, whom you know, and how you relate have repercussions for the success or failure of an enterprise, whether scientific or commercial. Oral history is probably better than any other methodology for documenting these personal dimensions of history. Its vivid descriptions of personalities and events not only make history vital and engaging, but also contribute to an understanding of why circumstances occurred in the manner they did.

Molecular biology and biotechnology are fields with high scientific and commercial stakes. As one might expect, the oral histories reveal the complex interweaving of scientific, business, social, and personal factors shaping these fields. The expectation is that the oral histories will serve as fertile ground for research by present and future scholars interested in any number of different aspects of this rich and fascinating history.

Location of the Oral Histories

Copies of the oral histories are available at the Bancroft, UCSF, and UCLA libraries. They also may be purchased at cost through the Regional Oral History Office. Some of the oral histories, with more to come, are available on The Bancroft Library's History of the Biological Sciences and Biotechnology Website: http://bancroft.berkeley.edu/Biotech/.

Sally Smith Hughes, Ph.D.
Historian of Science

Regional Oral History Office
The Bancroft Library
University of California, Berkeley
October 2002

1. The three criticisms leveled at oral history also apply in many cases to other types of documentary sources.

January 2004

ORAL HISTORIES ON BIOTECHNOLOGY

Program in the History of the Biological Sciences and Biotechnology
Regional Oral History Office, The Bancroft Library
University of California, Berkeley

Paul Berg, Ph.D., *A Stanford Professor's Career in Biochemistry, Science Politics, and the Biotechnology Industry*, 2000

Mary Betlach, Ph.D., *Early Cloning and Recombinant DNA Technology at Herbert W. Boyer's UCSF Laboratory*, 2002

Herbert W. Boyer, Ph.D., *Recombinant DNA Science at UCSF and Its Commercialization at Genentech*, 2001

Roberto Crea, Ph.D., *DNA Chemistry at the Dawn of Commercial Biotechnology*, 2004

David V. Goeddel, Ph.D., *Scientist at Genentech, CEO at Tularik*, 2003

Herbert L. Heyneker, Ph.D., *Molecular Geneticist at UCSF and Genentech, Entrepreneur in Biotechnology*, 2004

Thomas J. Kiley, *Genentech Legal Counsel and Vice President, 1976-1988, and Entrepreneur*, 2002

Dennis G. Kleid, Ph.D., *Scientist and Patent Agent at Genentech,* 2002

Arthur Kornberg, M.D., *Biochemistry at Stanford, Biotechnology at DNAX*, 1998

Fred A. Middleton, *First Chief Financial Officer at Genentech, 1978-1984*, 2002

Thomas J. Perkins, *Kleiner Perkins, Venture Capital, and the Chairmanship of Genentech, 1976-1995*, 2002

G. Kirk Raab, *CEO at Genentech, 1990-1995*, 2003

Regional Characteristics of Biotechnology in the United States: Perspectives of Three Industry Insiders (Hugh D'Andrade, David Holveck, and Edward Penhoet), 2001

Niels Reimers, *Stanford's Office of Technology Licensing and the Cohen/Boyer Cloning Patents*, 1998

William J. Rutter, Ph.D., *The Department of Biochemistry and the Molecular Approach to Biomedicine at the University of California, San Francisco,* volume I, 1998

Richard Scheller, Ph.D., *Conducting Research in Academia, Directing Research at Genentech*, 2002

Robert A. Swanson, *Co-founder, CEO, and Chairman of Genentech, 1976-1996*, 2001

Daniel G. Yansura, Ph.D., *Senior Scientist at Genentech*, 2002

Oral histories in process:

Moshe Alafi
Brook Byers
Ronald Cape
Stanley N. Cohen
Donald Glaser
Irving Johnson
Daniel E. Koshland, Jr.
Lawrence Lasky
Arthur Levinson
Diane Pennica
George Rathmann
Steven Rosenberg
William J. Rutter, volume II
Axel Ullrich
Mickey Urdea
Pablo Valenzuela
Keith R. Yamamoto

INTRODUCTION--Michael Raab

As a young boy I never really understood what my dad did for a living. I just knew that he traveled a lot, worked for pharmaceutical companies, loved his job and was apparently quite good at what he did. As a child, I never recognized, nor did I focus on, the personal sacrifices he made in order to provide. Now, as an adult who has spent 15 years working in the same industry as my father, I have a clear understanding of the choices he made, the challenges he faced and the impact he had. The impact on not only the pharmaceutical and biotech industries, but on the lives of employees and most importantly on the lives of tens of thousands of people (patients) who would have lived shorter or dramatically less productive and pleasant lives.

Although my dad is certainly not someone who lacks self confidence, I am continually surprised by his ability to recognizes own weaknesses, objectively examine any failures and, most remarkably, to take those experiences and to move beyond them in a productive and enthusiastic way. I am extremely fortunate that he shares this process with me, thereby really allowing me to learn and truly benefit from his experiences and help me grow as a professional, husband and father.

He is, by far, the most optimistic person I've ever known, who has an irrepressible *joie de vivre*.

I was born in Santiago, Chile and for roughly the first 8 years of my life we lived in Latin America, most of the time in Mexico City. Those years were an adventure and I have, for the most part, only wonderful memories of the experience. Whether it was coming to the United States for home leave and discovering Sweet Tarts and Sesame Street, or whether it was living in Mexico, watching the remarkable thunder and colorful lightning storms over Mexico City, or the shock of driving by massive car accidents on the "Carretera a Toluca" (the Road to Toluca), a twisty windy highway we rode everyday to school, I have wonderful memories of living there. It has provided me some perspective/ appreciation in/for life that I would not have had were it not for my dad's career choices.

One of my earliest memories of my dad is of a fishing trip he took me on with a bunch of his friends and some of their sons into the mountains of Mexico. It must have been when I was around 4-5 years old. I remember him driving us to the mountains of Mexico in a VW "Thing," a car that was manufactured from 1968 to 1979 that had no windows; an engine with no power, no roof, or in some cases a flimsy canvas roof. I believe, the major structural elements of the car were made of single sheets of aluminum foil.

Needless to say, the excitement of riding in such a car with your dad through the mountains of Mexico was an exhilarating and, at times, frightening experience for a little boy. I realize now that it was the first time I appreciated the uniqueness of my father and the wonderful iconoclasts who are his friends.

One of those is Toss Olson. Toss is a heavy drinking, bohemian, ex-fighter pilot with whom my dad would always get in trouble. Toss brought his son, Davey along on the trip and the two of us shared a tent. It was my first time fishing, and we fished for these beautiful Mexican trout using these bright red salmon eggs…I don't recall if, or how many fish we actually caught…but revisionist history being what it is, would say we caught a lot and that they were huge!

Although the majestic beauty of massive Mexican pine trees are a wonderful memory of the trip, I recognize now as an adult, it was my first glimpse at who my father is as a man, not as my dad. I

remember Davey and me both waking up in the middle of the night to go to the bathroom and peering out of the tent. Instead of going to the bathroom we sat at the tent flap and watched our dads. I remember seeing my dad and the other men sitting around the campfire, drinking, smoking cigars, telling jokes and laughing really, really loudly.

In the midst of this was my dad, telling jokes and entertaining his friends. He was the center of attention. It was my first insight into the energy and joy he gets from making people laugh, usually through bawdy, un-politically correct jokes, and being at the epicenter of the action. I also recognized for the first time his remarkable skill of being able to talk about, and have a firm opinion on, most any topic, as well as recognizing his keen desire and ability of convincing others that his perspective might, in fact, be the "correct" one. In that moment an indelible picture was made for me of my dad.

My dad and I now fish together in Nantucket, Massachusetts, with another of his iconoclastic friends, Tom Lazor. If Ernest Hemingway had a twin, it would be Tom Lazor. Tom is an ex-advertising executive who was a nurse in the Navy, a merchant marine, purportedly wrote speeches for John Kennedy, introduced us to Nantucket and also someone with whom my dad always gets in trouble. Were it not for Tom, Nantucket would not be part of our lives and, importantly, the happiest and most relaxed I ever see my dad is while we are together on the island. There is an special quality to our Nantucket, from catching fish, clamming and cooking together.

I am extraordinarily fortunate to be able to say that not only is my father an important and incredibly valuable advisor to me in business but is also my best friend.

His openness, resilience in the face of serial adversity, and irrepressibly positive outlook on life make him a role model. It is important to note that many of today's most important and successful leaders of the biotech industry were once employees of his at Abbott and Genentech. He has a remarkable ability to judge talent, build self-confidence and give people the freedom to succeed. He deserves great credit for helping to create an important industry that has changed and will continue to change all of our lives.

Michael Raab
New Enterprise Associates
September 2002
Menlo Park, California

INTRODUCTION--Larry Setren

I first met Kirk in February 1986 while interviewing for the job of director of employment and training at Genentech. Genentech had always been a tough company to join--lots of concern about cultural fit--so after meeting with and interviewing 33 vice president and director level folks, I finally met with Kirk Raab. All of the interviews up until that point were classic--much of what you'd expect when contemplating joining a new technology focused company--in depth questions about my past experiences, lots of theoretical questions and what ifs. My meeting with Kirk was very different.

I spent a warm and engaging hour with Kirk. He was disarming, funny, fully focused as if this meeting was the most important issue he was dealing with. We talked easily about our international work experiences, the good and difficult part of our lives, and what we both wanted to yet accomplish. He was much more interested in who I was as a person than the professional skills that I could offer.

Kirk's warmth and easy intimacy in our first meeting marked my relationship with Kirk as it did for many of the people he worked with at Genentech. In that first meeting I was introduced to Kirk's unusual ability to understand and get the best out of people. Kirk's ability to really know people, to guide them and have people realize their strength and value served him well at Genentech, and it served Genentech well as people wanted to perform their best for the company and for Kirk. Kirk had the natural ability to establish rapport with all of the different people that existed in a company as diverse at Genentech. As Kirk said in a later conversation, " You know, all I really do here is do people."

It was also in this first meeting that Kirk told me how he had come to Genentech after he almost died in a car crash. While still at Abbott he wrapped his speeding car around a tree. During his weeks and months of recuperating, he thought about how he more purposefully wanted to spend his life. During this time he realized he wanted to change the direction of his professional life and lead a company like Genentech, which soon thereafter came to pass.

Kirk and I had our first difficult conversation only a few weeks after my arrival. At this meeting, he was damning by faint praise, saying that though I was a good employee and a pretty good guy, I was a little different. "You chose to live in Berkeley," he said with a little disdain. "You drive a crappy car," he said with a lot of disdain. "You don't play golf," and he concluded, "so how are you going to be an effective executive here? How are you going to fit in with the executives we have around here!?" It took me a minute to realize that he wasn't joking and then I told him he was full of shit!

My response was honest though maybe impolitic and certainly immature, and I thought I blew it. But he only smiled and moved on and we finished our business. The next day, he asked me to stop by his office. I thought he was going to continue down the same path and I was tense, but he said he just wanted to check in. "Let me tell you something," he started. "You and I are going to work fine together. For someone to tell me I'm full of shit in his first few weeks at the company...I appreciate that kind of candor, and especially from a human resources guy, I need that kind of straight talk." Straight talk, empathy, guidance, understanding human nature and getting the best out of people--these are the attributes that characterized many of the relationships Kirk had with the Genentech employees who knew him well.

On the other hand, Kirk really did have this thing about cars! A few months later he asked me to drive him to the national sales meeting in San Francisco. At the time I was driving a 1978 Volkswagen diesel. I still recall the bemused look on his face as he sat in my cramped car, diesel fumes spewing. He reached to open the window for some breathable air and, before I could stop him, the window crank fell off into his hand, the window dropping open. He told me to get to the meeting as directly and fast as I could and then he just stopped talking. It was probably because of this ride that my pay accelerated pretty fast--he thought I'd buy a better car! And I did. I bought a Honda, only slightly better. He never asked me for another ride.

Kirk was the kind of guy who went whole-heartedly after important goals without reservation. Perhaps it was Kirk's near death experience, or maybe it was due to his age--Kirk was about 50 when the average age at Genentech was just about 30--he always thought big and went after big, value creating concepts. I was always impressed with his ability to be clear about what needed doing and the vigor with which he went after those things important to him or the company. He'd work hard, often during the early morning hours, and he'd come to management committee meetings and frame out big picture initiatives when the rest of us were often thinking about items parochial to our functional areas. His ability to envision Genentech's future and to think in strategic terms was perhaps one of his abilities of greatest value to Genentech. For example, the FDA's rejection of tPA was a major crisis for the firm and though there were a number of paths Genentech could have taken, Kirk decided to confront the FDA head on and the company took a number of aggressive actions including suing the FDA (maybe not such a good idea!), but also engineering the GUSTO trial which resulted in tPA's ultimate approval.

In my shop, this crisis centered on the Genentech childcare center. As planned, it would be the largest corporate childcare center, constructed to serve 250 families, at a subsidy cost of a million dollars to the company. Most of the executives around the table--looking at a million dollar expense without the revenue expected from tPA--wanted to hold off on building the childcare center or at least do it in smaller steps. To Kirk, incrementalizing it made no sense at all. Genentech had an unwritten agreement with its employees about the center. Kirk and Bob Swanson decided to build the center despite the lack of clarity about the future of the firm relative to tPA's approval. That was typical Kirk, to boldly go after important initiatives. In fact, the entire blue print of the Genentech campus and the Vacaville site was engineered by Kirk, well before the rest of us understood the success that would later come. Kirk added a strategic boldness about business decisions to the cultural mix at Genentech.

Kirk also affected a major cultural shift in the research organization. This is perhaps one of his less known or articulated contributions to Genentech, but one which might be the most responsible for Genentech's ensuing rich product pipeline. Throughout Genentech's early days and even as late as the end of the 1980s scientific research was preeminent. It was culturally understood that if you weren't a classic molecular biologist you were considered a second-class scientist. Your worth was suspect.

Additionally, the research organization still ran much like an academic organization. Excellent scientists were recruited from academic organizations with the brief to do important fundamental research with little thought to the product application of the work. As a result, in 1987 there were over 70 research programs within the company, all competing for talent and support resources with little product focus or accountability or product prioritization. There were skunk works all over the place. Any scientist with a good idea (and there were lots of wonderful ideas) were encouraged to pursue it with an attitude of stop-me-if-you-can. During the early and mid 1980s the Genentech research organization had a reputation as brilliant and prolific, but not being very good at identifying and targeting research candidates for the clinic or product development. In fact, commercial science was not necessarily held in high regard. This was unsustainable.

Kirk changed that by showing the scientists that it was a good thing to focus on research that could result in a product that would meet an unmet medical need, with lasting value. It was good to be intellectually and scientifically involved with products. By the late 1980s Genentech was no longer doing science for science's sake. The company was doing science for people's sake. Science was about products. The culture change was hard. We feared that scientists who were forced to focus on products would leave and we wouldn't be able to recruit the best academic scientists to replace them. In fact, the opposite happened. Genentech became known as a company that was able to turn ideas into products, and scientists got excited about this new end point to their research. They got excited about helping people. And they understood that commercial success enriched the resources available for their research.

Then there was a fundamental change in the leadership of research and development. Art Levinson became Kirk's head of R&D and he epitomized this cultural shift. Art stood up and said that if you're a scientist and you're not working toward a product, or if you are not someone supporting a scientist working toward a product, then you should not be at Genentech. This was a profound restatement, and at that point the research effort at Genentech turned very prolific in terms of new products. Kirk was fundamental to that cultural shift, but I doubt he gets much credit for it.

Also, by the late 1980s, Genentech scientists more clearly understood that other functions played a role in the success of the company. They learned the value of the team. People in legal protected important company assets, people in sales and marketing actually brought money into the company, and people in finance saved the company money by effectively handling a tax or finance issue. Everyone started working together as a team and understood that productivity, not just brilliance, resulted in success.

Kirk was a very effective boss. He was admired. People wanted to work with Kirk, and do good things for the company. He was a leader. Kirk had the unusual ability to compartmentalize his life and the complex issues that he worked on. No matter how preoccupied Kirk would be with a pressing issue, he always had the ability to be fully present for his meeting with you, as if he didn't have a care in the world.

Kirk made people understand that he trusted their abilities, so people did not want to let down that trust. Once the former vice president of human resources at Abbott told me of Kirk's reputation there as a cigar-chomping, hard-driving, ass-kicking Midwestern style of CEO who loved a very tough environment. Yet he had transformed himself into the kind of empathetic leader who was very effective at Genentech. He was the leader as coach. He made people feel his trust. He let them make independent decisions, but was always there as backstop. On a team where there were no other clear leaders, he brought new leaders along. Many scores of former Genentech employees--by virtue of Kirk's coaching and Genentech's success--have moved into leadership roles in other biopharmaceutical companies around the world.

Despite Kirk's own healthy sense of self-value and self-esteem, he had a good understanding of his own weaknesses and a good sense of humor about them. In one of our meetings Kirk reflected that he was probably one of the least well-educated people at Genentech. "How could someone with a bachelors' degree in fine arts," he said, "be the chief executive of a company with so many Ph.D.s and so many other people who are all a lot smarter than me." It was because he knew what he was capable of and because he is one of the best at "doing people."

Larry Setren
Setren, Smallberg & Associates
Oakland, California
October, 2002

INTERVIEW HISTORY--G. Kirk Raab

Kirk Raab arrived at Genentech in 1985 as "the big pharma guy." The Genentech founders--Bob Swanson, Herb Boyer and Tom Perkins--went looking for someone experienced in managing a company as big as they wanted Genentech some day to become. Raab left Genentech ten years later, and Genentech was indeed a much bigger player in the pharmaceutical world.

During Raab's tenure, first as president and later as president and CEO, Genentech grew in every way. Genentech built new facilities at its campus in South San Francisco and at a new production facility in Vacaville. It filled those facilities with thousands of new hires, in every business discipline, and its management structure took on a new formality. Genentech moved onto the big board of the New York Stock Exchange, pursued innovative financing, and entered into two pioneering and controversial alliances with Roche. Genentech underwent a cultural shift in its research organization so that its basic science increasingly put new drug candidates into the clinical pipeline. And Genentech brought blockbuster new drugs to market, notably tissue plasminogen activator [tPA] and human growth hormone [HGH], that both brought cash into the company and made lives better. Under Raab's leadership, Genentech sharpened its focus and grew into a firm with substance and a future.

Too often, though, the story of Raab's years at Genentech is overshadowed by his departure, by his reputation as an aggressive sales guy and his personal clashes with Bob Swanson. Here he talks vividly of the circumstances surrounding his departure and with honesty about his relationship with Bob Swanson. Obviously, these affected him deeply. But this is not the whole of Raab's story.

In these interviews Raab effuses pride over the two deals he signed with Roche that allowed Genentech to maintain the essence of its independence. He describes how Genentech overcame the challenges confronted in bringing tPA to market, challenges from both the Food and Drug Administration and from a European clinical trial. He understood his role as a visible figure within biotechnology and constantly mentions his changing relations with the FDA and with industry organizations. He describes the science Genentech did, the paths to bringing drug candidates to market, and how he matched Genentech's strategy to the products it had. Raab clearly understood management process and the details of each challenge Genentech overcame. His memories of the Roche deals are especially precise.

Here, though, Raab is best at talking about the cultures of the organizations he built. The artistry he worked was in the people who worked for him--in exploring their values, letting them know they were part of something big, and showing them the value of friendship and persuasion. He was a leader who led by personality. These interviews show that he developed a precise vocabulary to describe the shifts and nuances in corporate culture. His fluency in this vocabulary shows how directly involved he was in creating and changing those cultures.

While the interviews cover the full span of Raab's life--including his boyhood, his sales efforts in Latin America, his rise to the presidency of Abbott, and his recent career as a biotech company board member--the focus is clearly on his years at Genentech.

We did four interviews over the first quarter of 2002, on Friday mornings in the living room of Raab's home in Portola Valley. Only his two Welsh Corgi dogs disturbed our peace, though I often got the impression that Raab was talking as though his six children were also in the room. More than any unborn historian, more than the journalists who got the story wrong, more than the colleagues who wouldn't grasp the big pictures then unfolding--the intimate tone of these interviews suggest that Raab conceived of his audience here as his kids. And we all benefit.

One of Raab's children, his son Mike, followed him into biotechnology and was invited to write an introduction to this volume. Also invited were Larry Setren, a friend from his Genentech days, and Michael Kranda, a friend from Raab's work post-Genentech. Susan Rosencrants, Raab's assistant in his role as chairman of the board of Connetics Corporation, was a great help in scheduling the interviews in between his many travel commitments and in moving transcripts back and forth. We are grateful to them all.

Glenn E. Bugos, Ph.D.
The Prologue Group
Redwood City, California
September 29, 2002

Biography

G. Kirk Raab

G. Kirk Raab was born 27 September 1935 on Long Island, New York to George R. and Ann Marie Raab. In 1959 he earned a bachelors degree with honors from Colgate University, and was president of the Alpha Tau Omega fraternity. He later served as a trustee of Colgate University. He is also an honorary member of Exeter College of Oxford University.

In June of 1959 he started calling on general practitioners in Brooklyn for Pfizer, Inc., then rose through Pfizer's sales and marketing ranks in the United States and Latin America. From 1965 through 1968 he worked as general manager for Mexico for A.H. Robins, Inc. From 1968 through 1975 he served as vice president, Latin America for Beecham Group, Ltd. For eleven years Raab lived and worked in Latin America.

In 1975, Raab joined Abbott Laboratories, headquartered in North Chicago, Illinois, as vice president, Latin America. In 1976 he was promoted to executive vice president, international operations and oversaw Abbott sales operations around the world. In 1981 he was named Abbott president, chief operating officer, and director. He oversaw Abbott's equity investment in Amgen, Inc. and from 1981 to 1985 served on the Amgen board of directors.

Raab joined Genentech in February 1985 as president and chief operating officer, as well as a member of the board of directors. In February 1990 Raab also became chief executive officer of Genentech. In July 1995 Raab resigned as CEO of Genentech. This interview focuses on his tenure at Genentech.

Raab then grew more involved with a variety of biotechnology companies. In 1995 he was elected chairman of Shaman Pharmaceuticals of South San Francisco, a company doing ethnobotanical drug discovery, after he had served as a company director since 1992. He also continued on the board of another company he had joined while still with Genentech--Oclassen Pharmaceuticals. He had also served on the board of Cholestech, Inc. though resigned prior to 1995. In 1995 he was elected non-executive chairman of Oxford Glycosciences, Ltd. of Oxford, England, and later represented that company on the Oxford University Chancellor's Court of Benefactors. In October 1995, he was elected chairman of Connetics Corporation of Palo Alto which was developing Relaxin under license from Genentech. He was also elected chairman of Accumetrics, Inc. a cardiac monitoring company in San Diego, Sinogen International Ltd. in China, and LXR Biotechnology, Inc. in Richmond, California. He serves as chairman of Medgenics, Inc., an Israeli company developing a pump device for long-tem delivery of therapeutic proteins. He has also served as a director of Applied Imaging, Inc. of Santa Clara, Velos Medical Informatics, Inc. of Fremont, Bridge Medical Inc. of San Diego, Veranto, and Celtor Biosystems, Inc.,

He helped launch two of the biotechnology industry's key political action groups. In June 1993, Raab was elected to a two year term as inaugural chairman of the board of directors of Biotechnology Industry Organization (BIO), a 560-member trade organization created by the merger of the Industrial Biotechnology Association and the Association of Biotechnology Companies. He also served as the founding chairman of the California Healthcare Institute, also from 1993 to 1995. From 1990 to 1995 he served as a director of the Pharmaceutical Research and Manufacturers of America (PhRMA).

He serves as a director of the National Science and Technology Medals Foundation. He has also served as a trustee of the San Francisco Ballet, the San Francisco Symphony, Golden Gate Planned Parenthood, and San Francisco Public Radio and Television (KQED).

He has six children: Michael George, Alyson Ann, Kristina Elizabeth, Andrea, Julia Woodson, and Dean Kirk.

G. KIRK RAAB HISTORY

9/27/35	Born: Minneola, New York – only child – lived in Queens, NYC
9/36	Moved to Rockville Center, Long Island, NY. Wilson Grammar School. Great friends, Peter Coots, John Crow, Al Simpson. Sunday School, Congregational Church South Side High School (football, track, fair student)
6/51	Parents moved back to Queens, summer home Newtown, Conn.
6/53	Graduated St Paul's Episcopal School, Garden City, NY (football, golf, good student)
9/53 – 6/54	Colgate University, Hamilton, NY. Left to join the Army and grow up.
9/54 – 6/56	U.S. Army – Cpl., Basic & Clerk training, Fort Dix, NJ, Ramstein Air Base, Germany – edited newspaper, inspection team. Traveled all over Europe including 3 weeks with parents Christmas 1955. Visited father's older sister (Christina) and her family in Barcelona.
9/56 – 6/59	Returned to Colgate University – graduated honors with Political Science and Fine Arts. GI Bill of Rights, full tuition scholarship senior year. President ATO; Executive Editor Newspaper; ran three businesses with great friend Tom Treadwell. Summer 57 sold Vicks products – NY, NJ and Kentucky. Summer 58 – market research and sold for Merrill Pharmaceuticals – Houston, Texas and Cincinnati, Ohio. Last semester lived and studied in Washington D.C. (mainly at the FDA and assistant to a Congressman).
6/59 – 8/65	Pfizer USA – Salesman, Advertising Manager, Product Manager; Salesman and Consultant Brazil and Argentina, head of pharmaceutical business Chile. Major accomplishments: Advertising – re-birth Terramycin, Marketing – re-birth Vistaril, set up Product Manager system Brazil and Argentina, revitalized Chilean business. Left Pfizer in Chile due to elimination of overseas Americans. Learned good Spanish, fair Portuguese. Great friend – Tom Lazor. Why the pharmaceutical business? My plan after Colgate was to do graduate work overseas – I received a Fulbright to study in the Philippines and a Norwegian government scholarship to study their "Folkarschool" system. But spring vacation 1959 I decided I wanted instead to make some money and from my Vicks, Merrill and FDA experience that pharmaceuticals was a great opportunity. Also, I decided that Pfizer was the most dynamic company. My Father worked in Brooklyn (then Pfizer's headquarters location) and knew the VP-Personnel. I had interviews including with the Chairman & CEO and was hired (along with 4 others – all with MBA's) in a new training program.

	Why Latin America? In 1961 on a hunting trip (with Lazor) I was approached to join Roche as an Advertising Manager for a new product (turned out to be Valium) at $18,000/year and I was making $5,700! I turned it down as I believed that was so much money (my Father' top salary was $18,000) that I would be stuck in advertising. I told Pfizer of the offer (I had already turned it down) and that I would like 3 things: more money (got $500); to be a Product Manager (I was 6 months later) and to go overseas (I did in July 63 to Latin America – where they were very large). The reason was more diverse and rapid general manager opportunities.
4/30/60	Married Astrid Lois Lindberg, St. Michael's Episcopal Church, NYC, Reception Harvard Club. Met 9/59 on a blind date through a mutual friend – worked in Public Relations, linguist, attended Columbia U, Ballet dancer. Father: Norwegian, Harvard Business School Professor. Mother: nurse, homemaker from Ohio. Children: Kristina Elizabeth – NYC – 11/23/60 Alyson Ann – NYC – 3/12/63 Michael George – Santiago, Chile – 11/24/64
4/60 – 11/65	Lived in Upper West Side NYC (4/60-6/63), Sao Paulo, Brazil (7/63-2/64), Buenos Aires, Argentina (2/64-5/64), Santiago, Chile (5/64-9/65), great friend – Gary Briggs, NYC (9/65-11/65).
12/65 – 2/68	General Manager, Mexican subsidiary, A. H. Robins, Inc. – Richmond, Virginia
12/65 – 2/73	Lived in Mexico – Chapultepec Golf Club' Publisher, Mexican American Chamber of Commerce Review; Children at American School; rented homes in Lomas de Chapultepec and Los Leones. Owned and did major re-model of home on K.18 to Toluca. Helped start Unitarian Church. Great friend – Toss Olsen.
3/68 – 11/72	Director, Latin America – Beecham Group Ltd. Started cellar of home with Secretary (Teresa Gonzalez) – set up companies in all major countries, made acquisitions – Brazil, Argentina and Mexico. Grew business (antibiotics) from $5 to $65 million. Traveled a lot – Latin America, NY, London – too bad no Mileage Plus.
2/73 – 6/75	Family moved back to States – Brookside, NJ – children attended Mendham Grammar and Middle Schools.
11/72 – 5/73	Executive Vice President, Pharmacaps Inc., Elizabeth, NJ – soft gelatin capsule company (disaster as founder not willing to give up control and stop questionable practices).

5/73 – 2/75	Returned to Beecham (in Clifton, NJ) as Vice President, Latin America. Left for much better opportunity as any promotion would have meant move to UK and we wanted to remain in States.
3/75 – 1/85	Abbott Laboratories, North Chicago, IL (Sales increased from $700 M to $4 B).
3/75 – 11/76	Vice President, Latin America.
11/76 – 2/80	Vice President, International
2/80 – 6/81	Executive Vice President and Director
7/81 – 1/85	President, Chief Operating Officer and Director

Latin America – turned around a money-losing business closing Coral Gables office, factories in Jamaica, Nicaragua and Bolivia, hired new senior management team including successor. Major new product-introductions and new factories Ecuador, Brazil, Mexico, Venezuela and Guatemala.

Most wonderful moment: was second American businessman to return to Cuba in 5/76 – went for a week with 5 of my executives. Last night after an evening at the Tropicana Night Club spent from 1.00-5.00 am drinking rum and smoking cigars with Fidel Castro – truly memorable moment in my life.

International Division – responsible for Latin America, Canada, Africa, Middle East, Far East and Japan as well as marketing, manufacturing, quality, strategic planning and new product development. Made major acquisition in Brazil, negotiated majority control with Japanese partner, closed plants in Sri Lanka, Bangladesh, Rhodesia, Egypt and Turkey. Built new plants USSR, Pakistan, India, Indonesia, Thailand and Australia. Created whole new headquarters management structure, in-licensed new products for non-U.S. sales, and took leadership role in corporate pharmaceutical research.

Executive VP (Board 3/81) – responsible for Pharmaceuticals, New Product Licensing, Consumer Products, Corporate Engineering, Quality, Puerto Rico manufacturing and JV with Takeda Pharmaceuticals (TAP). Made major investment in Amgen and Boston Scientific, changed President of Pharmaceutical Business and R&D, then re-organized Pharmaceutical research and development, in-licensed 2 major new products, launched first new consumer product in 10 years, built large co-generation plant in Puerto Rico as well as major new facilities in Illinois – including R&D building, North Carolina and Puerto Rico.

President – responsible for U.S. businesses and staff except HR and Finance. Abbott grew incredibly – much from re-organization and major investments in Diagnostics, Home Care, plastic mini-bags, cost reductions, pharmaceutical R&D, and increased nutritional market shares (Ross).

3/81 – 12/84	Board Member and active in guiding CEO George Rathman (ex-Abbott VP) in the creation of Amgen Inc. Invested $5MM in 1981. Abbott sold stock in 1990 for $680MM.
7/75 – 8/83	Lived in Barrington Hills, IL – beautiful home. 5 acres – student of Frank Lloyd Wright – children graduated from Barrington High School – Kristina, Carlton College – graduated U of Illinois, Alyson, Miami of Ohio – graduated Columbia College, Mike – graduated De Paul University. Active – Barrington Hills Country Club, Lake Zurich Golf Club, Chicago Club, Art Institute of Chicago, Chicago Botanical Gardens – Who's Who in America.
9/25/83	Separated from Astrid (Divorced 9/14/86) – a very difficult and sad process.
11/83 – 3/84	Rented in Lake Forest, IL
4/84 – 7/85	Bought townhouse near north side of Chicago – lived with future wife, Mollie Elizabeth Painter whom I met playing golf (Pinehurst #2) at an Abbott Sales meeting (Abbott Product Manager, East Carolina University and MBA Northwestern. Father retired Colonel from Oregon, Mother from large prominent Greenville, NC family.)
1/85	Resigned from Abbott due to unsuccessful relationship with Chairman and CEO. (The previous COO lasted 14 months, I lasted 3½ years, and my successor 2 years – then the Chairman got the axe.)
2/85	Elected President, Chief Operating Officer and Director of Genentech Inc. (180 employees, 2½ buildings, $50 million cash – no product sales – valuation about $500 million). I never interviewed for any other job – I wanted Biotech and California, and Genentech and San Francisco were my dreams come true.
8/86	Alyson married to Bill Bailey (architect) – children, Emma and Ethan (3/95) and Evan (5/99)
12/6/86	Married Mollie on Iguana Island in the Virgin Islands with 28 family and friends participating. Lived in San Francisco, built home in Hillsborough 12/86-8/95 and extraordinary home in Woodside (3½ years to construct) 10/95 – 10/98. Dean Kirk and Julia Woodson born at UCSF 11/26/89, attending Nueva School for gifted children. Marin Country Club, Green Hills Country Club, Pacific Union Club, Links Club, Burlingame Country Club. (Good friends – Dick Breaux, Tom Wiggans.)
8/87	Kristina married to Brad Strand (hitech executive) – children, Benjamin (11/90), Avery (8/95), and Liam (4/02)
10/87	Mike married to Libby (architect) – daughter, Eleanor (12/98)

2/90	Elected Chief Executive Officer
7/95	Resigned from Genentech (3000 employees, 17 buildings, $1 billion cash, sales over $800 million – valuation $8 billion) due to the Board of Directors disapproval over discussions I had with the Chairman of Roche over a personal loan, even though it never happened. Human insulin, Alpha Interferon and Factor VIII sold by licensees and we marketed Hgh, TPA, Gamma Interferon, and DNase – sales force from 2 to 400. 9 major products in clinical trials – 2 for cancer with major sales in 1999. Reorganized R&D organization promoting Art Levinson 5 times to lead it, who in turn succeeded me as CEO. Concluded two agreements for major investments with Roche – founded and chaired California Health Care Institute, first Chairman, Biotechnology Industry Organization (800 members) Board Member O'Classen, Shaman and Cholestech Pharmaceuticals, San Francisco Ballet, San Francisco Symphony, Planned Parenthood, and the Pharmaceutical Manufacturers Association. Served as a trustee of Colgate University (88-97), Chair, Committee on Faculty and Academics, Vice-Chair, 1995 Capital Campaign, and established G. Kirk Raab Chair in Biology.
9/38/97	Separated from Mollie (Divorced 9/99)
Fall 95	Chairman, Shaman Pharmaceuticals, CA Chairman, Connetics Corporation, CA Chairman, Oxford GlycoSciences Ltd., UK
1996	Chairman, Sinogen Ltd., China Board Member, Applied Imaging Board Member, Bridge Medical, Inc.
1997	Board Member, Accumetrics, Inc.
1998	Chairman, LXR Biotechnology Inc. Resigned, Sinogen Ltd. (conflict with VC's)
1999	Chairman, United Medical Industrial Group (China) Chairman, Accumetrics, Inc. Resigned, LXR Biotechnology, Inc. (didn't make it, sold assets) Resigned, United Medical Industrial Group (didn't make it)
2000	Resigned, Shaman Pharmaceuticals, Inc. (changed direction to food supplements) Board Member, Veranto, Inc. and Velos Medical Informatics, Inc. Chairman, MedGenics, Inc. (Israeli Biotech company)
2001	Resigned, Veranto, Inc. (merged with parent company) Resigned, Accumetrics, Inc. (sold company) Board Member, ePhysician, Inc. Board Member, Celtor Biosystems, Inc.
2002	Reigned, ePhysician, Inc.

9/29/01	Married Maryann, real estate broker, raised in Kansas City and Crystal Lake, IL, attended Cal State Hayward, lived in England and Spain; mother is Norwegian (amazing) living in Sonoma, and Father retired living in Denver. One daughter Andrea, age 28, married to Darren Leggett.
Present	Residences: Portola Valley, California and vacation home in Scottsdale, Arizona. Member, Burlingame Country Club, Sankaty Head Golf Club, Desert Mountain Country Club, National Science and Technology Medals Foundation,; Trustee Emeritus, Colgate University, and Honorary Fellow, Exeter College and Member, Chancellor's Court of Benefactors, Oxford University.

Father	George Rufus Raab 1/2/1902 to 12/89. (Youngest of 8 children - 2 girls, 6 boys – one died as an infant) (nickname – Lala) Grandfather: Herman von Raab – Hamburg, Germany – moved to States after killing another student in a duel (dropped the "von") – lived in Jersey City, NJ – successful contractor – died when my father was 14. Grandmother, Charlotte Leonard, born Ireland, nurse, died on my 5th birthday. Education: Public Schools Jersey City, left school 4 years, then High School in 2 years (Dwight, NYC), BA, Rutgers – great baseball player, Theta Chi. Fordham Law School, whole career NY Telephone Company, retired to Boca Raton, FL age 55. Great interest in gardening, golf and civic affairs and his summer homes in New Town and Bridgewater, Conn.
Mother	Ann Maria Wood 2/17/04 to 5/92 – married 7/5/1930 (youngest of 4 girls) (nickname – Lollie) Grandfather: Clarence Ashton Wood, Southold, Long Island. Orphan at age 4 – his father whaler – died at sea – brought up by Uncle – BA Oneonta State Teachers College age 18, school principal age 22, went on to earn 12 more degrees including PhD – Education, PhD – Law, PhD – Philosophy and Religion and Bachelor of Agriculture (Cornell) at age 71. Career: Lawyer, minister, journalist, inn and restaurants, farmer, Chief Clerk to Chief Justice NY State Court of Appeals – lived upstate NY (Syracuse, Ithaca and Albany) until grandmother died, moved back to Long Island age 75 – married boyhood sweetheart (Aunt Clara) – became well known local historian, she died after 4 years and at 80 he married 3rd wife (Aunt Grace) and he died age 83. Fantastic gardener (summer home called Florallura) and chess player. Author of several books and numerous articles. He was truly a learned and wise man. Was a Son of the American Revolution. Grandmother: Mary Page. Married after met at Oneonta, from Kentucky, wonderful china painter, terrible arthritis and deaf at young age. Died when I was 7. Education: Syracuse Public Schools, Prep School Cazenovia, attended Syracuse U, graduated Ithaca College – BA dramatics, also worked telephone company – was sincerely religious, always loved theater and painting, played contract bridge and wonderful mother, wife and human being.

G. KIRK RAAB
3400 West Bayshore Road
Palo Alto, CA 94303
Tel: 650 739 2901
Fax: 650 494 9341

EXPERIENCE

Present

Oxford GlycoSciences, Ltd., Oxford England
Chairman, Board of Directors

Connetics Corporation, Palo Alto, California
Chairman, Board of Directors

Medgenics, Inc., Israel *
Chairman, Board of Directors

Bridge Medical, Inc., San Diego, California *
Member, Board of Directors

Applied Imaging, Inc., Santa Clara, California
Member, Board of Directors

Velos Medical Informatics, Inc., Fremont, California *
Member, Board of Directors

National Foundation for Science and Technology Medals
Member, Board of Directors

* private company

1985 - 1995 **Genentech, Inc., South San Francisco, California**

1990 - 1995 President, Chief Executive Officer and Director
1985 - 1990 President, Chief Operating Officer and Director

1975 - 1985 **Abbott Laboratories, North Chicago, Illinois**

1981 - 1985 President, Chief Operating Officer and Director
1976 - 1980 Executive Vice President, International Operations
1975 - 1976 Vice President, Latin America

1968 - 1975 **Beecham Group, Ltd.**
Vice President, Latin America

1965 - 1968 **A. H. Robins, Inc.**
General Manager, Mexico

1959 - 1965 **Pfizer, Inc.**
Sales and Marketing, United States and Latin America

--First Chairman of the Board of Directors of the Biotechnology Industry Organization (BIO) (1993-1995)

--Founding Chairman of the California Health Care Institute (1992-1995)

--Board of Directors of the Pharmaceutical Research & Manufacturers of America (PhRMA) (1990-1995)

--Board of Directors, Amgen, Inc. (1981-1985)

Former Board of Trustees: San Francisco Ballet, San Francisco Symphony, Golden Gate Planned Parenthood, San Francisco Public Radio and Television (KQED)

PERSONAL
Date of Birth: September 27, 1935, New York
Married, 5 children
BA, Colgate University (with honors)
Colgate University Trustee Emeritus
Member, Exeter College and The Chancellors Court, Oxford University

INTERVIEW WITH G. KIRK RAAB

A Speed Boat

[Interview 1: January 11, 2002]##[1]

[Portola Valley, California]

Bugos: I've asked you in advance if we could start this oral history interview with you making some overview statements. Beginning, please, with a résumé of your career at Genentech.

Raab: My career at Genentech began with an interesting story. There was a mutual decision for me to leave Abbott where I had been president and chief operating officer. I met with my older children, I was going through a divorce at the time, to tell them that I was going to leave Abbott. They asked me, well, what am I going to do. I said: "I'd really love to live in California. I'd like to be involved with a biotech company or a small growing company. I've spent enough time living and working on a battleship. I'd like to be on a speedboat." My oldest daughter Kristina asked, "You mean like Dr. Rathmann?" George Rathmann, who had started Amgen, was a family friend. He had worked for me at Abbott. I was on his board. I replied, "I don't think I'm really the person to start a company. I'm more the kind of person to build a company." I thought it might be less like pharmaceuticals and more like diagnostics. She said, "Oh Papa. You've always been in pharmaceuticals. Isn't there any company that would be right for you?" And I said, "There's only one. But that's not going to happen because the guy who runs it is fourteen years younger than I am. Though I don't know him I hear that he's incredibly capable and intimately involved. And that's Genentech."

That was the Wednesday before Thanksgiving. We were having our Thanksgiving celebration, then they were going to spend Thursday with their mother. On Friday an executive recruiter called me about the Genentech job. I came to San Francisco the following week and had my initial interviews with Bob Swanson and a number of the other executives and board members. The process began. I had set up a whole program for myself assuming I would rent an office in Chicago and take six to twelve months to discover what I was going to do in life, including a serious upgrade of my tennis and a few things like that. I was at work in Genentech by February, maybe six weeks later, as president and chief operating officer. It was an exciting and a magical experience.

There was one moment in the process that was very characteristic of Bob and my relation with him. He called me after we had everything resolved--ninety seven percent resolved. He called me in Chicago rather late in the evening. He asked: "Are you sure you want to do this?" I said: "Absolutely." And he said: "Well, you know, you're a big company

1. ## This symbol indicates that a tape or tape segment has begun or ended. A guide to the tapes follows the transcript.

guy." Bob had never worked for a big company. He was in the Citibank venture group, but that was a pretty small group. He said: "You know we really work long hours in a small company and I know you don't do that in big companies." I said: "Bob, when you're president of Abbott Laboratories you work *very* long hours." [laughter] He always had these images of big corporate America and how different it was. In some ways it was very different. What do you do when you see a light bulb out at Genentech? The answer is that you find a light bulb and replace it. At big companies you call the maintenance department. At Genentech we eventually started calling the maintenance department as we got bigger.

I started as president and chief operating officer on February 15, 1985. As far as my career with Genentech, it is very uncomplicated to describe. I then became chief executive officer on February 1, 1990. And I left the company on July 11, 1995. That was my résumé.

Bugos: Okay, and to give some structure to the interview, could you give us an overview statement on what you consider to be your greatest achievements during your tenure there? That is, what do you think historians should pay the most attention to?

Raab: There are three things, as generalizations, involved in running a biotech company. Any company. The discovery and development of the products. Execution, and that relates to the quality of the people. And finance. Those are the three things that I dedicated myself to. They're not profound to identify.

The Products

Raab: First, the products, which relate to the philosophy and the quality of the science, and how we maintained it. Bob and Herb [Boyer] had set extraordinary standards. Genentech was an extraordinary place scientifically. The early people like [Arthur] Levinson and [David] Goeddel, [Dennis] Kleid, Mike Ross, [Herbert] Heynecker, et cetera had already created an extraordinary high quality and competitive attitude towards science. That was already in place. The key was to keep it in place as the organization grew, which we obviously did and it has continued. It still has the best science and technology, head and shoulders over any other company--in my experience and I have lots now with lots of other people in lots of different companies. This includes Amgen, which is more successful commercially, but not in the science. And it's not just the science, but also the development of the product once you've identified the protein--in the case of Genentech--or the small molecule in the case of a more classical pharmaceutical company. How do you make sure that it's developed so you get FDA approval? Much of your commercial success depends on the quality of the claims you can make, which the FDA has approved. That is what your sales people are going to use when they go visiting doctors. So what I brought to the table was the maintenance of the extraordinary science, as well as the very high quality in the execution of the new product development and the claims that were approved.

The Execution

Raab: Now, on human resources. So many things at Genentech had been established in principal. My job was to make them happen as we grew dramatically in size, by hiring quality people. We had some failures. You hire thousands of people and you're gonna have some failures, at high levels and low levels. The key is not to have too many. When we did have failures more times than not it came from losing sight that the raw material of the human being is more important than the piece of paper they bring in to show you what they've done in life. That's why we always had such a young population at Genentech. I was the old man at Genentech, from the day I arrived. [laughs] Yes, you want a certain degree of experience and knowledge and education. But the raw material that the person had, the self-confidence to take risks, the maturity so that those risks weren't stupid or too frequent or too large, and the energy and need and drive to see that the success of Genentech and our products was our priority in life. I don't think Genentech was ever a wonderful place as far as promoting good home life and marriages. We talked about it. We worried about it. But the time and energy that people put into the company obviously wasn't good for other activities in life. And we wanted people whose commitment was close to being absolute. So "people" was a constant in the management of the business--promoting, rewarding, changing, punishing, training, educating, developing. We thought about that all the time. Genentech had one of the first and largest corporate day care centers in the United States. It was not done entirely for idealistic reasons; it was very expensive and took a lot of energy and work. We did it because it brought great pride to the employees and it would help us recruit and keep the better people. Two keys to the quality of the people in science was their ability to publish and the very significant postdoctoral program. This was unique in industry. The culture was constantly a part of senior management's thought process. How do we keep the quality of execution at the highest level?

Finance

Raab: Finally, finance. We always worried about having sufficient funds and about how the money was spent. Biotech companies, like human beings, often make their biggest mistakes when they don't think they can afford to do things right. I've said so many times that "the longest road for getting a drug approved is a short-cut." We've seen this most recently with ImClone. Biotechnology companies have taken the short-cuts so many times, because of not having the right people to execute or because they believe they don't have enough money to do it right. Do it substantially, not superficially. We worked very hard at raising money. That paid for the quality of our execution and the quality of our science.

From the very earliest years Genentech was profitable. Biotechnology is an industry, with rare exceptions, of companies that have never been profitable, so almost nobody remembers that Genentech was always profitable. We paid some prices for those profits. We did some deals. We gave rights to Mitsubishi to all of our new products discovered over a five year period for a nickel. People say huh? Yes, five cents a share for one quarter. [laughter] So I always say we gave it to them for a nickel. In my years, the only

quarters when we were not profitable is when we bought back our R&D partnerships. In that quarter we took a paper write-off. And when we did the Roche deals we had paper write-offs for the transactions. Those were the only times, when I was there, that we lost money, and it was a transaction, non-cash loss. We didn't really lose money.

One of the great things we did was in March 1987 when tPA was at its most glorious from a publicity point of view. The stock hit its high--like fifty four dollars--which took us about eight years to hit again. TPA was supposed to be approved in a couple of months. A heroic event. We decided to go out and raise a hundred and fifty million dollars in a Euroconvert bond issue, the largest ever done in biotech at the time. We borrowed the money at three percent. Amazing. People thought we were nuts because the stock was at an all-time high, and going to skyrocket. Well, two weeks after we raised the money it was announced that we were going to have an FDA advisory committee meeting. We had the meeting on the twenty-ninth of May, after raising the money in March, and it was negative. The drug finally did get approved the following November 13 but our stock suffered from then on for years. If we hadn't raised that hundred and fifty million dollars Genentech wouldn't be the company it is today. We never would have had the funds to do what we were able to do despite the pressure on the stock from the delay. We would never have been able to do the Roche deals. The recent court ruling in the City of Hope trial forcing Genentech to pay over five hundred million dollars, which I think is a disgraceful result, will not seriously hurt the company as they have close to two billion dollars in cash. The conservative attitude toward finance never changed and in my opinion still hasn't. The same applies to science, product development, quality of execution, and people. So finance was the third major thing.

tPA Factory

Raab: Over the years there were hundreds of other things that I did, what I'd consider big or small achievements. This is a good spot to say that I hardly ever did anything by myself. I may have made the final decision but there were lots of terrific people always involved. The first thing I did at Genentech resulted from a discussion during my interview process. Tom Perkins was not initially enthusiastic about my coming to Genentech though we eventually developed a marvelous relationship. Kleiner Perkins had funded a diagnostic company in southern California, Hybritech, which was eventually sold to Lilly. Their big competitor was Abbott, which I was president of. We were pretty vicious in some of the things we did to Hybritech, and because they were having so much trouble competing against Abbott they ended up selling the company. Tom didn't like me because I had been a mean guy to one of his companies. Of course, I pointed out that that showed that I had certain abilities, but he thought I was just a big bad wolf. So when he was interviewing me he asked: "So what's the first thing you'd do?"

I had learned that there was a tPA factory design and the steel had been ordered but the construction of the factory had stopped. I said: "You should know that my first day there I'm going to reinitiate the construction of the tPA factory." He said, "That's ridiculous. We don't know yet if it's going to work." He asked: "What about gamma interferon and tumor necrosis factor?" Growth hormone had been rejected by the FDA and nobody ever thought it was going to become the drug it eventually became, including yours truly. And

I said, jokingly, "You really could change the name of the company to tPA, Incorporated. That's why I would join. Tom, if we don't have tPA we don't have a company." "Ugh," he said. "That's just a waste of money." I told him that in biologics you have to do the final approval, before the FDA would approve the product for marketing, for the facility that you are going to produce the commercial product in. The process was different in the big factory. And the first thing I did the first day I entered the company was to pull the trigger on building that factory. Thank God I did, [laughter] because it would have taken years more to approve the drug. Tom obviously supported hiring me and didn't mess with the tPA decision. How's that for an opener?

Growing up

Bugos: Great. Meaning this might be a good time to go back and discuss how your life wound its way to Genentech, some biography, how you got there, and what you had going for you when you did?

Raab: Sure. I'm an only child. My father was from Jersey City. He went to Rutgers and Fordham Law School. Was a phenomenal baseball player. He had a contract with the Dodgers, and played farm team ball but didn't make it up. He was the youngest of nine kids. His parents I never really knew. My grandfather was from Germany and my grandmother was from Ireland.

My mother was the youngest of four, from upstate New York, and a graduate of Ithaca College. Her father was fascinating in that he was an orphan when he was two, living at the east end of Long Island , and eventually had thirteen earned college degrees. He had three Ph.D.s. His last degree was a bachelors in agriculture from Cornell when he was seventy-three years old. A great, great man. He was a minister, an editor of the Syracuse *Herald*, a lawyer, a teacher, and a high school principal when he was twenty-two in upstate New York. Eventually he worked the New York State Court of Appeals for many years. My grandmother was an artist, a china painter.

My father had a mediocre career in the New York telephone company. He lived a very conservative life. We lived on Long Island and had a very happy, normal, middle class American life. Lots of social life, church-related activities, Ozzie and Harriet. Actually, my father went to Rutgers with Ozzie Nelson and Paul Robeson. I was the light in their eyes. I went to St. Paul's in Garden City, Long Island--an Episcopal private school, not the St. Paul's in Massachusetts.

Army and G.I. Bill

Raab: Then I went to Colgate. By that stage in life, I had lived just a very comfortable, secure upbringing. Not a particularly good student, not a bad student. At Colgate my freshman year I got very involved with my social life. Academics were oriented toward the classical "Gentlemen's C's". The summer of my freshman year I decided to leave school-

-the word drop-out didn't quite exist then--and volunteered for the draft in 1954. I became an enlisted man in the army. The army was a wonderful experience for me. I matured, cut the umbilical cord. My parents were upset with me, but the G.I. Bill was still in effect, so the deal was that I would put myself through college when I went back. I was in Europe the whole time. Traveled. I was the editor of a division newspaper. I went back to Colgate on the GI bill, and became an honor student. I subsequently became a trustee of Colgate which, I like to say, was one of the most expensive "yes's" of my life. There's a Kirk Raab scholarship and a chair in biology now, which I'm very proud of. I had a marvelous time back in college. There were a lot of ex-GI's still in college from the Korean War. I was the president of my fraternity and the editor of the newspaper. Plus, I worked my three years and paid for college. I did have the G.I. Bill and a full tuition scholarship my senior year. One of the great happy moments with my parents was at graduation. My father handed me an envelop and in it was a check for all the money he would have spent on my college education. It was very symbolic of our relationship.

Summer Jobs

Raab: I had worked for two summers as a salesman for Vicks VapoRub. There was a very famous Vicks School of Applied Merchandising. In the book *The Organization Man* by William Whyte there was a whole chapter on the Vicks School of Applied Merchandising. It was an incredible training program in sales for all the Vicks ointments, cough medicine, and inhalers. I did that between my sophomore and junior years and it was really an exhilarating experience. Vicks had merged with a pharmaceutical company, William S. Merrell Company, in Cincinnati. That second summer I worked for Merrell and was exposed to marketing and market research in the pharmaceutical business. Interestingly, there my roommate was Jeb Stuart Magruder of Watergate infamy. Anyway, I got very interested in the pharmaceutical business. The summer of my senior year I spent in Washington with the Colgate Washington study group and did a project on the Food and Drug Administration, just when there was whole revolution in the agency. Senator Estes Kefauver was doing hearings on the FDA. I happen to be a painter, my avocation, and I shared a studio with Nancy Kefauver, his wife, and got to know him and spent some time working in his office, with the FDA and with a congressman [Francis E.] Dorn from Brooklyn. I got very interested in the pharmaceutical business.

Starting at Pfizer

Raab: Around the FDA the company they spoke worse about was Pfizer. And everything they said that was bad about Pfizer sounded good to me. [laughter] Pfizer was in Brooklyn then--it's since moved to Manhattan--and my father worked in Brooklyn for the telephone company. I came home that spring vacation and had to figure out what I was going to do when I graduated. I had a Fulbright to go to the Philippines and learn Tagalog. I had looked for Fulbrights that nobody else was applying for and got that one.

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Raab: I also had a fellowship to go a Folka school and study Folka schools in Norway, which is a special vocational education system for people not going to university but wanting advanced education in sophisticated trades. But I really wanted to make some money so I asked my father if he knew anybody at a company called Pfizer in Brooklyn. He said he knew somebody named Bill Stewart, the head of personnel--it wasn't called human resources then. I told him I'd like to get a job as a pharmaceutical salesman. It's a great business, the economy doesn't affect it much, it's got high profits, great people, and the products really make a difference. So he called and I went in to interview and on June 26, 1959 I started as a salesman in Pfizer and have been in the pharmaceutical business ever since.

Bugos: But your college degree was not in marketing, or in any facet of business?

Raab: Oh no. My undergraduate degree was in fine arts, with a lot of political science. I just never had the courage to be an artist.

One of my favorite pieces of paper is one I can no longer find. I was obliged to take an undergraduate course in chemistry at Colgate, which was the only science course I took there. It was given by an instructor in chemistry, who eventually became department chairman. When I was elected president of Abbott he sent me a telegram that read: "I don't believe it." [laughter] One of the secrets of my success is that I have a profound knowledge of my own ignorance.

Yearning for International Experience

Raab: Anyway, I got a job as a salesman in Brooklyn and New Jersey with Pfizer, calling on doctors. I only did that about a year. I did very well and came inside to the advertising department. Then became product manager. I was quite successful in doing that. I have always wanted to live overseas. It sounded like fun. I had been to Germany and all over Europe in the service. Also, I could see that you could become a general manager and rise up the organization much more quickly. You could get broad experience in manufacturing, in running operations in small countries around the world, especially in developing countries. So I let that be known and eventually worked it so that I could move to Latin America with Pfizer. They transferred me, and I stayed with Pfizer a few years and then joined A.H. Robbins, and then Beecham, and spent a total of ten years living in Argentina, Chile, Brazil and Mexico--the majority of it in Mexico. Like going into the army, it was the next giant step for me in personal growth. It was really marvelous.

Beecham

Raab: I ended up starting Beecham's Latin American pharmaceutical operations. I worked from Mexico City for five years and for three from New Jersey. For years they had been a proprietary drug company, with Brylcream and things like that. They had gotten into the semisynthetic penicillin business with Ampycillin and had some other important antibiotics that had never been launched in Latin America. When I left we had almost two thousand employees in Latin America and a large pharmaceutical business. It was just a great opportunity. I made acquisitions, started up companies, traveled some years eighty percent of the time. There were no airline miles programs then--too bad. It was the kind of thing I went overseas to do. As a young man I could take a lot more initiative to build things, things it would be much more difficult to accomplish in a mature market. And it set the stage so well for what I eventually did at Genentech. I knew how, and wanted, to build little companies into big companies.

Abbott Laboratories

Raab: I left Beecham to join Abbott because the next step at Beecham was to move to England. After Latin America our goal was to move back and raise our children in the United States. We had lived overseas long enough. Abbott had a very large operation in Latin America that had problems. I was brought in in February 1975, ten years almost to the day before I joined Genentech. I turned around Latin America very quickly. In November 1976 I was made vice president for international operations and ran all of Abbott's business outside of the United States. In February 1980 I became a corporate group vice president running the pharmaceutical and other big businesses in the United States. In March 1981 I became an executive vice president and was elected to the board of directors. In July 1981 I became president and chief operating officer. I reported to Bob Schoellhorn who was chairman and CEO. Bob was the guy who spotted me and moved me pretty darn fast from running Latin America to being president of the corporation. It was interesting that he had the same initials as Bob Swanson, R.A.S. [laughter].

Robert Schoellhorn

Raab: And I owe a great deal to Bob Schoellhorn as I do to Bob Swanson. Schoellhorn had been president when he was promoted to chief executive officer, so he moved Jim Vincent up to executive vice president and chief operating officer. But that didn't work. Jim was probably the chief operating officer a little over a year, maybe fifteen months. Jim went on to become the CEO of Biogen, and is still chairman. I was president and chief operating officer until I left Abbott in early 1985. There was a subsequent president and chief operating officer, Jack Schuler, who also was an extraordinary guy. He had worked for me. He lasted about three years. After Schoellhorn got rid of his third president he lasted one more year and then he himself was gone. But I begrudge none of

it. It was a wonderful time and for a guy who started as a salesman in Brooklyn it was a pretty good deal. I loved it and think that I accomplished a lot at Abbott. I am still appreciative for the opportunity Bob and the board gave me.

Accomplishments at Abbott

Raab: One thing I did, internationally, was shut down Abbott plants in Montego Bay, Bangladesh, Sri Lanka, Rhodesia, Egypt, Bolivia, Turkey. Abbott had plants all over the world and in some places where it was ludicrous to have one. Abbott had gotten very fat overseas, and I cut back on staff and office overhead. I consolidated much of worldwide manufacturing. Another thing I did at Abbott was to increase the size and quality of research in both the pharmaceutical business and the diagnostic business. The size of the R&D budget was comparatively small for the industry in those days. I got very involved in the science, particularly with George Rathmann, who ran the research in the diagnostic business at Abbott before he left to go to Amgen. The pharmaceutical business is its largest business now. When I was there all three of the other businesses were larger than the pharmaceuticals business. I brought in senior scientists and research people, and developed strong academic relationships. This also was excellent preparation for what I did at Genentech.

Abbott Investment in Amgen

Raab: I got very involved with Amgen, and was very interested in recombinant DNA technology, in proteins. I invested five million dollars. I wish I had [laughs]. *Abbott* invested five million dollars, on my insistence. When the board approved it, [Emanuel E.] "Manny" Papper, who was the dean of the University of Miami medical school said: "You should know Kirk that we're investing this despite the fact that most of Abbott's scientists don't support it. But we're investing because we know that it's important to you and you're important to us." We had rights, as part of that deal that I negotiated, to Amgen's first product, which was EPO, and is about a three billion dollar product today. When the product got to the point where we had to decide to take it, Bob Schoellhorn turned it down. That was the beginning of the real downfall in our relationship. It was a ludicrous decision, and I knew that then. He was influenced by a chemist who headed pharmaceutical research and didn't believe in proteins. When I became president he moved elsewhere. Abbott did sell its stock, the five million dollar investment, eight years after, for over seven hundred million dollars. That was after I left. Nobody called me to thank me. [laughs]

Abbott Research Building

Raab: Still, the Abbott years were just marvelous. I built buildings, like the science building. There was a funny story. I have a certain philosophy in working with scientists that science is bottom up and not top down. I've always kept my hands off the science with the exception of facilities, funding, and programs that promote the good science. Businessmen like me have no place in it. So many executives can't figure that out. They mess around with it and screw it up. Good scientists can't handle that. They leave, or they become weak scientists and worry about their vacations and stuff. I built this great big new pharmaceutical research building. They hadn't had a new research building in twenty years. I gave a talk at the dedication and I said: "Someday from this building is going to come a great new product and everybody will look up and there will be this giant balloon floating above this building that will say 'Eureka!'" About four years after I left, one day at home in California I got an envelope which clearly had a photograph in it. Abbott had this fabulous new product that had just been launched. It was an antihypertensive product [Hytrin] that also turned out to be very useful in treating prostate cancer. Making a billion or two today. All the scientists had gotten this giant balloon and had it floating over the building and had painted on it "Eureka!" And they had made this big sign: "Thanks, Kirk." That particular photograph is a treasure of mine.

Anyway, it was clear in 1984 that Schoellhorn and I just were not getting along. It just was not good. We were both going through divorces. Communication had broken down, and we both agreed that I should move on. He was the CEO and chairman, so I frankly didn't have much of a choice. My divorce was unhappy. I was tired of the weather in Chicago. It's a wonderful city, and I love Chicago, but not its weather. I still have a daughter there, a son-in-law, and three grandchildren. I really liked the idea of moving on. I had been there almost eleven years. I mentioned earlier about how I was contacted by Genentech. I never looked at any other jobs. Genentech was the only thing I even looked at, and it was the right place and right job. So that's how I worked up to coming to Genentech.

The Big Company Guy

Bugos: When Genentech contacted you did they say they were looking for someone with experience in a big pharmaceuticals company? And what was it about Abbott and your experience there that made you "big pharma?"

Raab: The board was very much behind it, and Bob supported, bringing in a hired gun, a professional executive. Growth hormone had been turned down, and they were looking at this tremendous investment in tPA. The board at Genentech was great--with Tom Perkins, Dave Packard, Dave Tappan from Fluor Daniels, Don Murfin from Lubrizol, Amo Houghton who was then chairman of Corning Glass and has become a great friend. They all thought the world of Bob, just to be very clear. They saw Genentech as being not only exciting, but now looking like it was going to be a big company. Bob was supportive, but this process was hard for him. It was a search that went on for several years before I was hired. In fact, Jim Vincent, my predecessor at Abbott, was one of the

early candidates. They were looking for somebody who had dealt with the FDA, had developed drugs, sold drugs, marketed them, developed big sales forces, had done all the stuff that's called the pharmaceuticals business and had done it with some degree of success. It was as simple as that. They had some good, fairly young guys. Bill Young in manufacturing, Jim Gower in sales and marketing. They had come from the pharmaceuticals industry--Bill from Lilly, Jim from American Hospital Supply. They came with relatively narrow experience and were young. The board was looking for a general manager, a president who had been a president. I had been, repeatedly, in both the Latin American and at Abbott. It was not a long or particularly difficult courtship from the time we met to the time I started. There were a few hiccups here and there in negotiating things, but basically it all worked fine.

Experience in Drug Approval

Bugos: When you were at Abbott how involved had you actually been in getting drugs approved? Had you overseen it from a management point of view, or were you directly involved?

Raab: When I became a group vice president in 1980 the pharmaceuticals business at Abbott was dead in the water. They hadn't had a new product in twenty years. As group vice president I had the president of the pharmaceuticals division reporting to me, among others. I made some giant changes. I changed the head of R&D, I changed the president, I changed the head of sales and marketing, the head of clinical research. I brought in academics. I restructured the whole pharmaceuticals business. I chaired the pharmaceutical R&D committee at the corporate level. Historically, the president of the pharmaceutical division had chaired that. I always chaired it myself, even as president of the company, because the products were so vital to all of Abbott, not just to its pharmaceuticals business. But I didn't run it. The people who worked for me did the real work. But I was very involved in the decision-making, setting the philosophy and budgeting, and where resources were deployed.

Long Timeline for Drugs

Bugos: Which products were you responsible for getting to market at Abbott?

Raab: I launched new products overseas. There were not any drugs launched at Abbott, before I left, that I was responsible for initiating the R&D on. We did submit two to the FDA. But five years was too short a period to get new drugs out. I'll give you an example. I was at the Hambrecht and Quist conference [the JP Morgan H&Q 20th Annual Healthcare Conference] last week in San Francisco. I went to hear Art Levinson's presentation on Genentech, which I really enjoyed. They have seven products in phase III clinical trials right now, which is extraordinary. Six of those I was very involved with, and I left almost seven years ago. It just takes so long to get products from discovery to marketplace because of all this pre-clinical and clinical development and the failures. Herceptin, the HER2/neu monoclonal antibody for cancer--I was intimately involved in

the decision to move it through the pipeline. The one that's licensed from IDEC [Rituxa], the CEO had come from Genentech and I personally finalized the negotiations on the license with him. It's Genentech's fastest growing product. The time frame for what I established at Abbott--the benefits were reaped long after I left. That's often the case in the pharmaceutical industry and applied to Genentech as well.

Understanding the FDA

Bugos: Right after you arrived at Genentech there were some problems with the FDA that were solved pretty quickly. And you had mentioned your ties there in 1959. But how much contact had you had with the FDA just prior to arriving at Genentech? How well did you know the people there?

Raab: I didn't know the people at the FDA at all until I came to Genentech. But I guided and steered the people at Abbott. Abbott was so big that for me to have gone to the FDA just wouldn't work. The FDA just does not like to have big executives around. The president of the pharmaceutical division at Abbott almost never went to FDA meetings. But what I did was sit in the pre-FDA meetings and structure who was going, what was going to be said. Before I got there Abbott had a long history of being contrarian, of problems with the FDA. I got rid of--actually in the case of Abbott "early retired" them--the guy who was in charge of regulatory affairs, who just hated the FDA. You can't have that sort of person dealing with them. Also, at Abbott we worked on small molecules and Genentech worked on proteins. Each was controlled by entirely different groups at the FDA.

I've told a story hundreds of time to help people understand the FDA. When I was in Brazil I worked on the Amazon River for many months selling Terramycin for Pfizer. I hadn't seen my family for eight or nine months. They were flying in to Sao Paulo, and I was flying down from some little village on the Amazon to Manous and then to Sao Paulo. I was a young guy in his twenties. I couldn't wait to see the kids. One of them was a year old baby, the other was three. I missed my wife. There was a quonset hut in front of just a little dirt strip with a single engine plane to fly me to Manous. I roll up and there is a Brazilian soldier standing there. The military revolution had happened literally the week before. So this soldier is standing there with this machine gun and he said to me: "You can't come in." I was speaking pretty good Portuguese by that time. I said: "My god, my plane, my family, I gotta come in!" He said again: "You can't come in." I said: "I gotta come in!" And he took his machine gun, took the safety off, and pointed it at me, and said: "You can't come in." And I said: "Oh, now I got it. I can't go in there." [laughter] And that's the way I always describe the FDA. The FDA is standing there with a machine gun against the pharmaceutical industry, so you better be their friend rather than their enemy. They are the boss. If you're a pharmaceutical firm, they own you body and soul. I changed the culture at Abbott to friendliness, to seeking advice, and working with the FDA. I've had wonderful person relationships, since my Genentech days, with the commissioners. I've advised presidents on selecting commissioners. I was chairman of the Biotechnology Industry Organization, and helped found it as well as the California Healthcare Institute, where I was also chairman. That gave me a lot of muscle. Genentech had a very active Washington office that I helped start. A Colgate guy ran it.

When I joined Genentech I used to sit in on every one of our regulatory preparation meetings.

I should make something very clear. There are a lot of very dedicated, capable people do very important work at the FDA. Sometimes I may not agree with them or think they take too long, but I know their ultimate goal is to improve public health in the United States.

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Raab: After I joined Genentech, I quickly went to visit the FDA, which I hadn't done since 1959. But I felt that I was not this great big, powerful pharmaceutical executive flying in my Gulfstream to Washington. I was flying in the back of the bus. And Genentech was a pretty small company back then, though it had already established itself as a company that was seen as arrogant by the FDA. That's something I had to fight against constantly, fight within Genentech. It was almost Abbott over again. But we turned that around.

FDA Approval of Growth Hormone

Raab: I sat down with Elaine Esber, who was the head of biologics then [the FDA Center for Biologics Evaluation and Research] and Saul Solomon who was in charge of the division within drugs that handled growth hormone. I talked with them about their relationship with Genentech and what we should do about growth hormone. The human growth hormone used at the time, which came from cadavers, they discovered, not long after I joined Genentech, caused Creutzfeldt-Jacobs disease which some people in Sweden died of. That made it easier to get recombinant growth hormone approved. Plus, I had established this relationship with the FDA that enabled us to work with them so that we could quickly get a new NDA filed [a New Drug Application] for growth hormone. Fortunately, there had already been some additional clinical work done so we filed the new NDA, got the product approved and launched it in the end of 1985, nine months after I came. In September 1985 we hired our first eighteen sales reps for launching growth hormone.

FDA Approval of tPA

Raab: And we were then working with the FDA on tPA as well. There are two different kinds of tPA, single and double chain. Which kind would become the drug was unresolved at Genentech, and the FDA was incredibly confused by Genentech's confusion. This was an the issue of whether the product would be lyophilized and be a powder or a liquid. Obviously it was easier for doctors if it was already a liquid but there were other problems. I quickly made the decision that it would be single chain, in the powder form--which was very controversial within Genentech. People, Bob being one of them, were disturbed about me coming in and making decisions so quickly. But that's what I was hired to do and that's what the company needed. We didn't have time to work them over

and over. They needed action, and I'm prone to do that. Clearly I could make such decisions quickly as I was getting excellent advice, particularly from Bill Young in this case.

Building Sales Forces

Bugos: Okay. You had also mentioned that you built a Genentech sales force quickly. Could you give some insight into how you had built or managed the sales forces at Robbins or Beecham or Abbott?

Raab: My first real sales management experience was in Chile, and I ran Pfizer's pharmaceuticals business there. I was head of sales and marketing, ran the sales force, and started a second pharmaceutical division. I built those sales forces. For A.H. Robbins I grew the sales force in Mexico, and changed it. Starting Beecham in Latin America is really where I put what I learned to the test. I was the first employee and my secretary in Mexico City was the second. We eventually had sales organizations throughout Latin America. Sometimes through acquisitions. Mostly we went in and hired a general manager and hired managers and got the drugs approved by the government--which was easier but it still took time and work--and got pricing approvals, and reimbursement approvals, and hired people and bought cars and put health insurance programs in place. I did it all, from ground up, with Beecham in Latin America. By the time I got to Abbott it was so big. It had sales organizations everywhere. I modernized it and restructured it, but I didn't really create a sales force like I did at Genentech.

Treating the Genentech Sales Force with Respect

Raab: It's important to repeat here again that I didn't do anything at Genentech, or Abbott, by myself. The best thing I did was to get and keep a lot of great people. But I was the president, and it was pretty small at the beginning, and I was intimately involved in most everything. We had some outstanding people in sales and marketing. Jim Gower was in charge, with Dick Brewer and John Rehr in marketing and Gary Lyons, Ed Jennings, and Kim Popovits in sales management. They were, and are, great and most are CEOs today.

Historically, pharmaceutical sales reps had real limits on the amount of money they could make. They'd have a salary and a bonus program. You would make forty to sixty thousand in salary and maybe fifteen thousand dollars a year in bonus. It created a significant culture of mediocrity in the sales organizations in the pharmaceutical business. The people who were really good got promoted out or went into other businesses because their income growth was so limited. If you're a sales type you need to be motivated to make more money. So one thing we did was that there was no limit on what a sales rep could make. It became pretty famous in the industry and many biotech companies copied us. Not so much with large pharma. Large pharma just puts masses of people out there. I remember once cutting a guy a bonus check for three hundred and eighty thousand dollars. He deserved it. He sold five million dollars worth of tPA. Why shouldn't he get

a piece of that? We had a whole program of gold Rolexes that we'd give them. In the second year if they deserved another watch we'd give them some diamond things to wear on the watch. I hate to wear one myself but they seemed to like it. We treated them with great respect. We didn't treat them like robots.

At our national sales meeting--it was usually three nights. The second night we'd do a special surprise. The third night was the awards dinner, and we always had it black tie. Which was unheard of. The sales force was about half men and half women. The women would all bring evening dresses, and we had a tuxedo rental company come to the hotel for the guys who didn't have tuxedos. It gave such class and made them so proud. It made me proud as well.

The pharmaceutical industry has very tight controls on their call reports. You have to fill out forms after every call, and that encourages people to lie. The company says they have to see eight doctors, so the salespeople write down eight whether or not they actually saw eight. We didn't believe in that. We believed if we had the right people with great products and outstanding incentives then they are going to call on the right doctors. If it was right to call on one doctor and take another out to play golf then that was okay with us. So we had no call reports, which was unheard of in the industry. And we also did that because I hated the damn things when I was in sales. [laughter].

Cars

Raab: Pharmaceutical companies give every sales person a company car. They were all cheap, awful cars. Like the Chrysler K cars, if you remember those. The reps were always embarrassed driving them but, of course, they did because they were free cars. So we just said here's five hundred dollars a month, or whatever the number was, and you buy your own car. They used to laud it over the people at the other pharmaceutical companies. They'd get maybe a used BMW, but they were so proud of it. We became famous as the company whose sales reps drove BMWs.

Sales Cultures at Pfizer and Abbott

Bugos: Pfizer now has a reputation for being good to its sales people. Was that the case when you were with them?

Raab: Absolutely, but not to the degree we did it at Genentech. Pfizer was the Puck's bad boy of the pharmaceuticals industry. They were newcomers. Not like Lilly and Parke Davis or Upjohn, which had all been in the pharmaceutical industry forever. Pfizer got started in 1952 or 1953.

Bugos: And how would you characterize the sales culture at Abbott?

Raab: Very conservative. Midwestern. Seniority-oriented. In the pharmaceutical industry then there were almost no female managers. I've always played a big role in promoting diversity. Half the population is female and it's just good for business to access the women. And I believe in it from an idealistic point of view as well. At Genentech we had an organization called African Americans in Biotech. I had lunch every six weeks or so with them as well as the gay and lesbian group at Genentech. Best meals that I'd ever get. We had an Hispanic group. A lot of the Hispanics at Genentech are bottle washers and in support roles, but they knew I speak Spanish and they were buddies of mine.

But when I tried to put women in management roles at Abbott, the managers would grumble: "Well, they've only been in their jobs eight years." I said: "Look we'll never have women in management roles if it's all based on seniority. The answer is going to be simple. You promote the women or I will. I'm president. This is not a democracy." It was a terrible struggle for me to promote women. Abbott was a much more conservative company. What I was able to do they often saw as revolutionary, and it was only twenty percent of what I would have done if I had really had full authority. But I didn't and Schoellhorn was very conservative and would get very nervous when I would do something out of the ordinary.

Building Abbott Plants

Bugos: Okay. You had also mentioned experience in manufacturing, which is another skill that a big pharma manager would be able to bring to a company like Genentech.

Raab: Yes, I had built factories. With Abbott in Latin America I built a wonderful factory in Quito, Ecuador. It's a beautiful building. Hired a really exciting Ecuadorian architect. It's an architectural statement as well as an excellent factory. I got into a lot of the details. I wrote an article on it for some plant construction magazine, a one page thing written with one of the engineers. I looked at that factory and looked at the bathrooms, and I don't know why. But we had about thirty percent more women in the factory, putting cotton in the bottles and doing more manual work. In the women's room there were eight stalls, and in the mens' room there were eight stalls and four urinals. And I thought maybe that's the reason it took women longer on their breaks. There's more of them and less facilities for them, and nobody had thought through that. Abbott's factories all over the world were all done that way. So I put in more stalls for the women. It was not a very profound decision, but it showed that a lot of the engineers and architects, who were male, just never paid attention to that stuff.

There is another funny story. I went down to see the plant in Quito, Ecuador, and I see this fire hydrant sitting about four feet off of the ground. The guy I was with said that was an Abbott worldwide specification. So I go back to North Chicago to find out why and ask Bob Barnes, head of the corporate engineering group. He said it was a spec for north Chicago, Illinois because of the snow. The fire hydrant had to be above the drifts, and they just kept that spec whether the plant was in Indonesia or India. The fire hydrants were stuck up in the air. [laughter] So I put in a system into Abbott worldwide not to have universals specs.

But the real manufacturing experience I got was with Beecham in setting up the businesses. In Latin American they had tariff barriers in all businesses, and that's why they had automobile assembly plants in all those countries as well as pharmaceutical plants. It's very inefficient. In Argentina, with all its troubles now, they're going to go back to the same damn thing, unfortunately. So if you wanted to be in the pharmaceuticals business in Latin America you need to produce your product locally. Not necessarily produce the active chemicals but you need to make it into capsules or tablets or syrups and put it in the bottles. So I developed a lot of experience building plants, buying them, contracting with people to update them to our standards after we did buy them, et cetera. It was an area I never thought I'd be interested in but I found it fascinating.

Good Manufacturing Practices

Bugos: How many of those plants would have been built to the American Good Manufacturing Practices standard?

Raab: In Latin America, close to none. The GMP standards of the FDA would be prohibitively expensive. There's no harm in having that level of GMP in the States but it's very costly. You're not doing harm by *not* having a factory up to that standard. In Abbott Mexico we had a big IV solutions plant, for intravenous drips, and it was an old plant. It needed to be redone. It was questionably sterile. So I had people come down from the States to look at it. They were going to shut it down that day but I pointed out to them that Abbott produced eighty percent of the IV solutions in Mexico. If they shut it down then they *would* kill people because there would be no IV solutions. I had a terrible debate with them. Then when they designed the plant they designed it to the U.S. GMP standard, which is very complicated to do with IV solutions. It was so expensive that you would never make a return on your investment with the price that you could sell IV solutions for in Mexico. I had to drive a compromised standard which made all sorts of people nervous in the States. But I pointed out to them that we had been doing okay with this imperfect plant for thirty years, and if you insist on putting in your perfect plant we're just not going to build it and we're going to close it down and hurt the Mexican people. So let's make sure that we can make a safe product even if it's not to U.S. GMP. A lot of the GMP standards came out of the space program--the laminar flow hoods and air handling systems so that you could have a level of sterility that was impossible before. So I did most with manufacturing with Beecham, then some with Abbott, and a whole lot with Genentech.

Genentech's Vacaville Facility

Raab: Like Vacaville. We picked the site, Bill Young and me, on a day in a helicopter riding over that area. I was very involved in politics at that point. Ann Richards, who was the governor of Texas, wanted us there badly. I had gotten to know her, and they put a tremendous package together. There was a congressman [Thomas Bliley Jr.] in

Richmond, Virginia, who was a very important guy. He wanted our factory in Richmond, and he put together some tremendous incentives. Nevada did too. California was not very good at putting incentives together. This was when Pete Wilson was running against Kathleen Brown for governor. I have never been a member of either political party, because it was in my company's best interest, and I don't particularly like either party anyway. [laughs] I went to Pete Wilson and said: "If we announce that we're staying in California that will be good for your campaign. It won't be a real big deal. But if we announce that we're leaving California then Kathleen Brown is going to make a lot of hay out of that. So here's what we want." We wanted to stay in California and not have to deal with all the problems of moving elsewhere. Turns out Willie Brown disliked the other Brown family--Pat Brown and Jerry and Kathleen. Pete Wilson knew this. So he got together with Willie and the two of them put a package together that was worth thirty-five million dollars. We looked around and Vacaville was a wonderful site. A lovely community, good schools, a good economy, with a good sales tax base from all those outlet stores you pass on the way up to Tahoe. That was an important decision. We had a big ceremony in Vacaville. Willie Brown was there, as was Pete, who was still governor--maybe thanks in part to Genentech. The investment in the plant, I understand, is now close to four hundred million dollars.

Bugos: So in terms of the skills you brought to Genentech, we've touched on manufacturing and research and product development and sales and marketing. At that time a lot of CEOs in pharmaceutical companies were coming up through the marketing ranks, rather than through research, which is where they tend to come from today.

Raab: Yes. Merck is an interesting one to watch. There have been epochs where CEOs come out of research, and other epochs when they come out of the business side. Sometimes they're attorneys. Very few CFOs [chief financial officers]. In my generation Roy Vagelos at Merck was probably the only CEO to have come out of research. Most all of us came out of sales and marketing.

Raab's Role in Genentech Sales and Marketing

Bugos: So in Genentech's appraisal of your skills, would they have most appreciated the skills you brought in sales and marketing. Or is it even fair to characterize your experience that way?

Raab: Right. I assume you have read some of the press about me. I'm always characterized as the sales and marketing guy, particularly when there was criticism of Genentech's sales and marketing. And I did start in sales and marketing. But at Genentech I spent much less time in sales and marketing than it sounds like. For simple reasons. We had very good people in sales and marketing. It's not rocket science. It's not a profound activity. It's good sense. It's getting good people. Products like ours were intellectually interesting to both the sales rep and the physician. Much of my career was spent selling antibiotics, and I always look at antibiotics like detergents. Nobody needs or wants a new one. [laughter] Who needs a new detergent? Antibiotics are kind of that way.

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Raab: My role in Genentech sales and marketing was blown out of proportion. I mean I take full responsibility. No Pontius Pilating of it. I was president and CEO and the buck stops here. If anything, if I had to do it over I'd probably have put a little more time and energy into sales and marketing. The U.S. government took legal action against Genentech over some practices and the company settled with them after I left. I've never been privy to the eventual settlement where Genentech paid a fine to the government. I think Art Levinson did absolutely the right thing in settling with the government, paying the fine, and getting that over with. It helped him promote an image of purity: "We're now going to be a good company." By the way, I consider Art one of my greatest achievements at Genentech. Not that I made Art who Art is, but I promoted him over and over again. I did not make him CEO. [laughs] That was the one job I did not give him. But I certainly did a lot to prepare him for that. I always hoped he would succeed me but I didn't think it would come quite so quickly.

Raab: If I had spent more time and energy I probably would have modified some of the sales practices. I don't think Genentech did anything that, in my opinion, was harmful and wrong. There were probably some inappropriate things. Things that we didn't need to do, and we would have been just as successful without doing them. When I got there it was five hundred people, it grew to thirty five hundred or whatever, and was growing like rapid fire when I left. So I was often dealing with bigger picture things.

I was dealing with industry matters. The industry needed a leader and there was nobody but me there to create the powerful organization we had. The timing was right, as Clinton came in as president. I supported him. I was involved in his first campaign. I did not support him the second time. Got to know him, Al Gore, Hillary, all very well. So when healthcare reform came I was able to lead the fight against it, which was very important for our industry. And I personally believe, for the country. It was a disgrace. We needed healthcare reform. Still do. But not that. I felt that that was a priority for me, and a role I could fill. So I spent less time in the details of sales and marketing. I was involved in the decision to add a hundred more reps, or the decisions on compensation, or the decision on what products we give greatest priority too, but not on some of the smaller details. Again, though, I don't want to imply that I was not responsible. I was!

A COO Under a CEO

Bugos: Okay. In terms of the level of details. You had come from Abbott, where you were in a CEO-COO type of relationship, into Genentech where you had a CEO-COO type of relationship. Did you have any concerns about what it would be like to be a COO again under a CEO?

Raab: Gigantic. It's not what I wanted. But Genentech was worth being a COO for, and I'm certainly glad I did it. I like to say you're sitting next to one of the luckiest guys in the world. But I knew it was a tough row to hoe. You're not the captain, you're the first mate. Here I was number two but with a lot more experience than the number one. Both of us very strong-willed people. Both came at things differently, different educational

backgrounds. It was not an easy process ever between Bob and me. It was always a challenge. I always said we had a marriage without sex. [laughs] We worked hard at it. At times we would get testy with each other. At times we worked wonderfully together. I think the net result was pretty darned positive.

Bugos: So you interviewed with him before you took the job?

Raab: Hours and hours. I probably spent twelve hours total interviewing with him before I took the job.

Bugos: Did he make it clear to you what sort of experience he thought you had that would be complementary to his?

Raab: Yes. He never expressed doubts about my experience. That little story I told you about the hours we worked. He had doubts about the big company guy [at Abbott]. He checked all my references. He may have been concerned about my aggressiveness.

In the Company of Only Children

Raab: We were both only children. At one time at Genentech, of the top executives, six of the nine were only children. I spent a lot of time in China; I helped start a biotech company there after I left Genentech. It's going to be an only-child society. I never dealt with anybody who had more than one child unless they had twins. I often wonder what that next generation is going to be like, with three-quarters of the leadership all being only children. Only children are different. You have no rivalry at home. You have nobody to compete with in your home when you're growing up. You live an adult life because it's just you and your parents. There is a tremendous support system. Not if you have screwed-up parents, of course. But nobody is competing for their time. You come out of it very secure. And probably significantly less sensitive to peers, than one who grows up in a multiple child household. Bob and I, as well as the others, came from that environment.

Bugos: Are you suggesting that influenced the corporate psychology of Genentech?

Raab: I don't think there's any doubt about it. Bob used to say that we want people who drink from the end of a fire hose. That was one of his favorite sayings. There was a lot of beating up on each other. It was tough. It was a locker room environment. I changed that a lot. When I got there it was a pretty sexist culture. There was one woman, Shirley Clayton, in the senior management. I would never accuse Bob of being against women, it's just the way it was. The guys loved the put-down. The macho-fraternity kind of environment. I wouldn't be surprised if the only-child mentality was part of that. Only children are very determined.

Bugos: But it didn't sour you from your decision to go to Genentech?

Raab: It was a wonderful decision. I didn't hesitate about it. I knew the risks. But I'm a risk taker. TPA was a risk. There was the risk of whether Bob and I could work together,

because I had just ended up not working all that well with Bob Schoellhorn. But I did all that with my eyes wide open.

There was a big *Wall Street Journal* article the day after I started, and Bob and I had an argument about that article. It talked about changing the way we dealt with the FDA, and Bob took that as criticism. And I said: "Right. But you brought me here to set things straight. To fix them. It's not all broke but it can be better."

TPA, Incorporated

[Interview 2: January 25, 2002] ##

Bugos: Last time we talked you mentioned that when you joined Genentech you thought it could almost be called tPA Incorporated because tPA was so important to Genentech. Between 1985 and 1990 you spent a lot of your time making Activase as important to the company as it was. I'm hoping you could start this interview by laying out the Activase story.

Raab: In that period of time there was nothing that had a greater impact on Genentech than tPA. Fortunately the company is now much broader, with a particular orientation to anticancer drugs. It was what enabled us financially to be successful. The expectations of its success gave us the valuation in the stock price that enabled us to raise all the capital that we did to build the company. This included motivating Roche to make its initial investment. TPA was the driving force to give the company its heroic dimensions.

We also have to recognize that, in the end, tPA was not at all the success that people expected it to be. The financial community had very little experience in truly evaluating potential sales of biotech products at that stage. There were only two or three products on the market sold by or from biotech companies: insulin with Lilly, alpha interferon with Roche and Schering, and growth hormone from Genentech. Only one was sold by a biotech company. EPO came after tPA's approval but around that same time. The financial community, the research analysts, was made up almost all of former scientists. They were reveling in the glorious potential of biotech without knowing the reality of the marketplace. Genentech's tPA story has some marvelous successes--GUSTO being one of them [the trial for Global Utilization of Streptokinase and tPA for Occluded Coronary Arteries]. But to this day it has never achieved the therapeutic usage once expected. I personally think patients would be better off if the whole class of thrombolytics were used automatically with heart attacks. To this day I believe they are still used in not much more than fifty percent of heart attack patients. I also have no doubt that tPA is the best and can assure you that I would want it administered if I or a loved one ever had a heart attack. Concern over tPA's limited success was the driving force behind our decision to do the Roche deal. And yet, as I said, it supported their investment. It's kind of amazing, and kind of sad.

So tPA on the one hand is good, because it gave Genentech its heroic dimension, and on the other hand it is good because it made the Roche deal possible, which was the single most important thing I did at Genentech. Both the first and second Roche deals are what enabled Genentech to be what Genentech is today--one of the most successful drug

discoverers and marketers, certainly in biotechnology. It's smaller than Amgen, but if you look at the pipeline Amgen has had only two successful drugs which is pretty meager comparatively. Same with Immunex. The Roche deal, and the vision of their management both initially and today, allowed Genentech to have the financial resources and the ability to operate independently that allowed Genentech to be the Genentech it is today. You don't go over to Genentech today and have a sense of Roche, even today when they could have much more control than they did in my day.

The Price of tPA

Raab: Now back to tPA. There was lots of controversy over the twenty-two hundred dollar price. I was with a group of cardiologists, advisers to us, and I noticed the cardiologists wearing Rolexes never complained about the price and the ones with the Japanese watches always complained. I showed them that if we lowered our price to fifteen hundred dollars, which was still twice the price of streptokinase, we would have had to eliminate all R&D at Genentech. Which was ludicrous, obviously. We had to sell at that price. There was a hearing in Washington many years ago in front of Congressman Henry Waxman. Roy Vagelos who was the chairman and CEO of Merck and I testified. There was criticism of the price of tPA. I didn't point it out in the hearing, but I said to Roy afterward, that if you look at the price of Mevicor annually [Merck's cholesterol-lowering drug], it was significantly higher than tPA. And that was something people could probably avoid taking if they had decent diets. TPA saved their lives at the moment of a heart attack.

Bugos: So how, exactly, did you figure the price? By calculating how the alternative therapies were priced? By adding up your entire development costs and dividing that by expected doses?

Raab: We calculated it every way possible. We had outside consultants, some of the most knowledgeable academicians from Princeton and Stanford. We had market research. We had our sales forecasts and figured what they would do for the income of the company and compared that with the amount of money we needed to continue to develop the products we had in the pipeline. That all came into the picture. We looked for the "you son of a bitch" factor. [laughter] Where was the number where people just said: "Too much." That number then--and prices are much higher today--was around thirty-five hundred dollars. We had all this input, and in business there is no right and wrong answer. Finally Bob Swanson and I sat in his office one day and we had to decide, after reviewing all the research and advice. We decided that we'd each write a number on a piece of paper. And we each wrote down twenty-two hundred dollars, so we knew that was the price. There was a lot of input, but in the end it's a subjective decision that somebody had to make. A very Solomon-like decision. Obviously, the board of directors approved our decision.

TPA as a Manufacturing Problem

Bugos: To a degree tPA almost worked too well because patients only used it once. Did that figure into setting a high price? After that pricing and income experience did you change your perspective on the importance of chronicity?

Raab: TPA was a serendipitous event. If you look at everything else Genentech has worked on, starting with insulin and growth hormone and DNase, Pulmozyme, the cancer drugs--they were all chronic administration drugs, like EPO. A scientist at Genentech, Doctor Diane Pennica, was at a meeting in Stockholm and heard a presentation by Doctor Desiré Collen from the University of Leuven in Belgium. He had identified the protein. Genentech had a business development guy go over to Belgium and license the protein. That was 1982 or 1983. The protein was not discovered by Genentech.

But you needed significant quantities to make tPA work in the body and it was a very large protein; the molecular weight is very high. At that time there was nobody in the world who could manufacture it in pure and industrial quantities. The greatest accomplishment in the tPA story, in addition to realizing the value in the license and moving it ahead in the trials, was in manufacturing it. That was Art Levinson's first really big project. He threw himself into that, along with many of the best scientists at Genentech, who immersed themselves into designing the plant and scaling it up. It was profound. Nobody had made kilos of a protein that size. Lilly was the only other large scale manufacturer of proteins, but insulin is a very small molecule compared with tPA.

Going on with the tPA story, we had the negative FDA advisory committee meeting, which I mentioned earlier, on May 29, 1987, and then got it approved on November 13. Which was rather extraordinary--to have a negative advisory committee meeting and then to have the drug approved that quickly. We had a vice president of product development, a clinical guy who joined us from Duke University, Ralph Snyderman, who is now dean of Duke Medical School and chancellor of the Duke medical center in Durham. He just took on the job of getting it approved and working with the FDA. Successful deans are politically savvy people. Ralph proved with tPA he was just a tremendous leader. As always, he had plenty of support from some incredibly capable people.

Slowing tPA Sales

Raab: Sales in the first month were very exciting. Unfortunately, we had on the horizon this trial, the ISIS-3 trial [the Third International Study of Infarct Survival], which was done in Italy. The results were available, as I remember, in March 1991. That was a trial comparing mortality with streptokinase and tPA. It had an equivocal result, and sales of the product had slowed down dramatically as a reaction to that trial and aggressive, low pricing on the part of streptokinase salespeople. Our stock took a big hit when we announced that we had stopped producing tPA because our inventories were sufficient to meet demand for some time. That was obviously a message to the financial community that sales were not continuing to increase as they expected.

What I'm working up to is the Roche deal. TPA had been launched December 1987, so it was aggressively marketed throughout 1988. As I said, in September 1988 we had to announce that we were stopping production. If you look at the price of Genentech stock from March of 1987--when it was at the top around fifty-two, fifty-three dollars--up to the Roche deal announcement, which was February 2, 1990, there was a significant decline. Obviously, there was the major stock market decline in October 1987 as well. I think it got as low as fourteen dollars. When we started the Roche negotiation we were at twenty one, twenty-two dollars. We had tPA growing, but slowly, growth hormone doing reasonably well but not with great growth, and our pipeline was fabulous. Genentech had always been profitable, so everyone was looking for earnings growth.

The July board meeting of 1989 was a very difficult board meeting. We were going to have to lay off hundreds of people if we were going to continue to be profitable. We had a pretty lean administrative function--where we spent money was on R&D and sales. We still had to get sales growing so to cut back on sales and marketing would make things worse. From frying pan to fire. And to cut R&D was to cut our throats. It was the heart and soul of the company, the pump of its life blood. But we put together some proposals of what cutting back on R&D would look like. The board was not willing to do that, which was certainly the right decision. I can assure you it was a very difficult board meeting and no decision was made. It stimulated Bob and me to decide to look for a "strategic relationship." That was the term used but we didn't know what form that would take.

A Strategic Relationship

Raab: There's a special story. I just knew we had to do something significant--something mergers and acquisition related--so I had talked with Fred Frank from Lehman Brothers, whom I had worked with for years at Abbott. Fred was considered the best healthcare banker. He had taken Cetus public. He had not been a banker for Genentech. Genentech had always worked with Paine Webber, Hambrecht & Quist, and First Boston, who were all great. Fred was Mr. Healthcare. Bob knew him. I talked with Fred about what it would look like to do a strategic relationship. I also talked with Joe Perella from Wasserstein Perella, whom I had known from when he was at First Boston. To get their perspectives. They thought there were some pretty exciting opportunities.

On the Thursday of this particular week, the second week in August 1989, Bob and his family were going to take the train from Oakland to Tahoe where they have a wonderful home. It's neat to take the train up there, once. You see different views from the train than you do driving. I called Bob and said I had to talk with him. I had picked up some café lattés for us on the way over. He came out and sat in the car in front of his house. His wife was packing up their car. I said: "We have to sell the company." He said: "You're right." We had absolutely no disagreement on that. He had been going through the same thought process himself. We knew it was the only solution because we were going to destroy it otherwise. Selling the company had the risk of destroying it too. But we were adamant that we could find a way to do it so that it wasn't destroyed. We sat there for an hour, until they almost missed their train. They went up to Tahoe, and we talked once or twice more that week. Clearly, we were also worrying about the outcome

of the ISIS trial which was going on in Italy with tPA. We had no idea what the results would be. Negative results would be devastating.

Meeting the Bankers

Raab: Then we set up a conference call with Tom Perkins. We decided we needed an attorney present. John Larson, managing partner of Brobeck, had never been Genentech's attorney. He and Tom Perkins were close, and he had done a lot of work over the years for Tom. John was on the call so we'd have legal advice and attorney privilege. On the call we decided to go to New York and meet the bankers. The following weekend--we all went on a Sunday--we went to New York. I had set up a meeting on the Monday in the morning with Joe Perella and lunch and the afternoon with Fred Frank at Lehman Brothers. We had dinner at La Cirque, the old one, and after dinner drinks at The Links Club. The four of us talked for hours, it was a very interesting evening, and we decided to go ahead and hire them. That Thursday, I think it was, we organized a telephone call with the board of directors, and they approved our moving ahead, with Lehman Brothers being the lead and Wasserstein Perella backing them up. We had a series of board meetings over the coming months, some live but mostly telephonic.

Preparing the Deal

Raab: I can't remember when we brought in John McLaughlin, who by that time was in California from Washington as general counsel. He was the next person we brought in over the wall, and was involved within weeks of the start. We decided to prepare a book about the company and hired a consulting firm, named PA Associates in London, to do this for us. We didn't want an American firm to do it. We used the facade that we were going to look for an international partner for our foreign business, not anything to do with selling the company. Then we brought in Jim Gower, who was head of sales and marketing, to work with PA Associates. There was nobody else in the company who knew, except for my and Bob's secretaries. And we prepared all the materials. Fred Frank began exploring options with companies, obviously not mentioning Genentech, beginning in late September. Lou Lavigne, our CFO, was also involved by then.

We had a board meeting in New York in October 1989, the day of the earthquake in San Francisco. The board meeting was at Lehman Brothers. We put in a poison pill at that time, and talked about the whole thing in great detail. A side comment on that meeting. When deciding on the poison pill we asked each board member what they did in their companies. Dave Packard said, "Well, Bill and I decided if someone tried to make an unfriendly takeover of HP we'd just shoot the bastard."

After that board meeting a group of us had dinner together--Swanson, Lavigne, McLaughlin, Gower and me--with Bob and me leaving for Switzerland the next morning. Of course, the Giants were playing Oakland, and we were all thinking we *wanna* go watch the game. The heck with dinner, and we all got up from the restaurant and went

back to our hotel to watch the game and saw the earthquake going on. What a surprise. My wife was weeks away from delivering twins, so it was a pretty frantic evening. Everybody was fine and there was no damage to Genentech. The next day Bob and I went to Switzerland with Fred Frank for our first meeting with Roche, at the Dolder Grand Hotel in Zurich. That began the negotiation, which was challenging process.

The only company in the States that we had any real conversation with was Merck. In the end they felt that they would end up making Genentech into Merck West. And they didn't think that was a good idea. They could pay to build a Merck West cheaper than they could buy Genentech. They were never all that big on proteins. Fred Frank touched base with others, but the only company we had any serious discussions with was Roche.

Letting Genentech be Genentech

Raab: Fritz Gerber, the chairman of Roche, had the vision, along with Jürgen Drews, head of R&D, and Henri Meier, the CFO, of letting Genentech be Genentech. It was clear from the beginning that our independence was what they wanted as much as what we wanted. They initially bought fifty-one percent and bought another sixteen percent over the next five years. There were tons of negotiations around price, but much more complicated negotiations around governance. If you look at the governance stipulations they were pretty severe in impeding Roche from being able to mess around with us. Obviously we couldn't go out and make a billion dollar acquisition which would dilute their ownership. We couldn't sell the company or do certain things to undermine their ownership position, but outside of that there was very little power they had over anything else. The agreement considered a way, at pre-established graduated prices, for them to eventually buy the company, or not.

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Raab: This created both a floor and a ceiling on the stock price. There was no way the stock price would go much above what they could buy the company for, and they could buy it at any time. There was not much chance it was going to go much below a ten to twenty percent discount to that price. Frankly, Fred Frank forecasted that and that's pretty much the way the stock acted for the next five years, just as forecasted. It was a profound and original agreement. Credit goes to many different people.

GUSTO trial

Raab: We suddenly had a lot of money, and lot of security. Nobody was going to acquire us, the stock was stable, and we were free to do what we needed to. First of all, the GUSTO trial. The GUSTO trial was one of the other great achievements I take pride in. First, it was successful in the end and proved tPA was better than our cheaper competition. Secondly, it showed to the physician community, the cardiologists, that we were behind the product. We spent sixty million dollars to do a trial that big, and that's putting your money where

your mouth is. Doctors bought into that and it enabled doctors who were under pressure to use cheaper streptokinase to continue using tPA. It was a powerful marketing tool, and once we had results it became an even more powerful marketing tool. If we hadn't done the Roche deal we never could have afforded to spend that kind of money on that kind of trial, sales would have declined, and who knows what would have happened to Genentech.

We geared up our research, and geared up our development activities. We started doing in-licensing deals, moved into monoclonal antibodies and cancer. For example, the IDEC deal which I personally signed and concluded the final negotiations. Virtually every product that Genentech has on or close to the market today is there because of the money we were able to put into them because of the Roche deal. We poured money into DNase and it's probably the fastest drug ever by a biotech company from time of idea to market. It was less than five years. That never would have happened without the Roche deal.

Second Roche Deal

Raab: To finish the Roche saga in my time; obviously there was more once I left. The end of the first deal was July 1, 1995. That was the end of the quarter when Roche could buy the company at an established price, or not. If they didn't buy it then a lot of things changed. They no longer had the automatic right to buy the company at a pre-established price. At this point they owned about sixty-seven percent of the company. After that date there was a very complicated formula by which the non-Roche board members had to decide that whatever the price Roche offered was in the best interest of the minority shareholders. Other aspects of the governance agreement changed as well.

We had a put and call in the deal. Fortunately, they eventually called it and bought the company for about eighty dollars a share. Then they went on to do the brilliant things they did, by relisting the stock. Through that, and this is the key, Genentech is Genentech, Art Levinson is the CEO, and it continues to be a wonderful research and development and marketing machine. They have two billion dollars or so in cash now. They hope to launch, within the next two years, three or four new products. Anti-cancer drugs are skyrocketing. Both HER2 for breast cancer and the IDEC product, Rituxan. Anything you want to ask me about all that?We didn't know what Roche was going to do. The stock market was speculating. Half the people said they were going to buy the rest of it, half said they weren't. Obviously nobody knew. In my opinion, Roche really didn't know. And it's not knowable because we struck a new deal before July first. [laughs] It was clear I was not going to get a commitment from Fritz Gerber on whether they were going to buy the rest of the company. It was clear that our stock was going to go way down if they did not buy the rest of the company. We would be somewhat in the same circumstance we were in five years earlier, though not as extreme. We did have a lot of cash. So we negotiated the new deal, which turned out to be even better than the first one. It was my last act at Genentech. And, again, I am very proud of it.

No Messing Around

Bugos: Lots. The key to this success seems to be Roche. Were they inclined to behave like that, or did you make them?

Raab: There were a lot of people in the senior ranks of Roche who would have loved to become a *lot* more involved with Genentech, control us. Gerber, Meier, Drews, and Kessler wouldn't let anybody at Roche mess around with us. There would be little surges. Some lawyer or somebody would try to mess around and I'd pick up the phone and call Armin Kessler, the chief operating officer at Roche, or if necessary Fritz Gerber. We met with them regularly. I became a participant in Roche counsels on pharmaceutical research and development. As did Art Levinson. And we had just a marvelous relationship with Roche. I'd give seventy percent of the credit to them, and thirty percent of the credit to the fact that we continued to be damn good.

Bugos: How much of the credit would you give to the contractual agreement that you signed? Could that have prevent them from acting badly?

Raab: Absolutely. Personally, I believe they would have done it anyway with the wonderful cast of characters they had, but there is no way of knowing because the contract was there. I don't remember that we ever pulled it out of the drawer. But everybody knew it was in there.

Operational Cooperation

Bugos: So below the top corporate levels, did Genentech and Roche increase their cooperation on operational issues? You had worked on interferon, you started to do some automated screening of their drug candidates, you started using their sales force in Europe.

Raab: We did not use their sales force in Europe until after I left. We set up our own organization in Europe, and they were not happy about that. We coordinated distribution with them, but we had our own promotional sales force in Europe. We had a headquarters in Basel, and a guy running Europe who we hired away from Roche [Kurt Kopp]. We had a good relationship with Roche, but we had employees all over Europe. With the second deal they received foreign rights to all of our drugs and we closed down European operations. The interferon license to them, of course, was years before, that was in the early 1980s. That was just coincidental to our deal with Roche.

Bugos: Some of the problems you were having in maintaining the market for tPA were in Europe--with the ISIS trial and the Wellcome Trust patent suit. Were you expecting that an alliance with Roche would help you out with those?

Raab: No. TPA was licensed to Boehringer Ingelheim, as was gamma interferon and tumor necrosis factor. That was all part of an equity investment by Boehringer Ingelheim, just as I joined Genentech in early 1985. We didn't have any tPA rights in Europe. So tPA in Europe was never a factor in the Roche deal. Roche knew about the ISIS trial, and knew

it could go one way or another. They knew that was part of the risk, relative to our U.S. sales, they were taking in their investment. The ISIS failure probably embarrassed Roche briefly, in 1991, and probably made us look like heroes for having done the Roche deal. But that was very transitory, and not material. Once we had the results we started planning for the GUSTO trial. We were on our way again.

Bugos: So lacking any real operational cooperation between Genentech and Roche, it really is possible to portray this simply as an investment by Roche rather than a strategic alliance?

Raab: The original deal was an investment by Roche. Yes. The subsequent deal, in 1995, was a strategic alliance. It was a very sophisticated financial deal. The strategic relationship fundamentally changed, because they had rights to Genentech products outside of the United States and there is a lot of product development done jointly. The relationship was then revised when they purchased a hundred percent of Genentech and then subsequently did an IPO. I do not know the details of that since it happened after I left.

Hostile Takeover

Bugos: Okay. Another line of questions. You mentioned that you were driven to the Roche deal because of your unwillingness to sacrifice research and development. Others have suggested that you acted out of the fear of a hostile takeover because your bubble in the stock market had burst.

Raab: I think that's a very valid point. Our stock was so low compared to what most people saw as our value. I had this vision that our stock got so low that Abbott did a hostile takeover and I was left running a division of Abbott after I had been president of Abbott. And I had no money because the stock price was below my option price. [laughs] A nightmare. Not that I believed that would really have happened.

We were very concerned about the hostile takeover. That's why we put in that poison pill in the process of doing the Roche deal. We clearly had to do something. If we had continued as we were we would have had to cut expenses. If we had cut expenses that would have hurt a hostile takeover because they would have been getting a weaker company. If we cut expenses the stock might have gone up some, for a short time. Nothing compared to what it eventually did. Yes, we were concerned about a hostile takeover. But it wasn't the driving force.

Bugos: Then why so much secrecy in the months leading up to the Roche announcement?

Raab: Because we didn't want a hostile takeover attempt during that process. We didn't want the world to know that we were in play. We didn't want to go into play. We wanted a deal that we were managing for our shareholders. Somebody might offer a higher price but not let Genentech be Genentech as a result of a hostile takeover. Maybe Roche would counter. They had tried a hostile takeover for Sterling Drug some years earlier. Kodak ended up with Sterling, and Roche was very lucky they lost that one. Maybe Roche would have just bought us then, and owned a hundred percent without the governance agreement. It gets back to the point about how important the governance agreement was.

Genentech would not be the wonderful place it is today if some large pharmaceutical firm had bought us in 1989 and like an amoeba absorbed us, which is what big companies often do. I think what we did, in the Roche-Genentech deal, was profound.

Bugos: Would shareholder value, that is in 1990, have been substantially improved had you allowed active bidding?

Raab: I don't think so. Shareholders got a good deal. They got thirty six dollars a share for half their stock. Plus, there was a substantial amount of money, about five hundred million dollars, put into the company so the stock they remained with went up in value. Whether shareholders would have been better off if somebody had simply paid thirty-six dollars a share for all of it is hard to guess. I don't think anybody would have paid forty-eight dollars a share. Frankly outside of a few flippers--and I don't care about them--I have no doubt what we did was best for our shareholders.

Negotiating the Price

Bugos: Which brings up the question of how you did set the price. Did Fred Frank just do a due diligence valuation on you?

Raab: It was "a negotiation." It was unbelievable. On November 26, 1989, my twins were born. On December 11 my father died. We really finished the Roche deal by early January even though we were finalizing it for the February 2 announcement. Roche took the PA Associates book. It was a very sophisticated volume on Genentech. Roche took that and did their valuation on the company. They took every product we had in development and put a value on it.

I remember the day--it was a week after my twins were born--in the Dolder Hotel, when Bob Swanson got very angry, very angry. It was Kessler, Meier, Gerber, Bob and me. Fred Frank was not there. We had to make sure there were no offers being made. Gerber said to Bob and me: "We can't get above the three number." Meaning thirty dollars a share. Bob's mind was still in the mid-forties by that time. It became a difficult, not pleasant discussion. He was very upset. [laughs] Armin Kessler used to smoke big cigars. In the midst of this moment, after Gerber said this, Armin takes this great big cigar out and starts to light it up. Bob barks: "Don't you light that with me in the room!" [laughs]

Bob and I left the meeting. It was a cold, terrible day in Zurich. Lots of snow. We left the room and I said: "Bob, you and I are going to take a walk." He says he's going to go grab his coat. I say: "No, we're going to walk without our coats. We're going to get cold out there, let the reality sink in." He and I walked around the golf course there overlooking the lake. So we're walking around the golf course, freezing, wet shoes. We probably walked for a half hour and came back in. I said: "What you're going to have to do is let me go back in and get this thing back on track, or you should go back in and get it off track." He agreed. Bob and I had dinner that night. It was the single nicest dinner we ever had together. There's some wonderful little village in Switzerland where they carve manger scenes. Horribly expensive and the exchange rate was also horrible then.

But we both went out and bought these manger scenes for our families and had a lovely Italian dinner that night. Anyway. I went back in. Talked to them, and we were back on track. Bob's "black hat" role helped and my "white hat" did the deed.

There were four or five products where they did not have the same forecast that we did. We agreed that they would present to me, first, their forecasts which reduced their valuation of the company. Then I would present an argument. It would be just Kessler and me. We went back to California, and they sent over their numbers. Jim Gower and Bob and me and McLaughlin and Lavigne looked it over. By this time the human resources guy was involved too, Larry Setren, and we had a New York law firm, Wachtell Lipton [Wachtell, Litpon, Rosen & Katz], involved as well. Then I flew to London. I always called it "my seven-dollars-a-share trip." I met with Armin Kessler and an American business guy who was with him at a hotel in London. We spent eleven hours in the room. Never left the room. I had flip charts and everything. It was one of my great sales moments. And we passed the three number and ended up getting thirty-six dollars a share.

Bugos: My impression was that Fred Frank didn't let the two companies talk alone?

Raab: No. That's not true. I wouldn't say I negotiated the final number. I convinced them that their valuation was wrong, so I convinced them to up their valuation. Fred did, with Henri Meier, the final negotiation on the price. The mechanism of the deal, the governance arrangement, John McLaughlin played a major role in negotiated that. And Wachtell Lipton particularly, though Brobeck as well, as attorneys, negotiated with Henri Meier and the Roche attorneys. The lawyers, inside and outside, negotiated much of the governance agreement. Lou Lavigne also played a key role.

Periodically, Fritz Gerber and I had a phone conversation about some critical issues. I also talked with Henri Meier frequently. Road blocks were developing, like on how our stock options were being treated. That became a very serious negotiation, at the end, and very important to all of us obviously. At the very end, we talked about my becoming CEO and Bob's future role. There were discussions directly between me and Roche about that, though Fred was completely aware of them. Someone else I must mention is Tom Perkins. He was a critical advisor to me during both negotiations. He also played a critical role with the board, with Bob, and at certain points with Fritz Gerber.

Bugos: On the governance agreement, did you have any models to follow?

Raab: No. This was all pioneering stuff.

Bugos: So none of the other pharmaceutical mergers, and there was a wave of them then, set a model for you?

Raab: No. It was a creative act. It was fun too. It was a very exciting time. Dramatic, because of the secrecy involved. Where were we, and all that. Brobeck actually bought all of our air tickets over that time.

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Announcing the Deal

Raab: On the day it was announced, the press release went out, we had a press conference at the same time, we brought all the employees up to this empty warehouse, close to two thousand people. It was big empty warehouse space where Genentech has its Ho-Hos. The night before we hired some events people to put Astroturf on the floor and put palms in and white bridge chairs and build the stage and do all that stuff. The way we dealt with it is we said we lent this space to Brobeck, one of our law firms, as they were having a big meeting. Word got out into the legal community that Brobeck was merging with some other law firm and they were taking this space to explain to their employees this supposed merger.

There was one leak. A kind of funny one. A guy came to me, a middle management, facilities guy, a week before. He said: "I think something big is going to happen here. Are we merging with somebody?" He said: "The fire department just told me that we had applied for a permit to have this big employee meeting in one of the warehouses." We needed a permit from the fire department to bring two thousand people into a room, so we had the attorneys apply for the permit through the South San Francisco fire department. I said: "No. It's for the law firm. We're going to let them use it."

At the end of the whole thing the lawyers were quickly drafting volumes of documents, and there was the usual last minute stuff. We did this thing pretty fast, considering how original and complex it was. The holidays didn't help. The first meeting was the end of October, and we announced on the first of February. The final meetings of the board on this were long and complicated as well.

The biggest challenge in the end within the company was the management change and my becoming CEO, Bob becoming chairman, and Tom Perkins becoming chair of the executive committee. Bob was not happy about giving up being CEO. I was not going to stay unless I became CEO. Roche wanted me to be CEO. I can't say, and wouldn't say that they wouldn't have done the deal otherwise. They said they wouldn't, but I don't know in the end if that would have been true. That was a tense time, negotiating an arrangement with Bob and what his role would be, up until the final board meeting when we approved the deal. But in the end it all worked out fine.

It was a major event. It wasn't a Ho-Ho, just a meeting. By the way, Ho-Ho's are Genentech's traditional Friday beer party. Herb talked about the company and how much he supported the deal. Bob talked about the future of the company and how excited he was in his new role, and about me becoming CEO. And I talked about how there would be no real change, except that we would have more money and the stock would hopefully go up. So it all, internally and publicly, fell together very well.

Employee Reaction

Raab: The reaction ranged. Some ex-Roche employees weren't very happy about it. I think the [Genentech] employees were very nervous and very concerned, particularly the more senior employees. They thought it was going to be the end of Genentech. That one day they were going to look out and see a Swiss flag flying over Genentech. As we told Roche, the only thing that's going to prove it to those employees is reality.

Obviously, we needed our shareholders to approve the agreement. There was plenty of controversy among them, but in the end a very high percentage voted in favor. It took a lot of work by Bob, Lou Lavigne and me to make that happen. We were successful because they realized it was in their best interest.

Some of the Ho-Hos were structured. More formal. One was the Ho-Ho on the anniversary of the founding of Genentech. That's when we give awards out to people. Their nine-year awards. We didn't have ten year awards and fifteen year awards. There was one about thirteen months after the Roche deal was announced. We had mugs made with Roche-Genentech on them. At the anniversary Ho-Ho the executives always serve champagne to the employees. We'd go around and pour champagne for the employees. And we'd put on some silly show. That year we all wore *Liederhosen*. They're German, not Swiss, but they looked Swiss. Fritz Gerber was there and grumbled: "We don't wear those in Switzerland." [laughs] But nobody knows that here. By that time, a year later, everyone knew the deal was a success so we could laugh at it and celebrate our future.

Bugos: Do you think employees took greater notice of the deal, or the fact that there was the change at the top?

Raab: It's hard for me to comment. I think people first worry about themselves at a time like that--can I be the scientist I want to be, am I going to get laid off, what about my stock options? I think people worried more about that than the management change. Even the press was more about the merger than about me. It looked like an evolutionary process.

Becoming CEO

Bugos: So how exactly did that conversation start? Everyone knew someday you'd be CEO, that you wanted to be CEO. Swanson knew that. But how did that work itself into the conversation? You had gone for five years with that in the background then suddenly, here it was.

Raab: As I mentioned earlier, Bob and I had our struggles over the years, but there was never an issue that I wanted to become CEO. I never confronted him with it, until this time. The conversation started sitting on a Lufthansa flight back from Switzerland from one of the meetings. I said to him: "This is the time I'd like to become CEO." He said: "You came as COO and that's the way it should stay." I said: "Well, I'm not going to stay. I've decided, if I don't become CEO with this deal then I'm going to move on." He was very upset with me, because that could affect the deal. He said: "What if they won't do the

deal?" I said: "That's a possibility." He said: "Are you threatening me?" I said: "No, I'm not threatening you. Fact of the matter is that I've thought this through and it's my life and this is the way I feel about it. I didn't expect this to be a pleasant conversation and we're going to have to work through it." That was probably late in November, early December. Tom Perkins played a very important role, as he did periodically, in ameliorating difficulties between Bob and me. Mediating issues. He did a significant job in doing that so that the deal worked and it was announced in a very positive fashion.

Perkins' New Role

Bugos: As part of that management shift Perkins became chair of the board's executive committee. How important did that committee then become? And did Swanson assume a much different role as chairman than Perkins had played?

Raab: The executive committee didn't function at all. It didn't before and it didn't after. We may have had a formal meeting once or twice over the years. We would talk, the three of us, as three individuals. But not with minutes as an executive committee. Being chairman of the executive committee was a way to keep Tom involved in the company at a level higher than just being a member of the board of directors. And he was until he resigned in March of 1995. He had an important role in the second deal, which was partially negotiated on his yacht in the Caribbean between me, Tom, and Fritz Gerber, the Roche chairman and CEO. Dick Munro--one of our board members, former CEO of Time Warner, a fellow Colgate graduate, and who knew Fritz well from the IBM board of directors--participated as well. He was very helpful.

Swanson's New Role

Raab: Bob's compensation and his role? Those were just purely negotiated. He was trying to establish some very specific responsibilities for himself. He wanted to continue getting a salary and other benefits. Subsequently, he and I negotiated new contracts. Bob had a second contract that he developed a year or two later, that reduced his role in the company but gave him benefits for a longer period of time, gave him an office, et cetera. That's when he physically moved out of Genentech. That would have been early 1992, I think. Then I negotiated a new deal. We had golden parachute contracts, which were a pretty big deal. Mine particularly. It was inappropriate for me to continue having that. So we renegotiated my employment agreement with the company. Which turned out to be pretty important to me, as I left sooner than I expected.

Departure from the Company

Raab: By the way, if you want to discuss my departure from the company, I'm fine with that. If you want to incorporate that into this Roche story.

Bugos: Okay. Then why don't we do that right now. And let me just say, to establish some empathy, that I have young twins too and have to deal with Bay Area real estate. [laughs]

Raab: Do you know about my departure?

Bugos: Only what I've read in the papers. That you asked for a two million dollar loan guarantee from Roche so that you could buy a new house and somebody in the company considered that inappropriate and brought it to the board.

Raab: Yes, and no. What happened was that I was building a house in Woodside, a very large wonderful house, which I obviously don't live in any more. Not that there's anything wrong with this place. [laughter] I had borrowed a lot of money, first because I didn't want to sell stock. I felt that the stock was going to go up, one way or another. We started building the house in 1992, and now we're in 1995. So I had borrowed a ton of money to build this house. Second, once I got into the discussion with Roche there was no way I *could* sell any of my stock. Even if I wanted to. And I had gotten myself to the point where I couldn't borrow any more money against the house under construction. You can't borrow money against stock options. I borrowed all I could against the equity in my house in Hillsborough. So I didn't have recourse.

I had borrowed money off and on over the years from Genentech. The year before I had finally paid off, after all my years with Genentech, most of the loans I had from Genentech. One problem resulted. Because I sold a lot of stock to pay Genentech I had a gigantic tax bill in April of 1995. Millions of dollars. I was building this house, and I had no money. I couldn't borrow any more. USB, the Union Bank of Switzerland, had been very generous to me in lending. I didn't want to--and this is where I made my very foolish mistake--I did not want to go back to the Genentech board and ask them to loan me money again. Swanson had always been quite difficult about that.

The executive who ran the USB office in San Francisco said to me: "You know, if Roche would guarantee it, if Fritz Gerber called up the chairman of UBS, we could give you more money just on a note." I said: "Ah, what a relief." I knew by July it would be one thing or another. There was either going to be a new deal, or they would have bought the company, or it was all going to have freed up. I just had to get through July. But we're talking about two million dollars, including my tax obligation. On the yacht trip in the Caribbean I talked to Fritz about it, and he said: "Sure." He went back, and a number of things evolved.

His people back there said that rather than a phone call to the chairman of UBS that there had to be a document, some sort of piece of paper. If anything like that happened, naturally it would have to become public in the proxy statement that would announce the new deal between Roche and Genentech. "That would be very inappropriate," I said, "to see that Roche was doing me a favor while I was negotiating for Genentech." So it didn't happen. I never received anything from Roche. Some other things did happen.

One, I wrote Fritz a note thanking him--the infamous smoking gun. It was just a little piece of note paper. I wrote, thanking him for understanding and wanting to help me and it's too bad it didn't work out and I know we're going to have a long and healthy relationship between Roche and Genentech. A ten sentence letter. I had a temporary secretary, and she put a copy of that in the file. It all happened just because of that little piece of paper.

Then, I did go to Genentech's board in May and asked them for a loan, which I hated to do. They weren't very happy about it, but did it. Lent me the money. Then we approved the deal. Nobody will deny that it's a terrific deal.

Then we got the proverbial shareholder lawsuits. A young lawyer going through my files, as they always do when you have that kind of litigation, found this piece of paper. The board of directors then examined it with our New York attorneys and decide that what I did was inappropriate, and cause for termination. They basically fired me because of that. I want to be clear that I never questioned their reaction or fundamental decision. I was amazed, though, by how they went about it.

Board Reaction

Bugos: Not everybody on the board felt that way?

Raab: I think not.

Bugos: So how did those who wanted to fire you get the upper hand?

Raab: I don't know. I think if Tom had still been there it could have been handled differently.

Bugos: Or at least that it would not have been as publicly abusive toward you.

Raab: Yes. What I did was inappropriate. And stupid. And I've always said that. I was and am appalled. I mean I have a wonderful life and I'm very happy, but still I have a strong melancholy feeling about departing on that basis. I became tarnished by it. I understood, and can understand, that the board would have decided: "It's time for you to move on. Let's work out this transition." I didn't have a godfather there, which Perkins would have been. The fact that they fired me and that press release was issued was abusive. That was, in my opinion, a few board members. Bob Swanson, I think. I don't think so, I know so. John McLaughlin, and then certain board members. I think Herb Boyer was sincerely angry at me. He thought that it was immoral, unethical, wrong, what I did. So I think Herb became an antagonist after being a really close friend. I don't think I've talked to Herb since then. A couple other people just turned on me because they thought it was wrong. There were a few who didn't like me. And I probably didn't work hard enough at courting, as you should, your board members. I now advise CEOs a lot better on how to deal with their boards as a result of my experience. I think it was a combination of all those things.

John McLaughlin

Bugos: John McLaughlin was corporate counsel, at that point. A senior vice president. Was he looking out for Genentech's legal exposure? Can you speculate on his motivation?

Raab: John is immensely capable. I played the main role in promoting him from being head of our Washington office to being general counsel. He was an outstanding general counsel. He's very smart, very hard working. I promoted him to senior vice president and gave him other responsibilities, like public relations, business development. John always had a very close affiliation with Bob Swanson. He admired Bob, he liked Bob. Bob liked John. I think that John never felt as close to me. And he felt that I never had the trust and the confidence in him that Bob did. And that's true. I was closer to other people in the company. Despite this he was an incredibly important executive and counsel to me. It should be clear that I always admired his abilities, contributions and opinions. I think a big piece of it, in my mind, is that I have dealt my whole career with attorneys. I happened to have gone to law school, though I'm not an attorney. Attorneys tend to see things in very black and white fashion. See the world as right and wrong. I think the world is fundamentally gray. That when you examine issues you need to see the degrees of grayness, not whether they are right or wrong. I think John really thought what I did was wrong. He was very sincere. "Kirk did something wrong. He's got to be out of here." I think he honestly believed this.

But if it was me calling the shots, I would have looked at a grayer, complex thing. I would have said let's sit down and talk this thing through. Let's not bring in lawyers and make it into an inquisition, which is eventually what the process became. I can say with great certainty that I am not bitter and get great pleasure from observing Genentech's and Art Levinson's ongoing success.

A Phenomenal Deal

Bugos: Do you think there was any genuine concern about the deal you struck? Or any deeper concern about how well you had been running the company that encouraged them to look for an excuse to fire you?

Raab: I don't think anybody who knew anything about the facts had any doubts that I had struck a phenomenal deal for the company. I really don't. I've never heard that. Somebody like John McLaughlin was completely involved in it. And Fred Frank, publicly and in every other way, said that we negotiated, again, a great deal for Genentech's shareholders. Fritz Gerber at times got so damn mad at me I kept thinking he was going to say no on guaranteeing the loan. And if he had said no it would have been no. Either way it never affected my aggressiveness in getting the best deal for our shareholders.

Among other things, I had so much Genentech stock that just my crude self-interest would have been served by doing the deal rather than getting the loan. I could have stopped construction on the house. I could have paid my taxes six months later and paid

the penalties. I could have gone to the Genentech board, which I actually did do. There were alternatives.

I negotiated very tough with Roche and it resulted in a fortune for Genentech stockholders. I can't say everybody believes that. I don't know what people remember or think today.

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Raab: With the press, when people are indicted, they're often convicted in the minds of the public. Reporters would write as if I did something I didn't do. For years, people wrote that I got kicked out because I actually borrowed two million dollars from Roche. That's just the way it is. I've paid my price for what I did, then maybe a little more.

But I had the most wonderful job in the world for more then ten years. And I'm very proud of where the company is today. It's just wonderful how well Genentech is doing. I played a significant role in it. What more can you ask of life when you start as a salesman in Brooklyn?

Other Departures

Bugos: A few months before the second Roche deal Tom Perkins ended his long affiliation with Genentech, and a few months after it Bob Swanson resigned as chairman. One sees a sea change in very top management about this time. Can you speculate on why these departures happened in the same time span?

Raab: They were completely independent. Tom was disturbed by certain positions that certain attorneys were taking in this negotiation with Roche. There had been a lot of tension between him and Bob Swanson at the time and I think Tom just said he had had enough. It had been twenty years. His wife had just died, and he was very lonely. The two of us spent an evening together on his yacht, and he was not a happy man at that stage in life. I think he had just had enough.

Bob's giving up the chairmanship--I have no idea. I literally do not know how that happened.

Bugos: Do you know if after your departure, and before Swanson's, whether he re-engaged with Genentech?

Raab: I have no doubt he would have tried to have more engagement with Art Levinson after my departure. Whether he actually did, I don't know.

Richard Munro

Bugos: Okay, Let me ask about Richard Munro, a board member who became chairman upon Swanson's resignation.

Raab: As I mentioned, Dick and I went to Colgate together. We were ex-G.I.s at Colgate. Dick is a couple of years older than I am. He had three Purple Hearts. I knew his younger brother, who was also an ex-G.I. at Colgate, better. In the early fifties, from the end of World War II to maybe 1956, colleges had a core of ex-G.I.s because of the G.I. Bill. You tended to know who the ex-G.I.s were. I got to know Dick fairly well. We weren't close friends. He was in a different fraternity. He was in Phi Gamma and I was an A.T.O. But I had followed his career, which was very illustrious. He was really the force behind *Sports Illustrated*.

Now as to how Dick joined our board, I think it began that his children are diabetic, so he's very involved in the Juvenile Diabetes Research Foundation and the American Diabetes Association. John Potts, who was on our board and was chief of medicine at Harvard, knew Dick through some of those activities. So when we wanted to bring in a new board member, we hired Spencer Stuart to help us recruit a new board member. They came up with Dick's name. I hadn't had contact with him. He was very interested in medicine. His boys took insulin created by Genentech and produced by Lilly. It was as simple as that. He just seemed like a terrific board member. And that proved to be the case. He was an outstanding board member and we had an excellent relationship.

Bugos: As a board member was he very involved? Did he display an inclination to become chairman?

Raab: He was involved as a good outside board member and never showed any interest in being chairman. As I said, he was on the IBM board together with Fritz Gerber. That was a nice added touch. He was chair of the compensation committee, which was important. [laughs] But he was involved with his own issues, with the Warner-Time Life merger and all that drama, then with he and Steve Ross running Time Warner. He lived on the East Coast.

On my demise. Dick is a moralist. He prides himself in his ethics. I think Dick, at the very end, became an antagonist of mine. He sincerely thought what I did was wrong. I saw him a few times after I left and we continued our good relationship.

Dick is a very gregarious guy, so he was an active participant in board meetings. Some didn't say a whole lot. He would ask more questions than some. He was always very interested. How he became chairman, I don't know. Roche probably had a big role in that. Gerber did know him and then over the years from meetings with our board.

Members of the Board

Bugos: Who were the more active members of the board?

Raab: John Potts had been there for a long time. He was a director, on our scientific advisory board, and a consultant to the company. I've re-established my relationship with him in recent years. Linda Fayne Levinson was very active. She hadn't been on the board a long time. She used to like to come up to Genentech after the board meetings and spend the day. She was the first female partner at McKinsey, then she was involved with American Express, and then Northwest Airlines. Her husband was a television producer. Not the Barry Levinson. [laughter] She helped us in many respects. Dave Tappan was very involved. He was the retired CEO of Fluor Daniel. They constructed most of our buildings. Tom Smith, CEO of VHA, was very helpful. And of course, Herb was always involved and important. I can't not mention Dave Packard. He didn't say much, but when he did it was almost always significant. Periodically I'd go to him for advice, and it was always sage. As I mentioned, Tom Perkins was a key member. Finally, the two Roche members, Armin Kessler and Jürgen Drews were very constructive, helpful, and supportive board members.

Board Meeting to Oust

Bugos: So what was it like at the board meeting when they voted to oust you?

Raab: There's that word "ousted." Someone once joked that "ousted" should be my middle name. Yes, there was a board meeting where they went around the table and made the decision on me. I was not present in the meeting.

Once a year we'd go to offsites for board meetings. That year it was at Pebble Beach. Even though I was the CEO and the host, unbeknownst to me, Wachtell Lipton, the law firm we had, was invited. There were about five attorneys there. I didn't know they were coming. The board meeting was fundamentally focused on my situation. That was the second week in June. It was a pretty complex meeting. It was also Armin Kessler's last board meeting; it was Franz Humer's first board meeting. He was the new Roche COO. Armin was retiring. All the spouses were there, so we did some pretty elaborate entertaining, and Pebble Beach is pretty elaborate. There was this lovely social event, and inside it were these meetings, which were pretty intense and unpleasant, about ousting the CEO. It all took me by surprise. I knew it was going to be a significant subject, because I had called all the board members and told them about the situation. What surprised me was that the board told the senior management about the situation before talking with me. Most of the time they met without me.

Then they created a subcommittee of the board, chaired by Tom Smith [C. Thomas Smith], who was a great board member and is a great guy. On the committee was Dave Tappan, Linda Levinson, and Herb Boyer. They would investigate and make a recommendation to the board about my situation. The Roche directors were excluded from all these discussions. So they hung around, which they weren't really happy about. They knew about it but weren't part of the meetings. The subcommittee had some meetings. I knew no details.

Their last meeting was at the Marriott Hotel near Genentech. They interviewed me for a long time. There were outside attorneys there. I had an attorney by then. They also

interviewed all the senior executives. That was a Wednesday, then they met again on Thursday. I remember so well. I had lunch every six or seven weeks with an organization in Genentech called African-Americans in Biotech. It was a wonderful organization that I helped found. We put groups in other biotech companies, and worked with Howard and some of the historically African-American universities around the country to stimulate students to get into biotech. Anyway, I was having lunch with the group--it was about forty people--and in the midst of the lunch I got a call from Smith saying that they had decided to recommend to the board that I be fired. I remember going back into that lunch, and it was hard. They were such great people, I spent another hour with them, but all I wanted to do was go cry in a closet somewhere.

Then there was a board meeting in New York City, the seventh of July, I believe. Although I went to New York they didn't invite me to attend the meeting and communicated only through an outside lawyer. That's when they did have a vote. I think the announcement about me was on the eleventh of July, on a Monday.

There was a special aside to my departure. I called my three older children on July 3 to tell them what was happening and that I thought I would be leaving Genentech. A little while later my son Mike called. He lived near Boston, and was a vice president at Genzyme and is now a partner at NEA [New Enterprise Associates]. He asked what I was doing at 4:30. I said nothing. So he said why don't you pick me up at the the San Francisco airport. He and my daughter Kristina were with me during that time. The next week, Mike also flew to New York to be with me as the board meeting was going on. He was a great support. That's when family really counts and mine is wonderful.

Resignation

Bugos: And the official mechanism was that you submitted a letter of resignation?

Oh, I did submit a resignation. The press release didn't read that way though. I don't think anybody believed I resigned. [laughter] Clearly I wouldn't voluntarily just resign. It was not my decision. Raab:

Two weeks later I was out of my office. I was gone and they fired my secretary, which I thought was pretty shitty. A lot of executives left after that. It was natural. Art wanted to build his team. He and I communicate periodically. We have a very simple and uncomplicated communication. I bring them ideas from companies I'm involved with. I've *never* talked with him about running Genentech. I have congratulated him on certain events.

Wife's Insider Trading

Bugos: So another ethical issue, that may or may not be material to this, was that during the first Roche negotiation your wife was involved with some insider trading.

Raab: She is my ex-wife [now] and she certainly was. I think that tarnished me, and helped in my eventual demise, even though I didn't have anything to do with it. In the press release that the Securities and Exchange Commission eventually did, which was about the settlement with her and her brother, the SEC explicitly exonerated me from having any knowledge or anything to do with it. I spent a lot of time being deposed by the SEC, as did she. It was a sad affair. She didn't do any insider trading, her brother and his friends did, but she was the tipster. This brother wasn't employed. He has three children, lives in Texas, and hasn't had a job in years. His wife was pregnant, there was no money, no insurance. What Mollie did was tell him to buy some Genentech stock, that there's going to be a big deal with Roche, and he could make some money to help pay their medical expenses.

But he then told some other people and these were people who thought they were pretty shrewd. Clearly they weren't. He never would have done this himself, he's just an ignorant guy in these matters. They bought futures on the stock. They invested thirty thousand dollars and made six hundred thousand dollars in an hour or two with that inside information. That's so stupid. The New York Stock Exchange gets it immediately. They look at the names. It always happens. We received a list of names from the New York Stock Exchange of people who had done a lot of trading at the very end. It was the third of February. I got a call from Mollie, and she said she had to come over and see me. I had already heard from our attorneys that there had been some funny trading and they had names and were looking at them. They had about thirty. All of the others were just coincidental. She came over and told me that the Securities and Exchange Commission had called her brother, who had called her. She told me that she had tipped her brother off. I just walked over to the assistant general counsel's office and asked to see the names. There was my brother-in-law's name. I told him immediately that he was my brother-in-law, and the little bit that Mollie had just told me. He didn't have any money so I had to pay his fine, and I paid for his attorney and her attorney. It cost me about half a million dollars.

Bugos: And cost you some reputation. Even though the SEC said you had nothing to do with it, did that tarnish you in the eyes of the board?

Raab: I think it depends. Who knows? It couldn't be positive. Perkins could understand how this might happen. Dave Packard was very nice about it. It turned out someone in his family had done some insider trading years before. He said it didn't even get in the newspaper in those days. He was a terrific help. Whether Dave Tappan or John Potts or others felt deep inside like I had done something wrong, I don't know. It was sad. I eventually told the employees at an employee meeting. Some were pretty upset at me because it tarnished Genentech too. That the CEO's wife does something like this and it's in the newspapers. People don't read the newspapers all the way through. In the Bay area in those days everybody owned some Genentech stock. I think that people were ashamed of it. I was. You just have to move on and run the company. It certainly made my first day as CEO of the company a lot less fun.

Bugos: It also points out how difficult it was to keep this deal quiet, especially from a wife expecting twins.

Raab: Absolutely. You couldn't hide something like that from your wife. Travelling to Switzerland every other week. I wouldn't either. That's not the way I live with my wife. For the record, we are no longer married and I am very happily re-married.

Summing Up

Bugos: So we're running out of tape. To sum up, about the impact of your departure on Genentech or the biotech industry in general.

Raab: I think my departure did Genentech no harm. We can't know for sure, because you can't do a double blind trial on what I would have done if I had stayed longer. Art had grown and developed. It was good that he had come from science because I was a business guy. Art drove the settlement of the situation with the federal government, and the settlement with UCSF on the patent lawsuit. I think new CEOs clean the slate, get those things behind them. Which is smart. I would have done that. I settled the Lilly lawsuit when I became CEO. I am very happy with my life since. And I learned a lot. And I beleive some of the companies I now work with--Connetics, OGS, Bridge, Applied Imaging, Medgenics--have benefitted. And Genentech continues to be an extraordinary company.

Four Generations of Genentech

[Interview 3: February 8, 2002]##

Bugos: Before the tape started, just now, we were talking about how to identify other people who would be good to interview on Genentech history.

Raab: I can comment on potential people, in order of importance, who would be worthwhile interviewing further on.

You could put Genentech into four generations. To simplify. The first generation was the Swanson generation. The second was the Swanson-Raab generation. The third is the Raab generation. The fourth is the Levinson generation. There is cross-over on each one of those generations. Bob and I came and left on particular days, but there was a lot of heritage that we left that blended into later times.

First, the Swanson generation accomplished the creation of the company, the making of recombinant DNA technology useful, and the beginning of the acceptance of it--with Lilly taking the license on human insulin and getting it approved, manufactured, on the market. And this generation marked the beginning of other biotech companies--Amgen, Chiron, Cal Bio, Genetics Institute, Genetic Systems, and Cetus particularly. I'd talk to Bob Byrnes, Tom Kiley and Dave Goeddel about the first generation.

The second generation--the Swanson-Raab generation--was marked by when I joined Genentech in February 1985, and was when we began the tasks to be an integrated

pharmaceutical company. Bob was CEO and I was COO. We were evolving and growing. We launched our first product with human growth hormone, and launched our second product with tPA. We began to be in the pharmaceutical business, meaning we were commercially manufacturing product from the raw material, starting with the fermentation of the protein, filling vials, and making finished product to sell to pharmacies and hospitals to administer to patients. We had all the complexities of the pharmaceuticals business, all the classical disciplines. We had quality control, marketing organizations, sales people and incentive plans and field management. We set up a Washington office, became involved in lobbying, in the FDA, in industry organizations--like the Pharmaceutical Manufacturers Association, the merger of two biotechnology organizations into BIO, which I was the first chairman of, and the California Healthcare Institute which I was also first chairman of. So we began to play a significant industry role as a pharmaceutical company more than as a research boutique biotechnology company. We began to have legal matters, licensings, litigation over patents, which is part of the pharmaceuticals industry in a classical sense. Our employee population grew dramatically, so we had human resource challenges and structural and cultural changes. We started paying taxes and had a treasury function. We had been a public company on NASDAQ, but then listed on the New York Stock Exchange. It was an exciting moment, to ring that bell.

Listing on the New York Stock Exchange

Raab: How we came to do that? Bob and I were very comfortable listing on NASDAQ and assumed we always would. We had an individual investor, an impressive guy, though I can't remember his name right now. He came to me and said, "All great companies list on the New York Stock Exchange." I told Bob what this individual, whom he also respected, said. Bob said, "Right. Maybe someday we can be part of the Dow and the S&P 500." With that we put into place plans to list on the New York Stock Exchange.

When you ring that bell, you're the first trade in the morning. The first trade on the day when you list is the purchase of a hundred shares of your stock by your CEO. The second trade was my buying a hundred shares, so we rang the bell together. They give you the ticker tape, and I still have it. You see your trade going across the board, and you ring the bell and open the Exchange. Then there's a big luncheon with the board of governors. You spend some time on the floor with the guys selected to handle your stock. It's a big moment. That's some of what it meant to become an integrated pharmaceutical company and symbolic of Genentech's second generation. You should talk to Bill Young and Lou Lavigne.

Third Generation

Raab: The third era was the Raab era. It began with the signing of the first Roche deal, when I became CEO and Bob's role diminished dramatically. He moved out of the company and set up an office in San Francisco. It was fundamentally mine to run, which I did for five

years. During that period we set up operations in Europe and Canada and maintained a very good relationship with Roche. We had two Roche members on our board--Armin Kessler and Jürgen Drews--they were very supportive and functioned as investors. As I liked to describe them, we were close second cousins. They were not involved in our business *per se*.

The fundamental business and management issues were to expand our portfolio. We had had a dry spell. So what we did was to reorganize product development. During that second era I did not have research, but I did have development. We brought in Ralph Snyderman to begin to put in a solid foundation for development. He was succeeded by Barry Sherman who built it into a world class development organization. Bill Young had a major role in development and built our factories so we were prepared once research again became productive. Then we got new products approved, like gamma [interferon], DNase, HER2, and Rituxan--the latter two approved and marketed after I left. Almost all the other products in clinical trials today were discovered or licensed during this third generation. Art Levinson took over research, and did an extraordinary job with that, then he took over development too. What we did was expanded our horizons, and move from being an integrated biotech/pharmaceutical company into being truly a significant corporation. With a significant number of employees. When you have three or four thousand employees you are managing by systems and philosophies rather than by talking one on one. You have to think of it more as an intellectual exercise than as personal. You have to be more thoughtful and analytical, and less instinctive. Although I must say that I believed, and still do, that instincts are very important and I continue to use mine.

FDA and Healthcare Reform

Raab: We grew in our role in industry matters. FDA reform, like the implementation of PDUFA [the 1992 Prescription Drug Users Fee Act]. It brought a lot more people into the FDA, particularly in biologics, and put commitments and systems into place in the FDA to speed up the timetable for approvals. I had a major role in the FDA reforms through the industry organizations. That was very important to the biotechnology industry, as was President Clinton's healthcare reform efforts.

I have only been truly active in one presidential campaign, and that was in supporting him in his first campaign. I thought it was in Genentech's best interest for me to become involved in the campaign. I went to the economic summit which Clinton convened in Little Rock after he was elected. I was even on the MacNeil-Lehrer Hour during the budget reconciliation in the summer of 1994, which was fun. But then Clinton's healthcare reform was announced. We worked very hard behind the scenes to prevent from happening what did happen. It was clearly a disaster. I had a meeting one-on-one with Hillary Clinton. I had sat next to her at dinner at the economic summit in Little Rock, so I had gotten to know her some before that. I said I just couldn't conceive of where they were going on healthcare reform. They were excluding industry, the medical profession, the nursing profession, hospital management, payers from developing healthcare reform. There was not a single person on her eight-hundred person task force who was not a government employee. Many of them even refused to talk to people in the

private sector. And it's a shame. I supported them because I thought they had the intellectual capacity, and the dynamics, to lead this country. There was opportunity to do some healthcare reform, and they just absolutely blew it. It was the beginning of the end of my support for them. It was gigantically disappointing. They had the power to make a difference and in the end they didn't. There was tons of other legislation and regulation that affected Genentech--like tax laws--but what really counted was FDA reform and healthcare reform.

Running a Big Company

Raab: So my era was about preparing the company to be a big company. It's not a big company like Pfizer or Roche, but it has billions in sales, and thousands of employees and numerous sites. Running a company of five thousand or fifty thousand employees isn't all that different. Abbott had close to thirty thousand employees when I was president. Running a company of five thousand people versus five hundred people is incredibly different.

The other part of the Raab era was the second Roche deal which was, as mentioned earlier in these interviews, the last thing I did at Genentech. I negotiated that almost exclusively myself. Fred Frank was involved at the end, and there were some lawyers and bankers. But it was fundamentally done between me and Fritz Gerber, the chairman of Roche. It was one of my proudest accomplishments and it benefited our shareholders and Genentech continues to be an independent company. It has its own personality and culture. The science is extraordinary and sales are a machine. It would be useful to interview Barry Sherman and Jim McLaughlin.

Fourth Generation

Raab: Then Art took over; it is now the fourth generation. Art and I are as different as night and day. He's a brilliant scientist. Soft-spoken. To a certain degree cautious. He is much less involved in industry matters. Genentech has resigned from PhRMA. He doesn't serve on the board of the California Healthcare Institute or BIO. And that's fine. He has very profound knowledge of medicine and science. He has a good rapport with people. He's the most sincere, honest person I have ever met. It was a privilege to have had a role in moving him up.

He's created a new management team. There is nobody left there who reported directly to me. Which is also fine. They've all moved on to do great things. He just recently brought in a new head of research, Richard Scheller. The woman who is now head of development, Susan Desmond-Hellmann, was there when I was, in a senior clinical role, but he moved her up into having all of product development. He brought in a chief operating officer, Myrtle Potter, who is responsible for all commercial activities. The vice president of sales, Kim Popovits, was a standout. She used to embarrass me by

reminding me that her father and I had gone to college together at Colgate. [laughs] She was head of the sales force for about twelve years. She just recently left.

Bugos: What sort of business and management issues have characterized the Levinson half-decade?

Raab: Well, from a sales and marketing perspective, they are less aggressive. Cautious. They might say more ethical. That doesn't mean that when they are going into see an oncologist about HER2 that they are not aggressively promoting the benefits of the drug for women who have breast cancer. But, I think, they are more careful. The new products have needed less aggression because there is less competition. The two key products that have been introduced to the market--the two anticancer monoclonal antibodies--are incredibly effective drugs and they have no competition. It started with DNase/Pulmozyme for cystic fibrosis. As a sale it's more of an ethical, clinical, physician-support kind of sale. Growth hormone we had to sell against Lilly and Serano Laboratories and BTG [Bio-Technology General Corporation], and with tPA against SmithKline Beecham and streptokinase. We had to prove our drugs were better on a comparative basis--particular as the competition was much cheaper.

Then there are relationships with other biotech companies. There are no relationships with other big pharmaceutical companies, other than Roche. But Genentech had always had aggressive in-licensing and co-development of drugs. That continues to be an important part of the company. Now, they probably have relations with twenty or forty different companies. Though we also had a vast number of relationships. Clearly Art should be interviewed.

Integration for Independence

Bugos: One thing I think is important in this story is that the biotech industry, like Genentech, is independent. Biotechnology isn't just a research tool in the laboratories of big pharma. When Swanson and Boyer and Perkins were sitting down making plans twenty five years ago they could have kept the research in academia and simply licensed it to big pharma for royalties. Genentech integrated its operations which enabled continued independence. Levinson now is keeping the pipeline full to keep that whole infrastructure full. Even apart from the debate around the Roche acquisition, was independence something you debated as you kept moving the company along in its progression?

Raab: Sure. Not so much debated as discussed. Genentech's independence is a curiosity since Roche has owned between fifty and a hundred percent of it since 1990.

The reasons are the people. And it emanates from the science. Let me just say that I don't understand how you run a research organization with four thousand Ph.D.s. Genentech's much bigger than when I was there, but still small on a relative scale.

Individuals discover things. Individuals do clinical trials. Individuals convince doctors to use a drug. What you want to do is have individuals motivated to do those things at an

extraordinary level of excellence. There is benefit in this regard to smallness, where a culture of excellence is maintained. It can be a tough culture, where you do not tolerate people who are not motivated by excellence in performance. Risk taking can be part of that culture as well. Risk is fundamental to great science.

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Ho-Hos: A Continuing Tradition

Raab: Entrepreneurship is a wonderful word. Keeping that sense of ownership, so that people sincerely feel like owners rather than employees. We talked about that at all times at Genentech. The bigger it got the more we talked about making people feel and think like owners. That's why I believe passionately in stock options for all employees. When you spend money you're spending *your* money. I think that makes a big difference. And it's part of the whole high tech milieu around us in Silicon Valley, and the two drivers of it were Hewlett Packard and Genentech. The HP Way was something we looked at very carefully. Genentech was of the same culture.

The Friday afternoon beer parties are still going on. What's significant about that? It's not the drinking of the beer. It's significant that it has never been stopped. Lots of companies have done that over the years. But they did it when they had thirty or forty people and stopped when they had five hundred. And we continued it when we had thousands of people. Let me tell you...not an easy task. [laughs] Our Ho-Ho's were something the senior management worked on regularly. We made sure they were fun and we stylized them. You couldn't believe the Holiday Ho-Ho's. We'd have eight hundred, a thousand kids. We had Santa Clauses. The last one I went to we had eight Santa Clauses, lines were still an hour, and we had to arrange it so that the kids couldn't see that there were eight Santa Clauses. We worked on how you did the Santas. We took that seriously.

And the worries you have about safety. We put in a system where we had taxi cabs from the local South San Francisco cab company sitting outside on Friday, early evenings, near where we had the Ho-Ho's. Now they have a building that is essentially just for Ho-Ho's. When we first did it, people didn't want to use the cabs because Saturday morning they didn't have their car. So we'd pay for them to take back the taxi on Saturday morning to get their car. Then we put in a system of employee vigilante committees to look for people who were drinking too much beer. For that reason we always had lots of food too. For all the young employees Friday night dinner was at the Ho-Ho's. [laughs] They would chow down. You had to get there fast. We never had an incident, never had an accident.

We put themes into them. February was Black History Month so African-American employees did one of the Ho-Ho's. Cinco de Mayo. Swanson and I always did a Hawaiian Ho-Ho. Everybody wore Hawaiian shirts that day, and would get leis, and Bob and I would do hula dances. The fermentation guys led a Ho-Ho where anybody could bring in their homemade beer, and we'd bring in beer judges. That was the culture that personified California, and high tech, and Genentech.

Spin-offs

Bugos: On the issue of entrepreneurship and independence, did you have a policy of encouraging or discouraging employees who wanted to spin off into new companies?

Raab: We did not encourage that. When somebody had something that we wanted, never was there a spin-off. The spin-offs that did happen were things we didn't want to pursue ourselves. GenVec was oriented toward gene therapy. We decided we did not want to pursue gene therapy. But there was a lot of interest in cystic fibrosis--from the Cystic Fibrosis Foundation and some important physician-scientists, like Ron Crystal who was at the NIH and is at Cornell Medical Center today--to develop gene therapy for cystic fibrosis. We had some technology and some scientists who were interested in it, but we decided that was not a business area we wanted to pursue. So we helped in the creation of GenVec, about 1994, which I think is doing entirely different things today. Financially, we owned stock in it, put money in. We let certain employees go there, and we had people on their board.

With the AIDS vaccine, the same thing. Bill Young [William D. Young, chairman and CEO of ViroLogic, Inc.] is now involved with VaxGen as an investor and chairman as are three or four Genentech scientists and physicians. There was actually a television movie about one of our scientists [Donald P. Francis, former head of the AIDS laboratory of the Centers for Disease Control, based on the book *And the Band Played On* by Randy Shilts], who just believed so strongly in our vaccine. We put a lot of money and time into AIDS research and had come up dry. A decade before we had decided we were not going to be in the vaccine business to begin with, any vaccines, so we licensed out our vaccine technology to SmithKline Beecham and a number of others, like Pasteur [Mérieux Connaught]. The AIDS vaccine was such that we didn't want to kill it but we didn't want to develop it. So we stimulated the spin-out of this company, VaxGen, which was completed just after I left. It is doing clinical trials in Thailand and elsewhere on the AIDS vaccine that came out of Genentech [VAXGEN]. Intellectual property, people, money--all created that.

Tularik, Inc.

Raab: Tularik was not a Genentech spin-out *per se*. Tularik was created by Dave Goeddel, who is the CEO of Tularik and had been one of the first ten scientists at Genentech. He and two scientists--one from Berkeley and one from the University of Texas--had this idea. They had fished together on the Tularik River in Alaska. Bonefishing was a big thing at Genentech, especially with the scientific guys. They would go fishing to Christmas Island and Alaska and places around the world. Herb Boyer is a passionate fisherman and led that pack, and Tom Kiley was too. I gather on one of these fishing trips, the idea of the science behind Tularik was shaped.

Goeddel was very close to Levinson, who was head of research at the time. He presented this to us. We did not want Goeddel to leave at that stage. So we worked out a system where we invested in Tularik, and convinced Goeddel that he would get options in it and

work one day a week there, which was in South San Francisco. For two or three years he had his feet in both doors until he finally left and went full time at Tularik, maybe in 1994. Tularik was the kind of thing that worried us--that we would lose people to that kind of opportunity. That our best scientists would see that they could make a lot of money by getting founders' shares, which obviously was no longer the case at Genentech. When you have a valuation of twenty billion dollars, the probability of your stock increasing tenfold in two years isn't very high.

GenenEx

Raab: We used to sponsor an organization, GenenEx, of ex-Genentech employees. We would let them meet at the company. I would speak to them. They were all shareholders. Brian Cunningham, the ex-general counsel, set up a directory of GenenEx's in case they wanted to find each other. We helped people find jobs if they needed it. We tried to be as nice as possible to people who left. You never make money with your enemies. The industry is populated with ex-Genentech people. People with master's degrees who went back to get Ph.D.s then ended up somewhere else. Or people who just left for a smaller start-up. We never fought that, but we hated to see people go.

Sabbatical

Raab: We had a sabbatical system at Genentech. In your seventh year you got six weeks in addition to your vacation. Vacation at Genentech was three weeks for everybody, starting their first year. Symbolic of Genentech, in treating people equally. So you could in your seventh year take your six week sabbatical, plus three weeks vacation gave you nine weeks, and you could pull in three weeks vacation from the year before and after. So you could get three months off. We always lost a lot of people from that. [laughter] They'd come back from their sabbatical and decide they'll just move on. Unfortunately, the most senior guys didn't take them. My sabbatical I took the summer of 1992. I took four weeks, which was a giant time off. I'm a firm believer in vacations. I always took my vacations, and believe people should at all levels. The company goes on. The sabbaticals are a special part of the Genentech culture.

Genentech's Second Generation

Raab: And day care. The day care center was not a minor activity. It was a tough decision. Very expensive. I think when we set it up it cost us a million dollars. Right before the Roche deal. Bob was still CEO when we did it, and Bob and his wife were the driving force behind it. Bob gets credit for doing it, and I'll take some credit for doing it well. It's very important, obviously, to the parents who have kids at the center. The quality of care is extraordinary. I decided we were *not* going to have any problems. So we just did it

Rolls-Royce. I had my little twins in there periodically. It's not cheap, but if you can't afford it we had scholarships for employees who made less money. And we subsidized it by millions. The goal was quality, not cheap. Everybody in the Bay Area knows about it, and people at Genentech take real pride in their company doing it. It really worked in that respect. If you were recruiting somebody who had young kids, it helped you recruit these people and keep them. I remember one women came to me with a tremendous job opportunity. She came to me as CEO to ask if she could keep her kid in the day care when she left, but I said no way. [laughs] We did allow for a three month transition until they found an alternative. The guys I would talk to from big pharma thought I was nuts to have that day care and to expand it. That was their problem.

Serving on Boards

Bugos: Were the other companies you were involved with while at Genentech spin-offs?

Raab: None of those three companies whose boards I served on ever had any tie to Genentech. While I was at Genentech I was on the boards of three biotech companies in the Bay area--Shaman Pharmaceuticals, Oclassen Pharmaceuticals, and Cholestech. None of which I am involved with today. Two I remained involved with after I left Genentech. In all three cases I was on those boards because the founders were personal friends. Glenn Oclassen--I helped him sell his company after I left and he's a wealthy guy now. The Kirk Raab Chair in Biology at Colgate was established from the sale of my stock in Oclassen Pharmaceuticals. The lady who had founded Cholestech left, while I was still at Genentech. I was only involved with that company for two years. Cholestech is over in Fremont, on the NASDAQ, and it goes up and down but I haven't had any contact with it for years. Shaman was the first one I did. That was very exciting. The founder, Lisa Conte, was a friend. It developed drugs found by shamans in the jungles and rainforests of Africa and Asia and Latin America. I had lived in Latin America, and she was great, and I liked the idea of it. It didn't pan out and the company doesn't exist today.

I encouraged our senior executives to be on at least one outside board, and at least one non-profit. At various times I was on the board of the San Francisco Ballet, the San Francisco Symphony, KQED public radio and television. With Planned Parenthood I was very involved in the merger that created Golden Gate Planned Parenthood. The Contra Costa, Marin, San Mateo, and San Francisco Planned Parenthoods were all merged and I helped bring in a CEO. I ran a capital campaign for them, which was really hard.

Bugos: Why did you encourage your executives to serve on outside boards?

Raab: Various reasons. It's kind of fun. It gives you exposure to other ways of doing things. Keeps you in contact with small companies. Lets people feel more important, because they are important people. It helps with community involvement. We also had donation programs. The human resources department would figure out which Genentech employees had how many kids in the local schools and then would donate to the schools on that basis, or to the hospitals, or the symphony or ballet. Not tons of money, but we played a role.

Uninsured Patients Program

Bugos: About 1987 you announced that Genentech would make human growth hormone available to any child who couldn't afford it. What was the impetus behind that? Did you have any models?

Raab: No. But we did a lot of that sort of stuff. When we started with growth hormone, if people couldn't afford the co-pay we would forgive the co-pay. Which, interestingly enough, turned out to be illegal. [laughs] If somebody couldn't afford human growth hormone we would supply it to them. Then we did the same thing with tPA. It made a lot of people feel good about us. Physicians, for example, who had a patient who couldn't afford it could still treat the patient. The Growth Hormone Foundation of America thought that was pretty nice of us, and it was.

Genentech Foundation

Raab: Then we created the Genentech Foundation, and put some of our fundamental patents into the foundation. Herb was chairman of the board of that foundation, which financed certain research projects in academia. Projects which were not related to Genentech, but which scientists generally thought were good for mankind. The foundation also licensed other companies on our early, fundamental, broad patents. Other companies took licenses, small licenses like half a percent or one percent max. It gave strength to these licenses. Some companies sued us over these patents, and the fact that so many other companies had taken out these licenses gave us some strength.

Patent Litigation as Distraction

Bugos: Did you find yourself in the late 1980s spending more time protecting your intellectual property?

Raab: There was and continues to be tremendous amounts of litigation. It didn't take a lot of my personal time. It was not a significant distraction for me, but it could be at times for certain scientists. Depositions, discoveries. We worried about the amount of time it took Goeddel, for example, and some others. And it cost us a lot of money. We spent a tremendous amount of money on the tPA litigation with Burroughs Wellcome, first in the UK and then in the United States. And then even more in our litigation with Lilly and with the University of California San Francisco. Eventually settled both--Lilly in my time. I can't remember what they paid us but it was much more than a hundred and fifty million dollars. Then after I left Art settled with the University of California San Francisco. In that case, Genentech paid them a significant amount of money. As I said before, new CEOs often settle.

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Raab: Most recently Genentech has suffered a loss in the City of Hope case. I hope it is reversed in appeal. There was a lot of litigation with a lot of companies over the years. But I've always felt that there is no reason to spend the money having patents if you're not going to protect them. Net, I think we did pretty well in protecting ourselves. But if I thought it was too serious a distraction, we wouldn't have done it.

Bugos: And economically it made sense, in that your royalty income exceeded your litigation expenses?

Raab: Oh, we had major royalty income--from Lilly on insulin, and Roche and Schering on alpha interferon, from Baxter and Bayer on factor VIII, on bovine growth hormone with Monsanto, and many many others.

Animal Health

Raab: By the way, I had nothing to do with the bovine growth hormone negotiations with Monsanto. When the relationship needed changing a bit I got a little bit involved. The Ciba-Geigy animal health deal, I helped finish it off but Tom Kiley took the lead in that.

Joint Ventures

Raab: When I came to Genentech we had a joint venture in diagnostics with Baxter in Boston. HP Genenchem was at Genentech and did instruments. We had a joint venture in animal vaccines in Texas. Genencor was a joint venture in developing industrial enzymes. Vitamin C--industrial fermentation using recombinant DNA technology--with Eastman Kodak and Lubrizol. When I came I decided it was a mistake for us to be so diluted. These were all businesses with entirely different margins, and entirely different businesses from the pharmaceutical business. We should be a pharmaceutical company. We just decided to sell off over time our interest in those companies, and we were out of most of them by 1988 or 1989.

Focus on Pharmaceuticals

Bugos: Other companies, like Cetus and Biogen, expected industrial biotechnology to be much bigger than pharmaceuticals.

Raab: Cetus was older than Genentech and was kind of a fermentation technology company and then they saw recombinant DNA as the newest technology in fermentation technology with industrial applications. The margins, the shareholder value you can bring from

pharmaceuticals is much larger than what you can get from an industrial enzyme, or a soap, or a diagnostic, or instrument, or animal health. When you sell a medicine for an animal, with the exception of small animals, pets, the decision is an economic decision. It is not a healthcare decision. The farmer decides based on whether that cow is worth that medicine. Or should he just slaughter the cow? Whereas with humans it is not a fundamentally economic decision. Does the person need the medicine to get better? If yes, then the person will get the medicine regardless of the cost. Unfortunately, we do have healthcare rationing in our society. There is discrimination against poor people in this country, and that is in effect rationing. But our decision was purely based on shareholder value and how we could build our company the fastest. These joint ventures were diluting and distracting.

Moving Away from Vaccines

Bugos: What about moving away from vaccines?

Raab: That was a much harder decision. I supported it in the end, but it was a position taken more by our sales and marketing people--like Jim Gower--who felt that the vaccine business was more of a commodity business. I felt, particularly with the hepatitis vaccine, which has proven to be the case, that there were big opportunities. But I didn't feel strongly enough that I went to battle over that. The problem with vaccines is the clinical trials. They often have to have tremendously large populations of patients. They take a long time because you have to confirm that the patient does not contract the disease. Not just a month or two after they get the vaccine; you have to follow the patient for years. There was another problem with the AIDS vaccine, which is what we were working on. I have no doubt that Genentech's AIDS vaccine works on sixty percent of the patients, maybe fifty percent, maybe seventy five. But that may kill more people than save their lives. If somebody took it and then decided to be promiscuous--somebody who had decided not to be promiscuous before the vaccine and so did not expose themselves to being infected by HIV, if that person was in the forty percent range where the vaccine is not effective [he might become infected]. And, there was no way to find out if you were in that forty percent range or that sixty percent range until you either contracted HIV or not. Same thing with hepatitis. The cost of developing a vaccine is very expensive and complicated. What is the legitimate percent of efficacy? It was just awfully complicated. We thought we'd get a better return putting resources into drugs rather than vaccines.

Monoclonal Antibodies

Bugos: What about monoclonal antibodies? What played into your decision to re-enter research on that platform?

Raab: Just a simple research decision-making process. The monoclonal antibodies initially that failed--from other companies, not from Genentech--were anticancer drugs. They were kind of like gamma interferon in the early years of biotechnology. Everybody looked at

them as silver bullets. The word "interferon" came from a Flash Gordon comic strip. [laughs] Today we know there are no such things as silver bullets. The one for HER2/neu was the first one to which we committed, and the one for anti-IgE was the second, with Rituxan being the third. We saw and understood specific targets. That's what happened with monoclonals. You don't develop a monoclonal without a profound biological knowledge of the target you are going at and why that monoclonal antibody will get to this target and stop it.

HER2

Raab: When we understood the oncogene HER2/neu, and believed we could develop a monoclonal antibody that could inhibit the growth of tumors that resulted in women who were expressing significant quantities of HER2/neu, we decided to pursue it. In the case of HER2/neu some scientists were especially influential with me.

There was a lot of reservations early on in Genentech, including from Art Levinson and Barry [M.] Sher[2]man who was head of clinical research then [as chief medical officer]. That's one of the few products I pushed on my own. Generally I didn't do that. The godfather within the company was a guy named [H. Michael] Shepard. Paula Jardieu became the godmother of all monoclonal antibodies at Genentech. She was a very smart, capable, really hardworking scientist. With clinical data everyone joined in and it's now a wonderful success with more to come. There's a book on HER2/neu. In my opinion, it's a crappy book, though there is some good stuff in it. It talks about a professor at UCLA, [Dennis J.] Slamon is his name, and a woman who's husband was a big NBC producer who died of cancer--Brandon Tartikoff. She raised a lot of money from the Revlon Foundation and did a lot of things in breast cancer. This book makes Genentech look like we did nothing and they did everything. That was not the case at all. But I got to know Slamon and he did help convince me this was where we should go and clearly he made a great contribution.

Reviewing Drug Candidates

Bugos: So was there a general protocol for deciding on new drug candidates?

Raab: There was a committee but, as I said earlier, there was a democracy at Genentech with only one person having a vote. [laughs] I'd say that at the senior managers' meetings and some would hate it and some would think it was funny. I'd say: "Okay, let's have the vote." I'd shoot up my hand. "Yes. Okay. It's carried." [laughs] First you had your research. Research, I clearly believed, businessmen like me should stay out of their way. You have to deal with facilities, which are very important in research. You can't do

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2. Robert Bazell, *Her-2: The Making of Herceptin, A Revolutionary Treatment for Breast Cancer* (Random House, 1998).

research without the right labs and equipment and they cost a lot of money. And you have to deal with culture and keeping the people. But executives should keep their hands off.

Postdoctoral Scientists

Raab: By the way, I was very involved with the postdoc program. There's probably a hundred fifty postdocs at Genentech today. Genentech's postdoc program, and allowing publishing, are one of the secrets of its success. I was very involved in making sure we kept those cultural things because there were lots of forces saying don't bring in postdocs because they all leave and go to help other people. But you keep good scientists when they can have postdocs themselves. Some postdocs do a lot of great work when they are there. And a few of them stay. We had a rule, like universities do, that never more than five percent of them were allowed to stay.

Research Independence

Raab: Research began reporting to me about 1988, about six months before [David] Martin left. Obviously, I decided to change the organization, then I left the research organization alone, except for having the head of research meet with me weekly. He would *inform* me regularly about whatever he thought I should know about what was going on. And I'd meet with top scientists individually too. I learned this at Abbott. I built a trust. He knew that I wasn't going to screw around with him. I just wanted to hear his thought process. The intellectual systems he was going through to make sure it had good sense. That the road they were going down was logical. I didn't judge the science. I wasn't capable of that. I wasn't interested in judging it. Of course, I helped him with organization and human resources issues, and helped him manage his budget.

Science Off-site

Raab: Then once a year, sometime twice a year, I put together a meeting where we all had a shot at research. It was generally a two day meeting off site. Ten research people--scientists or group leaders--would come to the management team, the marketing guys, finance, the top twelve executives in the company. They presented what they were doing. We had the right, and everybody knew we had the right, to ask questions. No matter how dumb, no matter how many, we could ask anything we wanted to, and say anything we didn't like about it. Just an open field day. There was only one rule. There would never be any decision made at that meeting. I'd say to research: "You're going to hear us. You can walk away, walk into the parking lot and laugh your heads off. That's fine if that's the response you had. You can take one thing you heard and say, 'Ooh, we hadn't thought about that!' You guys are the scientists, the geniuses." And I never followed up to see if

they had taken any of those ideas. As time went on Art would tell me, though I never asked him, never kept score. It gave the scientists this tremendous sense of independence which, as long as you have an outstanding head of research, as we eventually did with Art, is the way it should be.

At Genentech in those days the goal was that any scientist would spend thirty five percent of his or her own time on his or her own research, doing things that had nothing to do with the goals of the company. We owned the results of it but they could do anything they wanted to. That kind of freedom, except for Bell Labs, was unheard of in industry.

Commitment to Development

Raab: Development was entirely different. Development is pure business. Development starts when you decide to begin spending money on animal work that is not experimental, but is to enable you to go into human clinical testing. At that time you also begin the scale up of the manufacturing process to have enough of the active ingredient, the active ingredients, the protein, that is pure enough that you can put it into human clinical trials.

Development is more of a process. There was a development committee. It was chaired by various people over the years. They made a decision that the compound was good enough that we were going to submit it to the FDA and have it on the market. Then there were product team leaders who were assigned to the product from various disciplines in the company. Half of their job was just to manage that product. They had no line responsibility. They had horizontal responsibilities.

There was a committee who reviewed the product and then made a recommendation to the management committee, who were my direct reports, and a few other people. Then we evaluated it at great depths and lengths. For that we'd do Gantt charts, costing, sales forecasts, et cetera. There were always consultants involved. The committee made the decision. I never overturned a committee decision, though like with HER2/neu I would be much more aggressive in influencing plans on certain projects. I don't think I ever would have done one if they said: "No." But for something like HER2/neu, there were a bunch of them who wouldn't have done it. But we did.

Something we did, uniquely at Genentech, was look at what would a phase III trial three years from now look like. It was a good test. If at the beginning of development they couldn't design a test at the end, then there was something wrong. If you couldn't say: "We're going to have to do two thousand patients and these are the end points," even if it wouldn't happen for years, then you probably shouldn't do it. At least I had to know that they had gone through that process of conceiving what the ultimate drug would look like and the road to get there. This all sounds quite obvious, but it is amazing how many times it is not done.

Hundred Million Dollar Market

Bugos: How much did the market analysis drive that decision? Did how much you expected to sell drive the budget you would set for getting approval?

Raab: We would never have done a drug where we didn't think we could sell a hundred million dollars worth in the United States. We would never have begun if we couldn't sell a hundred million dollars. That must be up to three or four hundred million, today, at Genentech. At big pharma it must be up to a billion dollars. So the market analysis was very fundamental. But not at my level, because it never would have gotten to me without it. DNase/Pulmozyme was borderline but there we had worldwide rights, and with that we thought we could sell a couple hundred million dollars worth.

Product Development Teams

Bugos: And how did you set up these product development teams? Did a research scientist come to you and say lets set up a committee to move this thing forward?

Raab: A research scientist stood up and said: "I want my product to go into development." The head of research endorsed that. He was on the product development committee. Within research, the scientist was the product team leader. He or she would bring it to the senior product development committee, and staff people dedicated to new market analysis would help them prepare information on market size and manufacturing and stuff like that. They would become the market godfather. Everyone understood how it would work. Sometimes very complicated and controversial and sometimes very easy. Generally, human beings tend to make things harder rather than easier [laughs].

I changed the product development committee every eighteen months or so. I'd find that it was getting a little bureaucratic. They had minutes of their meetings, and if they were twenty pages rather than two pages I realized their meetings were going five hours rather than two hours so I knew it was time for a change. That was also true for the product development team leaders. Some would stay with the product for years. Nobody ever stayed from beginning to end, with the exception of Pulmozyme.

Many of those team leaders today have gone on to bigger things. Millennium Pharmaceuticals in Boston is a big biotech company. Mark Levin, when he left us, was team leader on Relaxin and gamma interferon. He put the first money into Tularik, then did Millennium, then left to be CEO of Millennium. The house Mark bought in Newport, Rhode Island--I heard he paid sixty million dollars for the house so he was a product team leader made good. [laughs]

Bugos: And was this product development team approach standard throughout the biotech industry?

Raab: Yes. The vast majority of people who did it throughout the industry worked at Genentech at one time. Companies would try to get Genentech people to teach them. A year or two after they started up they would try to hire Genentech people to teach them how we did it.

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Bugos: Okay. I also want to ask about the financial analysts who followed the industry and whom you think produced reports that would stand the test of time.

Raab: It's been interesting to watch the evolution of the analysts of the biotech industry. They mostly continue to be from a scientific background rather than from marketing or business backgrounds. Analysts from the early years, from the early 1980s, none are still around, except for Peter Drake. Tina Lerner was at Lehman Brothers. I recently learned she is retired now. She went into money management at Pequot, a big hedge fund. Peter [F.] Drake was at Kidder, Peabody in those days, and eventually created an investment bank with some other guys that specialized in healthcare. Which they subsequently sold to Prudential. David [H.] MacCallum was at Hambrecht & Quist and eventually became a banker, and I assume he still is. Linda [I.] Miller at Paine Webber was sensational, and became a money manager in Boston.

Then there was Denise Gilbert at Montgomery Securities. She was the best. She always seemed to call our stock right. She went to an English bank that doesn't exist anymore. Then she was at Affymax as chief financial officer, then at InCyte Pharmaceuticals as CFO. The last time I saw her she was about to ride her bicycle around the world.

They were very important to us. We were raising money all the time. The Chinese wall between research at investment banks and the bankers was very real. The analysts didn't know what the bankers were doing. When they evaluated a company they were as objective as they could humanly be. Today analysts have a big role in the new investment activities of the banks. The system, if not the individuals, are often prostituted today because the banking business got so big. We saw that in the high-tech industry as these analysts continued to put out "buy" recommendations as stocks fell. That couldn't have happened in those days.

As time went on--and their background was basically that of a scientist and figuring out whether a drug was going to work--they were less effective at forecasting sales and profitability. When the companies got into selling product, that was often when the analysts started making mistakes. They tended to be too bullish. And there is no greater crime than when an analyst forecasts your sales a certain way and then you don't meet those estimates. They punish you very badly.

Bugos: Thank you.

Life After Genentech

[Interview 4: March 8, 2002] ##

Bugos: Perhaps we could start this fourth interview as we did the first, with your experiences outside of Genentech. Specifically, how your experiences at Genentech shaped the work you did with companies after you left. There is a list of about fourteen companies you've been involved with since 1995.

Raab: When I left Genentech in July 1995 I was full of energy and the desire to be productive, but it was not a very happy time in my life. I was really wondering what I was going to do. I was quite melancholy. We went to North Carolina, where we often went to spend vacations on the beach. We went for a month in August and early September of 1995. On September 5, I got up early and went for a walk on the beach and watched the sun rise. I suddenly realized that I needed to get out of my doom and gloom and get going. I've had this wonderful life, this phenomenal career, and am economically very secure. Why in the world was I beating myself up? And I really felt great. That morning I went back to the house and had breakfast and went out to play golf with one of my nephews and a friend of his and shot my first hole-in-one. I thought that was a great omen. [laughs] The stars had lined up again.

Exploring Venture Capital

Raab: It was clear to me that I did not want to run a company again. I did not want to be a CEO. I felt I should use my vast experience in big pharma, Genentech, industry matters and Washington to help other CEOs build their companies. I thought about venture capital and talked with my venture capital friends. But I also didn't want to be confined in what I did. I believed I could create a situation to be a freer agent than I could if I was with one of the classical venture capital firms. I looked into starting my own venture capital fund. Spent some time with Sandy Robertson at Robertson Stephens. I spent some time with Alex Zaffaroni who had started many companies including Syntex, DNAX and Alza and whom I had known for years. I believed I was going down that road.

Professional Director

Raab: Then Lisa Conte, the CEO of Shaman, suggested that I become chairman of Shaman. I was already on her board. This would be in the manner that Roy Vagelos, who had just retired as CEO and chairman of Merck, had done at the beginning of that year with a company called Regeneron Pharmaceuticals, a biotech company in Tarrytown, New York. I really liked the idea of helping her build her company and advising her. So I decided to do that and the Shaman board gave me significant stock options, an office, a secretary, and some pay. There was a press release on this move that resulted in significant publicity again about me--the *Wall Street Journal*, the *New York Times*, the

San Francisco Chronicle. In the process of an interview with the *Wall Street Journal* I kind of decided that this was the road I would go down.[3] That quickly blossomed into two other relationships--the two most important ones that I'm still involved with today.

Connetics Corporation

Raab: One was then called Connective Therapeutics, which is now Connetics in Palo Alto. At that time the company was based on two products that they had licensed from Genentech. In fact, I had negotiated the final deal on the part of Genentech. I often wished that somebody not as tough as me had negotiated it. [laughs] One was Relaxin, one was interferon gamma, and interestingly neither of those products are actively part of Connetics today. We did a spin into Intermune with gamma, and Relaxin simply hasn't been successful in clinical research. But Connetics is now a very successful dermatology company and growing in value and sales dramatically. We had a very successful IPO not long after I joined and that was a new experience for me, although we had done a lot of equity offerings at Genentech. I'm very involved and have been chairman since late 1995. Connetics has an extraordinary management team with three GenenEx's and one Colgate graduate. But most importantly, Tom Wiggins, the CEO. He is terrific and we are real partners.

I left Shaman, because Shaman didn't make it. Their lead drug failed in clinical trials, failed more with the FDA than with the trials. They ran out of money. The company has fundamentally disappeared. I moved my office to Connetics and they now pay for my secretary and I have a wonderful relationship with the company and am well-rewarded by them.

Oxford Glycosciences, Ltd.

Raab: The other company was Oxford Glycosciences (OGS). I've been very involved in Oxford. It's outside of Oxford, England. It was the first biotech company to spin out technology from Oxford University and the university has an equity position in it. I became chairman of that company in October 1995, soon after Shaman in September of 1995 and right before Connetics. I also changed the name of this company. I got rid of the CEO there, brought in a new CEO, Michael Kranda, an American, who had been president of Immunex Corporation in Seattle. We recently announced that he was going to be leaving the company and I have hired an outstanding successor, David Ebsworth, who was president of the worldwide pharmaceuticals group for Bayer AG. Michael did an excellent job. OGS was an instrument company based on glycobiology and we changed it to create proteomics. Unfortunately, we just had a product rejected by the FDA. But OGS has a lot of other drugs in the pipeline. It has relationships with Medarex

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3. Don Clark, "Raab Is Named Chairman of Shaman, Two Months After Genentech Ouster," *Wall Street Journal* (14 September 1995) B10.

and other companies developing small molecules and monoclonal antibodies and we have two hundred million pounds in cash. I go to England about every six weeks to spend a week working with them and running the board meetings. I look foroward to working with David. I'm about to become a member of the Chancellor's Court and am honorary fellow at Exeter College at Oxford University.

Other Directorships

Raab: So those are the three things that I did aggressively in the very beginning. I try not just to join boards, though I was not completely successful at that. The boards I joined earlier were where I tended to know people and joined mostly as a favor. I joined the board of a company in Santa Clara, Applied Imaging, which is a diagnostic company. I brought in a new CEO, moved the founder out, and that company has done reasonably well. A small company.

I joined the board of Bridge Medical in San Diego. That's a company that has ended up being a software company. It supplies PCs [personal computers] with software and readers to check medicines before they are administered at bedside in hospitals. There are a lot of errors. It was a secret of hospital care that fifteen percent of medicines are giving mistakenly. There was an Institute of Medicine research project that made that publicly known, though hospitals have known it for years. This is a way to check, with bar-coding, that patients are being given the right medicine at the right doses at the right time. Then the system puts all that data into a laptop that is at the bedside too. That's a very exciting company.

I was also chairman of the board of another private company in San Diego, named Accumetrics, that was also in diagnostics. Kleiner Perkins, the big venture firm that had founded Genentech, asked me to get involved. That's common--for the investors to ask me to get involved. With Connetics it was also Kleiner Perkins that asked me to get involved. With OGS it was SR1, the SmithKline venture group and an English venture group that asked me to get involved. We sold Accumetrics to a Danish diagnostic company.

I am a board member of a software company, Velos, in Fremont. I got involved as a favor to Fred Frank, the banker with Lehman Brothers whom I mentioned earlier in these interviews. Velos does software for managing research and clinical trials over the internet. All the data moves from the hospitals to the data collection center to the CRO [clinical research organizers] to the companies. It's a pretty sophisticated and useful product. Whether it's going to make it or not I don't know. It's part of the whole internet and dot.com milieu.

Another one, like Shaman, that didn't make it was LXR in Richmond. The founder was still running it when I was brought in by Bill Hambrecht, of Hambrecht & Quist. He was a significant investor in the company. He got worried about it, brought me in as chairman. We moved the founder out of management, as well as a president he had hired. I brought in a new CEO and then we found out that a lot of purported science was bogus. It was really awful. The company no longer exists. It was a public company on the

American Stock Exchange. We liquidated it. Another board I was on is ePhysician, which has a Palm handheld device for doctors. They can write the prescription and put in information for billing when they do hospital calls or home nursing calls. All drug information is built into their Palms so they can check prescriptions as they would in the PDR [Physicians Drug Reference]. It should be incredibly successful but with the slowdown in the whole internet space and with the problems with raising money, I don't know if they can make it. They did a very down round of financing and now the board is only the two venture capital investors and the CEO.

Learning from Losing

Raab: It's been a tremendous experience, with both the successes and the failures. Many years ago I had a cousin who happened to own a fighter named Ernie Terrell, who was a heavyweight fighter who had once fought Mohammed Ali. My cousin brought him down to Mexico City for this big fight, so I took a couple of weeks off and spent it with this fighter as he was completing his training. I was at ringside for this heavyweight fight, which was the only time in my life I did that. It was the in the national football stadium, the soccer stadium, built for the World Cup and the Olympics. It was the largest crowd in the history of boxing. Riding back from the hotel with this fighter after he had lost the fight and talking to him about it was fascinating. There was a famous boxing announcer, Don Dunfey, who said, "I've been doing fights for fifty years and I've never really spent anytime talking with a loser." You dream about talking to winners, but you seldom think about what it's like to talk to a loser.

I sort of had that experience with some of these companies. I hadn't had a lot of experience with the losers, though it has been part of my life since 1995 to be around these companies that fail. And I've faced a few personal failures obviously. As a company goes down, I've seen how disillusioning it is. The young people who start these companies have incredible sprit and commitment, just as Bob Swanson and Herb Boyer had with Genentech. They have just as much faith in their chance to succeed. And it's interesting to see how they fight the defeat. How long it takes them to accept defeat. A lot of them have a hard time recovering because they have put there hearts and souls into it. They invest their own money and give up what they were doing. Some people bounce right back, like Lisa Conte, who don't get down at all. She's off doing other things related to the rainforest.

What other companies were there? Veranto also doesn't exist although the business model does, as Model N. That's a software company started by Zack Rinat, an Israeli and Harvard Business School graduate. This is about his fourth company. Model N makes a tollbooth software, for a supplier and a customer. For example, you have thousands of homebuilders around the country, and a few major lumber or brick or window suppliers. These homebuilders are mostly small operations with a variety of unsophisticated computer systems. The manufacturers are giant corporations, with information technology departments. This is a software that allows the small buyers to go through this tollbooth and do all their purchasing online. It is useful in homebuilding, in the garment industry, in drugs and medical care. Model N is the horizontal company which formed various vertical companies for specific industries. Veranto was the vertical

company for healthcare, to enable a small nursing facility with one laptop as well as a sophisticated medical center to interface with the drug companies or hospital supply companies.. I joined that board. But we just couldn't generate the business to maintain it as a separate vertical company. We dissolved it and the ideas were put back into Model N. It was taking too much time to develop the revenue to support six companies, so they merged it into one company. Though I'm an investor in that company I'm no longer on the board.

Bugos: Celtor Biosystems?

Raab: I'm just an advisor to that company. I'm not on their board.

Medgenics, Inc.

Bugos: Then Sinogen International and Medgenics.

Raab: Medgenics, I'm very involved and excited about this company. I'm chairman of the board. Medgenics is legally a United States corporation but operates through its Israeli subsidiary named Biogenics.

In late 1999 I was invited to give a speech at Ben Gurion University in Be'er Sheva in October of 2000. The chairman of biochemistry at Oxford University--who's on the OGS board and one of the founders of Oxford Glycosciences--asked me to give this talk along with three Nobel Laureates at the dedication of a great big research building. I agreed to do it. By the time October 2000 came around Israel had blown up again. The Oslo Accord had fallen apart. Everybody told me not to go. I felt that if three Nobel laureates were going to speak that I should go too. Worse thing is I would give the talk, sit in a hotel, then go home. Turns out that my wife Maryann and I went, and all three Nobel laureates backed out. I gave the speech and then we did four days of touring. [laughs] Which was fabulous because there were no tourists in Israel then. We had no problems and a had a wonderful time.

On that trip I met with a whole bunch of Israeli biotech executives, entrepreneurs and venture capitalists. I met this one guy, Andy Pearlman, who is an America with a Ph.D. from Berkeley. He had gone over and started a high-tech kibbutz in the late 1970s, then started about five companies. I liked the technology and I liked him. He came over here in November of 2000. I decided to become chairman and helped him raise the A round of funding. Medgenics develops a device called Biopump, which looks like a match stick, that will use your own skin cells and viral vectors. It will become a little factory to produce proteins like human growth hormone or factor VIII for hemophiliacs or EPO for anemia or alpha interferon for people with hepatitis C. I'm in Israel about three times a year. The science and development is progressing very well and I'm helping them raise the B round right now. I also enjoy Israel, despite the terrible political situation.

Sinogen International Ltd.

Raab: Sinogen is a heartache. It's a biotech company in China, and Bill Hambrecht is also a big investor. He and the board asked me to become chairman. In fact, I named it. Before it had some long complicated Chinese name. They had a factory in Shenzhen and were producing alpha interferon for hepatitis, which is a giant problem in China. They had plans to make hepatitis vaccines, growth hormones and a lot of other biotechnology products as they came off patent. That was a gigantic opportunity. I hired a CEO from SmithKline Beecham, Peter Wang, who was Taiwanese and had tremendous experience in mainland China. SmithKline had been the pioneering American pharmaceutical company doing business in China and he led that. We raised quite a bit of money through the Hambrecht & Quist Far East Venture Fund.

The Chinese government changed the economic organization of the country some years ago. There were hundreds of drug factories, factories making western medicines, all over China. Originally they were owned nationally, with centralized control. With the reorganization, if a factory was located in one city, then that city government suddenly owned that factory. So there were these small pharmaceutical factories all over China, and the city governments didn't know what to do with them. So we started buying them, taking a seventy to eighty percent share in them at a very low price. The city would still own part of these companies. Sinogen itself was about sixty percent owned by American institutional investors through the H&Q Far East Venture Fund, twenty percent by the University of Beijing, and twenty percent by the city of Beijing.

We had a tremendous master plan. We were going to start exporting drugs from China to southeast Asia, then to the subcontinent--India and Pakistan. Then we would begin building factories in India and work across the Middle East, then down into Africa. We were also negotiating with American biotech firms to build a GMP-certified facility [certified to the U.S. Food and Drug Administration Good Manufacturing Practices regulations] to do contract manufacturing for small biotech companies. That master plan Peter and I developed with the help of a guy named Robert Wu, who is Bill Hambrecht's son-in-law and a very bright Kellogg School graduate. Sales skyrocketed in China as we bought these companies. We had plans to list on NASDAQ with major interest on the part of JP Morgan, Goldman Sachs and Morgan Stanley. But a conflict developed between me and the Chinese directors over certain plans and practices. I decided I couldn't make the necessary changes.

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Raab: With Sinogen, I was the only non-Asian on the board, and it was clear that they didn't agree with me. I was not going to be able to be comfortable with the practices that were intrinsic to business in China so I resigned from that board. That was a real heartache because I think we could have built that company into another Genentech in the Far East. Peter left it as well, and it's hardly existent anymore.

Restarts

Bugos: Let's talk more about companies on the verge of failure. A lot of these companies went through a tough time like your experience with tPA in Genentech. Rather than throw up your hands when presented with failure you were persistent in trying to restart the company. How prevalent is trying to restart a company?

Raab: Connetics is a company where we got negative clinical results on gamma interferon, then we got negative clinical results on Relaxin. Despite that, Connetics is a very successful company today. With many biotech companies, when their original game plan or their original product does not succeed, they have the ability to modify their direction so long as they have substantial funds in hand. In the case of Shaman, in the case of LXR, those two companies had raised so much money over the years that investors were completely disillusioned--by the companies, by the management, by the fundamental science--so it was not possible to restart them. They were both just burned out. What was thought of as a great company years ago, Synergen, had a large operation in Colorado and their big drug failed. They tried to restart and couldn't so they sold the company to Amgen. That's what happened, in a way, with Accumetrics. The technology was very good, but the market turned out to be much smaller than originally thought. Venture people were not willing to put more money into it, so we sold the company and there was a small return to investors. We couldn't restart it.

OGS was definitely a restart. It was an instrument company where we lost money with every instrument we sold. So I went in there and shut down that instrument business and focused it on drugs and proteomics. When I went to OGS the company had a valuation of less than ten million pounds. After I got rid of the CEO and before I hired Kranda--about four months after I went there--I did a fourteen million pound private round. That money was raised on just the idea of proteomics, and was done at a valuation of thirty million pounds. So we went from ten to thirty million pounds in a few months with the idea of the restart. Maybe the new leadership helped as well. [laughs] Now we are back at it, but this time I made sure that we had a lot of money in hand.

Bugos: Is it fair to say that as a board member or chairman you've been most engaged with your companies during such a restart?

Raab: Yes. But also engaged in helping them in raising money, recruiting executives, developing a strong board--not just having a few academics. I've been involved in two major IPOs--with Connetics and Oxford Glycosciences.

Bugos: Okay. The British have a term, non-executive chairman, which I understand you are now with OGS. Americans sometimes chafe at the suggestion that there can be such a thing. What does that term mean to you?

Raab: First off, I had a model in Tom Perkins. Both Tom and later Bob were non-executive chairmen. The term is being used more in America. General Motors is going to that now. With the Enron scandal, I think we may see more of that in the United States, where the CEO is not the chairman of the board, and the chairman is not just the retired CEO but a truly a non-executive chairman who has a clear oversight role. As you said, it's a very common system in the United Kingdom, and what I do at OGS, and Connetics, and

Medgenics. You may get more stock or stock options than other board members. But you're not an employee. You can manage and oversee the CEO in the way that many boards only pretend to. Eight or ten people can't manage anything, especially if they're only dedicating forty hours a year to it. I try to put at least twenty percent of my time into those companies of which I am non-executive chairman.

Bugos: In that role, how much leeway do you have to look into the company and anticipate problems? Or does the CEO always present you with an agenda for advice?

Raab: I've always insisted that I have a direct line with all the senior management in the company, as well as significant scientists. Fundamentally, the line is through the CEO but when I'm at the company I regularly meet with other people. As a CEO I did the same thing. I didn't just meet with my direct reports, but spent significant time with other management people and scientists. One of the dangers of being CEO is that you become too remote from the company, and limit your access to information.

Bugos: You said earlier in our interviews that the executive committee at Genentech barely functioned. Now that you're on the other side of the CEO to chairman relationship, do you use executive committees more often?

Raab: No, I don't. Abbott's board worked that way, where the executive committee was very functional, and met and made decisions all the time. The rest of the board becomes undermined by that. They begin to feel like second class board members. That operates more powerfully in non-profits. There's greater need for it in a non-profit, where you put fifty or sixty people on the board mostly for fundraising purposes. But you can't have sixty people in a meeting and get anything done, so you need an executive committee. In a non-profit you know it's the executive committee which does things. So if you want to have a leadership role in a non-profit you have to work hard to get on the executive committee. But in a corporation, if you have an executive committee that makes decisions then goes to the board and just tells them things, that undermines their role and resentments develop that are not healthy. I think this is a major governance issue.

Bugos: Okay. And the companies that you serve are all start-ups. When they come to you, where do you think they envision the kind of advice you'll give, specifically on the spectrum of small company to big company?

Raab: I think all these biotech companies are started by entrepreneurs whose role model is Amgen or Genentech. I don't think it's Abbott. The first thing I guide them on is not thinking they're going to get as big as an Amgen or Genentech. The difficulty of doing it is so gigantic. People don't realize that at Genentech we raised eight hundred million dollars through private and public capital markets before we did the Roche deal. That's about the same amount that Amgen raised. I tell people in biotech that and they don't believe me. [laughs] It just takes a ton of money to be as big as Genentech. It doesn't take that kind of money to do one or two products and for the founders to be very wealthy. Maybe they're not worth half a billion dollars, but fifty millions dollars is still Okay for their own personal net worth. Plus, small companies are constantly negotiating with big companies, and I know the mentalities of both sizes of companies.

Biotech is a wonderful business. First of all with the science. Second, if you're successful, you're helping people. Third, there's no business where you can make as

much money as in the pharmaceutical business. The profit margins are phenomenal. They are not significantly affected by economic cycles, though they are affected by political issues. And the complexity of the alliances and the licenses and all the interrelationships is thrilling, for a businessperson.

Industry Associations

Bugos: So moving onto those relationships. Earlier you had mentioned the impact on Genentech of your work with BIO [the Biotechnology Industry Organization], the California Healthcare Institute and the Clinton healthcare reforms. Can you outline the stories of those organizations, independent of the Genentech story? Have you had much involvement with them since 1995?

Raab: No, I have not. My time as chairman of BIO ended a few months before my time at Genentech ended. Just to go back a while, I was involved with IBA [the Industrial Biotechnology Association] before it merged into BIO. And before that I had a significant role with PhRMA [Pharmaceutical Research and Manufacturers of America] and its predecessor, the PMA, which is the pharmaceutical industry organization. From my Abbott days I was involved in their Latin American section, ran the Pacific and Far East section, and then I headed the PhRMA international section. I always went to the meetings when I was president of Abbott, but was not on the main board. I was when I became CEO of Genentech.

In all of these associations, the rule is that the board member must be the CEO of the company. There are some compromises in BIO, in that the board member from the large pharmaceutical companies can be the chief operating officer. But the biotechnology companies have to send their CEO to the board meetings. The membership adheres to the company rather than to the person. You get with dues a right to the board seat. That's normal in industry organizations. In BIO there are so many different levels of membership that companies at the highest levels--the Genentechs and the Pfizers--get automatic board seat rights. The smaller companies on the board are nominated through a more classical process.

Those associations provided a wonderful experience. And it was important for me to do it. There was nobody around in biotechnology who had my experience in the pharmaceutical organizations to bring to the biotechnology industry organizations. Also, there were no other biotechnology companies that had the resources--a Washington office and staff. When you're chairman of one of those associations you need some staff assistance from your own people if you're really going to play an effective leadership role. Amgen had it, and Genzyme. Henri Termeer, the CEO of Genzyme, succeeded me and Gordon Binder, the CEO of Amgen, succeeded him.

When 1995 came, and I ended my career with Genentech, I felt it was time to end my role in those too. Many of the CEOs of the companies I'm involved with are involved in those associations now. Tom Wiggins is on the board of BIO, Lisa Conte was on the board. The California Healthcare Institute I've lost all touch with but I know it continues to be a very productive organization. At BIO the president, whom I brought in, and I talk about

once a year out of friendship. That's the way it's been with the non-profits I've worked with. It was a cherished time, to be on their boards, but once it ended I moved on and let others contribute what they can.

Bugos: So if not through these associations, if an entrepreneur wanted to contact you to pass an idea by you, how would they contact you?

Raab: People just contact me all the time. Right now I'm talking with some people who want to start a biotech company in New Zealand. A guy I know, a New Zealander, ran Roche in the UK. When Roche bought Syntex here he took charge of Syntex. He's now retired from Roche and started a company based on some technology out of a university in New Zealand and out of Cambridge University in England. So I met with them not long ago in London. I've been talking with a group from Cornell University which wants to do the first Ithaca-based biotech company. Recruiting to Ithaca is going to be a challenge. [laughs] Some professors came to me through a mutual friend. Venture capital firms talk to me all the time. A friend in San Francisco has a venture group investing money for Deutsche Bank, Alex Browne, and I'm helping them with Celtor Biosystems. I'm constantly getting business plans. Ninety-nine percent of the time I say I'm not interested but I'll give them some advice if I can. An interesting fact is that my older son, Mike, who was a senior VP at Genzyme, just joined a very large venture capital firm, NEA [New Enterprise Associates], as a partner.

So to go back to the trade associations. What sort of issues did you deal with at PhRMA? Bugos:

Raab: When I was chairman of the Latin American regional committee board, the Far East regional committee board, and the international committee board, they were dealing with government issues, with pricing issues, approvals, patents and trademarks, importation. Most of the issues dealt with governments, which is true for all industry organizations. In the end they are lobbying organizations, representing the industry to government. They do some philanthropic work too. They have significant staffs. I think BIO today has a staff of forty people, and has a significant budget, with income from dues and some big meetings that they hold. PhRMA's income is all through dues, but again they have a giant budget.

California Healthcare Institute

Raab: California Healthcare Institute by contrast was always very modest. I not only was the first chairman, but founded this group. Its staff today may be two or three people. In my day it was one--a great guy down in San Diego named David Gollaher. He's the president to this day. We brought in the key research organizations and universities to be members of it, and that gave us an image that was quite different than if we had just been an industry organization. Other states today have tried to copy this. I do not know if they are successful.

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Raab: Massachusetts, New Jersey, the state of Washington--these are the key states with biotechnology groups. Each state has a huge market, with significant local regulation. Wilson was governor then, and we got him to understand how important biotechnology was to California. We got Willie Brown, who was in Sacramento then, aware that it was a huge industry for California. Aware how important the university-industry relationships were. On the statewide level, we influenced budgets for the universities, R&D tax credits, educational grants, and different stimulus programs to get biotech companies to construct and stay in California. They are doing even more important things today.

Plus, these state organizations influence federal legislators from these states. I had a strong relationship with Dianne Feinstein, Barbara Boxer, Nancy Pelosi, and Anna Eshoo. In Washington, California representatives became significant advocates for the industry.

Merger into BIO

Bugos: Okay, and BIO was more clearly the national organization. What was the stimulus behind the merger of the two organizations into BIO?

Raab: We saw that biotechnology was seen as very sexy, with a real future. It was seen as small business and entrepreneurial. The pharmaceutical business was seen as fat cats with the Gucci shoes and Gulfstream jets. We flew in tourist class and wore running shoes. That was the perception in Washington. So we had the opportunity to shape new legislation.

But we had these two organizations--and this was from before my day--but the two organizations didn't get along. Each one had an executive director who disliked the other. There were jealousies between the two. The ABC [Association of Biotechnology Companies] was the smaller of the two, and made up of the smaller companies. IBA had a bigger budget, and included pharmaceutical companies as well. Efforts in Washington were diluted by this rivalry. The few of us that drove this merger saw that if they could be united into one organization it could be much more powerful. It was as simple as that, though the merger itself was very complicated.

Both executive directors were going to lose their jobs, so they weren't helpful. Then the smaller companies, afraid they would lose all power, asked for a fixed number of board seats for smaller companies. So we had a section of the organization for emerging companies which had its own board. We set up another section for agricultural products. Those companies had been mostly in the ABC, and the IBA was mostly the larger human biotech and pharmaceutical companies. We did a lot to alleviate the concerns of the various constituencies, and it worked because BIO became a very powerful organization.

How I got to be chairman: Stephen Duzan, who was the chairman and CEO of Immunex in Seattle, was the chairman of IBA. Tom Wiggins, now CEO of Connetics and then president in the Ares-Serono Group, was the chairman of the ABC. From the beginning it

was agreed that neither would be chair of the new organization. Jack Castello [John L. Castello], who used to work for Abbott and was the CEO of XOMA in Emeryville, was a key catalyst for the merger. He directed the negotiations as they went on between the two chairmen--Wiggins and Duzan. Jack consulted with me and then he entered in whenever the chairmen of the organizations reached an impasse. It turned out to work very well. The three of them recommended that I then become the first chairman. I did help bring along some of the larger pharmaceutical companies, which was important because they were going to foot a lot of the bill.

The final vote had some drama. I withheld my public support of the merger until the very end. Everybody knew that if Genentech didn't support it, it wasn't going to happen. So I used that as a tool to move things forward, but nobody knew how I was going to come out. Even the night before the vote there was a dinner where people were asking me how Genentech was going to vote. There were a couple issues we had to finalize that morning, and though I knew from the beginning that I was going to support the merger, it gave me some muscle to get the right things to happen. The three of them knew I would support it in the end. For the final vote we had the membership of the two organizations come together. At the crucial moment, I stood up and made the motion for the merger. It really brought a drama to it. Then I was elected chairman.

Accomplishments at BIO

Bugos: And what did you accomplish in your first years with BIO?

Raab: We played a major role in defeating Clinton's healthcare reform. I met with every one of Clinton's key cabinet members. I met with Hillary Clinton, with Laura Tyson, Robert Ruben, Al Gore, Ron Brown, Robert Reich, Lloyd Benson, Donna Shalala, and others. And we saw everyone of importance on the Hill. We'd go as teams. Lisa Conte would go all the time as she was the only female CEO. We were very aggressive.

PDUFA [Prescription Drug Users Fee Act] was also very important. People still complain about the FDA, but ten years ago the average review took three or four years. Today, it's fourteen months. Still too long, but a hell of a lot better. The FDA was able to hire better people. They passed that law before BIO formed, but nothing happened until there were new regulations. The law tells the agencies what they have to do, but doesn't tell them how to do it. The regulations can take years to implement. We helped a lot to expedite the regs.

Other Legislative Issues

Bugos: Genentech signed a press release just prior to the Rio summit supporting biodiversity. What was behind that?

Raab: Purely industry politics. It was a way to get back on the good side of the administration after our opposition to their healthcare reform. And I was comfortable with it because of my involvement with Shaman and my years in Latin America.

Bugos: What about other regulatory issues that have affected biotechnology over its history--biohazards, fooling with life, academics prostituting themselves, the privatization of public knowledge. Did those things appear on your radar screen during your watch with the industry associations?

Raab: Sure. When *Jurassic Park* (1993), the movie, came out we thought it would re-ignite all those issues. We had a whole plan in place to react to fears kicked up by *Jurassic Park*. Jeremy Rifkin was still an antagonist. But we never ended up having any problems. Once you make a drug, and prove that it is safe and helping whomever is taking it, then everybody thinks of it as a drug and forgets that it came from a genetically engineered technology.

Bugos: At Genentech, did you ever have any issues with accidental release?

Raab: No. The only time that became a concern is when we brought HIV into the company. We had a class four containment facility built, spent a lot of money on that. There were some people at Genentech who voiced concern that we were, theoretically, threatening the lives of people at Genentech by bringing this virus into the company. But we never had any problems.

Animal Rights and Other Issues

Raab: Same with animal rights activists. We thought that we might get into some conflicts over animal rights. We had ethical committees, reviews by outside groups, to look at our animal experiments. We controlled that very carefully, and tried to do what was right. You can't be in the drug development business without doing animal experiments. Genentech only has rodents and pigs. No dogs or primates.

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Raab: We did all the primate work outside the company. Most of what we did at Genentech was for the work of the research scientists. We had two animal facilities at Genentech, one in the research labs, and another big animal building which is in South San Francisco but not painted in Genentech colors. We did a lot of the classic toxicology and carcinogenicity that is IND enabling [required to submit an Initial New Drug Application to the FDA] by outsourcing. Maybe seventy percent of all animal work was contracted outside, to companies with big industrial sized works.

Bugos: What about the issue of scientists bending their work for gold?

Raab: That's baloney. I think one of the great strengths of biotechnology is the fusion of government research, academia, and industry, and the acceptance by academic and government scientists of the role that business plays. After all, the point of that science is

to create something that makes somebody live longer and better, not just to get a paper published in a journal or to make money. And academia and government have never created a product and put it on the shelf in a bottle. That transfer to industry happened with Herb Boyer. It's very American.

Remember, Herb Boyer was never an employee of Genentech, in the same way Bill Rutter was never an employee of Chiron. They maintained their academic positions but were able to benefit from their work. Stanley Cohen never entered industry, and was never financially rewarded in the way that Herb was. And I think that's unfortunate. Now all the universities have business offices that negotiate for the scientists.

We had lots of ongoing activities with Stanford, UCSF, UCLA, UC San Diego and most all of the great centers in the East. In our business development group we always had two or three people whose full-time job it was to look for developments in universities. We supplied our reagents to academic scientists. We had a group that just coordinated that. It was very active but we didn't make a big deal of it.

Bugos: What about genomics? Was sequencing the genome in order to make better drugs something you considered doing while at Genentech?

Raab: No. We knew that others would do it and we could then access that work. That's just what happened. I did testify with Jim Watson and Lee Hood at a Senate hearing supporting the genome project.

Ethics of Biotechnology

Bugos: One last question, of an ethical bent. Tom Perkins in his interview mentioned that he initially thought the big technical risk was whether God would let you make a new organism. So my question for you is, do you have a moral engagement with the work of recombinant DNA? Is there a larger creation-of-life perspective that you have developed for yourself based on your involvement with Genentech?

Raab: That's a big question to end an interview on. [laughs] I'm fundamentally a Unitarian. I decided long ago not to try to figure out if there is a God or not. I don't think anybody can. Obviously, a lot of people believe--have faith--that there is a God. That is wonderful for them. I decided that dealing with the existence of a spiritual force was not necessary for me to do what I believe is important and right in life. What guides my activities is what I believe is good for my fellow human beings. I believe I can make that decision, and that's good enough.

I am so constantly amazed by the human body, and especially by what we don't know about it. I think it is the job of leaders to take the knowledge that we do have and use it to the betterment of humankind. One of the ethical issues is whether you start to create life--like cloning human beings--rather than delivering things that are meant to improve the quality and/or the length of life. I dislike that sort of activity fundamentally because it hurts and confuses the process of using our knowledge to help human beings. The attitude toward stem cells now concerns me because it may slow down the use of these

biological tools to help people. I deal with this more on an ethical rather than a moral plain. I think it's much easier to judge things ethically than morally. I've seen people justify morally almost anything they want to. It's clearer when you try to look at the ethics of things.

Bugos: Okay. Since this is our last interview, any closing thoughts?

Raab: The final thing I'd like to say to anyone who looks at all we have said in these interviews is that what I've talked about here has given me great joy in my life. I am incredibly fortunate. Secondly, I thank all those who did support and help me. I also apologize to those I disappointed. And finally, since these interviews focused on my work life, there has been little mention of my family. It is large and wonderful and is my greatest joy.

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Glenn E. Bugos

Since 1994 has served as principal historian with The Prologue Group, a corporate history consulting firm. He received his Ph.D. in 1988 from the University of Pennsylvania, through the Department of History and Sociology of Science, Technology, and Medicine. He has published on the history of biotechnology, aerospace, and other topics in the recent history of business and technology.