The American Association of Immunologists Oral History Project

Transcript

Richard A. Goldsby, Ph.D.
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Interview conducted by
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Williams: This is an interview with Dr. Richard A. Goldsby for the American Association of Immunologists (AAI) Oral History Project. Dr. Goldsby is the Thomas B. Walton Jr. Memorial Professor of Biology Emeritus at Amherst College. In 2003 he delivered the inaugural AAI Vanguard Lecture. We are at IMMUNOLOGY 2017™ in Washington, DC. Today is Saturday, May 13th [2017], and I'm Brien Williams.

Dr. Goldsby, let's start with a little bit of your family background, where you come from, and maybe some of your grandparents and so forth.

Goldsby: Okay. I was born in Kansas City, Missouri, and grew up there. I was there until eighteen years of age when I went off to college. My parents both had—they're kind of immigrants, if you will. They had come up to Kansas City from Arkansas. My father, I guess, originally coming from the Louisiana-Alabama border. They, frankly, came up for a variety of reasons, but really seeking a different and better life from the one they had and respite from conditions that existed in that part of the country at that time. They were fortunate immigrants in that they brought a little education with them, and my father had gotten involved in selling insurance, and that was going well for him. My mother had taught school, and then she retired to become a homemaker when we came to Kansas City. Life was really very nice and very good.

My father, inconveniently, died of an immunologically related disease when I was five years old, he died of asthma, and my mother raised my brother and myself and put both of us through college, something for which we're both incredibly grateful to her for doing.

I went to public schools in Kansas City, and at that time schools were segregated, and it turned out that the irony is for me and for many of my colleagues coming along and who went to Lincoln High School, that turned out to be a surprising advantage as opposed to the disadvantage one might think, being that

At my church, Paseo Baptist, my pastor, the Reverend Doctor [Daniel A.] Holmes, once a year he would go out and he would take the pulpit at a Jewish synagogue, and Rabbi [Samuel S.] Meyerberg would come and take the pulpit at Paseo Baptist. So Kansas City, at the time I grew up, the part I grew up was not a hostile place, so it was not a place where I felt a great deal of hostility.

I think I was openly called “nigger” for the first time when I was a dining car waiter in Salt Lake City, Utah. I went out during the summers and worked on the dining car, wonderful Union Pacific scholarship. I could almost make my expenses during the summer from the tips I made as a dining car waiter. Someone gratuitously hurled us off the back of a truck, and more than being hurt, I guess I was surprised, because it was outside my experience, which I want to emphasize I don’t think is typical for many black people who grew up in my time. I just happened to be very, very lucky.

Williams: So tell me about this early onslaught affinity for chemistry.

Goldsby: Well, I wanted to be a physicist, but I wasn’t smart enough to be a physicist, so I went into something easier like chemistry, and my uncle in Chicago had sent me money I could use to buy chemicals. I had a little laboratory in my basement in Kansas City where-2 (2in)2 (m(m Tf 0.002bc.15 Td [(/0)-10 (l)13 (02 Tc -0.002 (v)-10 (e)

hired again, leaving the University of Maryland and then going to Amherst College.

So when I went to Amherst, Sri came along with me as a postdoc, and we kept the work going at Amherst College. So he's an enormously talented guy, went off to University of Nebraska after he left me, and started his own laboratory and has done some remarkable work himself and has cloned cattle that are resistant to a particular infectious bacterium because they lack a particular receptor. So he's done some very beautiful work, and I feel very privileged to have been associated with him for a number of years.

Williams: So is this the point at which you began to work on large animals?

Goldsby: Yes, the last few years at University of Maryland, I guess the last three years at University of Maryland, and then at Amherst College I worked on cattle for most of the time I was there, off and on in one way and another. Of course, there I was lucky enough to—I was at Amherst College for four years, and then the University of Massachusetts (UMass) just across town wondered if I wouldn't like to come over there and have any money, and to clone a cow—what would you think it cost to clone a cow? At that time, it cost about $25,000. In order to have a research program to do this, you needed to be able to clone a dozen or two dozen cows a year( )-20 (y)-2 ($2

Goldsby: When we owned Hematech, we didn't get to a point of having a product. We got to a point of demonstrating a very important part of the technology such that Kirin bought the company out. They bought the company from us. To my knowledge, there have not been large-scale trials of the human immunoglobulin produced in the Hematech cows at this point, and we would love to see such trials done, but for various reasons they haven't been done. So that, again, brought home to me the difference between developing a technology and developing a product, they are two very, very different things, and I hope that someday that that actually does happen.

Williams: What's the payoff in terms of developing the technology versus the product?

Goldsby: Well, the payoff in terms of developing the technology is you show your investors and you show the world it can be done, and that does two things. First, in a perfect world, your investors proceed to put more money in and develop it into an actual therapy that we use for patients. So any good products that you have inevitably stimulate competition, so it gets other people involved, and eventually you get a variety of different products, and I think they get better because you're trying to do something better, cheaper, faster than someone else is doing it. That hasn't happened with the human immunoglobulin producing cattle. Yet. We're hoping it does. Some of this is probably a consequence of—after Kirin bought the company from us they had it for a few years, and then they subsequently have sold it off to someone else.

Something I do want to mention that I haven't mentioned, and that is my wife got her Ph.D. from Leonard ["Len"] Herzenberg at Stanford, and she was there at an extraordinary time in that laboratory. It was at the time when they were developing the cell sorter. You talked about the difference in developing a technology and developing a product. The Herzenberg laboratory developed the cell sorter as a concept first, as a research instrument, and then they linked up with BD [Becton Dickinson] and developed that into a product that's widely used, and now there are other companies that make flow cytometers and that give them a great deal of competition, which makes everybody's flow cytometers much better[Bthebucq-4 (an)-4 (d)-4 (s)3itntd,

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and remarkable, and it's just never let me go. That's something I have stayed with for all these years. [laughs]

Williams: Did you take that sabbatical while you were at Amherst or while you were—

Goldsby: I took it while I was at the University of Maryland, and then came back to the University of Maryland and then subsequently moved from the University of Maryland to Amherst.

Williams: I'm curious to know what the allure was for Amherst for you.

Goldsby: Well, the allure for Amherst was a peculiar one. It was kind of a dare, if I'm going to be very frank about it. Ted [Theodore L.] Cross, a financier in New York City, said to his alma mater, he said, "You know, you have this faculty, and it's a faculty that's not integrated in the sciences at all. You have no minorities in the sciences at all, you have almost no women, and you have no minorities at all."

They said, "There aren't any who are trained or able to compete and to teach the way we teach here at]TJ -0.004 Tc 0.007D 10 >> (t)-20.93 -1.15 d ([q1(i)-2 4 (i)-2 (e)-63 much better how to look for people, and when they find people of any stripe, they are eager to hire them and give them a chance.

Williams: Were your responsibilities at Amherst mainly teaching—or

Goldsby: No, my responsibilities at Amherst were like any Amherst professor. At Amherst you're expected to do research and it's expected to be research that's competitive; that is to say, you're expected to bring in grants from the NIH, the NSF [National Science Foundation]. You won't get tenure at Amherst College if you can't bring in national funding. You're expected to publish in peer-reviewed journals. You're expected to serve on committees. I wasn't very good at doing that. You're expected to teach. I *loved* teaching at Amherst College, and you get to know the students very well and they get to know you very well, and you get to be friends with them, and years later they're bringing their children back to campus to meet you and so forth. [laughs]

So I had a lab at Amherst College the whole time I was there, and because I had a connection with University of Massachusetts, I was also able to train graduate students, so I always had Ph.D. students in my lab, and I think they added something to the environment at Amherst College. Amherst is a strictly four-year liberal arts, a superb—now that I'm retired from there, I can say that—a superb four-year liberal arts inst (s)-1 (,)-numl2 (a)4 s] with the toxin and keep it from developing a kind of condition called toxic shock syndrome that we still see clinically now. What Mulu did was to make a set of monoclonal antibodies that interacted with different parts of the site to which the toxin binds to T cells. It acts as a superantigen for T cells. By doing that, he made monoclonals into a tailored set, a tailored polyclonal antibody, if you will, for neutralizing this particular bacterial toxin, and we got a nice publication or two out of it.

Then he went on to develop human equivalents of those mouse antibodies that he had made and showed that they could prevent this toxic shock syndrome in mice. So we had a very good collaborator at Mayo Clinic, [Govindarajan] Rajagopalan, who had very nice mice that were transgenic mice that were ideal for doing this work, and we got some nice papers out of that work. So I guess if there is a theme to interacting with students, they come in all sizes, shapes, and from all kinds of places, and you get to know them very well, both as undergraduates and as graduate students.

Williams: The main part of your collaboration with your wife was Hematech, or have you done other work with her?

Goldsby: Well, my wife was the person who introduced me to Len Herzenberg at Stanford, and that got me involved in immunology and immunological projects. At Hematech, my wife was a cofounder, along with the other three of us, and she was a colleague of James Robl, and Barbara was actually—she was a molecular immunologist. So I was the hybridoma guy, Jim was the guy who could clone animals, Jim Barton was the lawyer guy, and Barbara was the molecular biologist who actually understood at the molecular level what was going on.

Williams: I was also intrigued with your work with Mary Catherine Bateson. Talk a little about that.

Goldsby: [laughs] This is not exactly immunology right now.

Williams: No, I know.

Goldsby: Mary Catherine Bateson hired me at Amherst College. She was my dean. Mary Catherine Bateson has one of the more extraordinary minds you will encounter. Her father, Gregory Bateson, was a very well-known ecologist and very well known in psychoanalytic circles, and whatever he touched, it just turned into intellectual gold. His father [William Bateson] is the man who coined the term "genetics." Mary Catherine's mother was Margaret Mead, and people know who Margaret Mead was. Catherine has 4. (he)4 (r)3 (i)-2 (h)-(nt)-2 (a)4 (n)-4 (e)20 (r)3 ((na

One of the lessons that the Minority Affairs Committee tried very hard to get across to young students coming in that faculty members were developing is the importance of developing mentors, and sometimes they would turn to some of us as mentors and sometimes they would turn to people who didn't look like us as mentors, and we would point out to them that our experience can inform you in ways that are very important. You can see us. You can see something about the kind of lives we have had. But in many cases we were mentored by people who didn't necessarily look like us, and that's a lesson you probably are learning or will have to learn, too, te (a)4 (r)-7 (eadb4mon)2 (s)1 t

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impressive black talent. Thank God they don't have a lock on it now. There'd be far too many.

When I turn on my television set or pick up a newspaper now, the thing I'm so happy to see is the banality of black talent. There's so many black talking heads now talking about foreign affairs, talking about national affairs. One's even been President, one's been Attorney General, and they're not just figureheads. These were obviously people who could do it very, very well. They compare extremely well with some of the occupants that we've had in the office. So I just feel delighted to have lived long enough to see this notice of what those of us who grew up in a segregated black society where we saw these people all the time, interacted with, were taught by, were intimidated by their brilliance, where this was not unusual, but these were people we saw.

Williams: Looking back over your life's career, would you do it again the same way?

Goldsby: Oh, if I were lucky enough to have the privilege to do it again, I would do it again, yes. If a genie came and said, "I'll let you do it all over again, but you have to take your chances," I'd turn it down. I'd turn it down because I've had such a fortunate life. Some of it's been my doing, but so much of it has been that I happened to have met the right people, many of whom have been enormously helpful, enormously supportive, many of whom have looked like me, many of whom haven't looked at all like me. [laughs] The only thing I've had in common is that they cared about science and they cared about me.

Williams: Do you encourage young people to pursue a scientific career?

Goldsby: Yes, I do, and I sometimes ask myself after I encourage them, "Now, why did you do that, Goldsby?" Because when I came along, it was so much easier. You turned in a good grant application to the NIH—and a good grant application was finishing in the top 30, 35 percent—you got funded. Today you turn in an application, finishing in the first 20 percent, you're likely not to get funded. I've even known people who have finished in the first 10 percent who have been said, "We hope we can get to you." It's just gotten to be too hard.

When we advertise for a faculty member at Amherst College, we will get over 150 applications. This is a small liberal arts college. Then when we winnow those applications down to what we consider to be somewhat arbitrarily the top forty or fifty, these are very, very able people. When we cut it back to the first ten, look, we could throw the applications down a step, and we could hire any of those people and we'd be just fine. We tell ourselves we are picking the best person. It's a joke. It's a joke.

So when I came along, I think you had a much better chance of getting that first job, you had a much better chance of getting and maintaining your grants and so forth than you have now. There's so much competition, resources simply aren't enough, and it's a tragedy, because what the United States is doing—and we're the best in the world—what the United States is doing is squandering, squandering what makes—and let me take it out of a national perspective. The only reason we can have the civilization we have is because of science and engineering. Take away science and engineering, you have to bring back slavery. You can't get all the things done that have to be done without having some people with their feet on the necks of others. You bring back slavery and serfdom and all those horrible things, everybody gets sick, there's nothing you can do about it, and there's no way to build these tall buildings like the ones you have here in Washington. That's science and engineering. You can't invest enough in an activity like that. It's also probably the most fascinating things human beings do. You can't overinvest in something like that, and we have been underinvesting in science for many, many years now, and now we're about, I believe, to lose our preeminent position to other places in the world because of it, and it's just a shame, really a shame.

I know somebody said it's our fault. It's our fault because if we were better teachers, the larger public would understand, the larger public would be more excited by the possibilities, by how interesting science is. If we were all Neil deGrasse Tysons and got out there the way he does, of course, we can't do that anyway, so that's kind of a hopeless pipedream, but we need more Neil deGrasse Tysons out there getting people *really* excited about basic science and what it does and what it is, how fascinating it is. We need to do a better job. And I think some of our policymakers need to clean some of the wax out of their ears, and the scales need to fall from their eyes.

I'll get off my soapbox now, but you pushed the button. [laughter]

Williams: Well, I think it probably needs to be said. Anything else you want to—any other buttons I haven't pushed but should have?

Goldsby: I've probably said enough, probably enough.

Williams: I've been asking everyone this question, so I need to ask you too. Other than your scientific activity, what do you do in the sense of for fun or recreational or the other side of your life?

Goldsby: [laughs] Well, we have a nice place in Maine, and we love to go there. We love traveling. We love running around in Europe, so we like doing that. Then I have to confess this, Barb and I, an idea of real fun for us is to really have time and leisure to open the latest copy of our favorite journal and read a paper or two. That's actually fun. [laughs] We have a lot of company in that. There's so much going on. There's so much exciting stuff happening in science, particularly in an area like immunology, that reading a paper is fun too.

Williams: Great. Thank you very much for this interview.

Goldsby: Thank you.

[End of interview]