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My parents, I guess I ought to start there. My dad has always been involved in higher education. He was in administration for a long time. Before he went into administration, he was actually a chemistry professor. He has gotten out of administration and again he's back to teaching chemistry. As far as I can remember, they were always trying to teach us stuff. My mom was an English elementary school teacher until she retired. They started us off pretty good. I guess we sort of felt in some ways we were programmed, but at the same time I'm sure I wouldn't have continued with what I continued with if there wasn't an interest on my own part. When we were kids, they would—like during the summers—give us workbooks and stuff to go through and so we still had assignments during the summers. But it wasn't all work and no play. We actually had great childhoods. I had a great time.

One of the fortunate things in my parents' professions is that they were very committed to being at black universities, so we came up on black college campuses. That was wonderful. You were there, it was a nice community to grow up in, lots of other kids to play with. It was safe, so we could just roam around, roam all over campus and do all that sort of thing. We had lots of little mini-adventures and stuff without getting too far away from home and getting into too much trouble. Everybody sort of knew everybody around there. We had a wonderful childhood.

What were some of those schools that you grew up on the campuses of?

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Mostly Hampton, Virginia—at Hampton University. The earliest I remember was in Oregon. That's when my dad was actually still in graduate school. He was at Oregon State in Corvallis. It was a similar situation there, although of course it's not a black campus. But it was a nice, well-controlled environment. After we left Hampton, we went to Voorhees College in South Carolina. Then we went to Fisk University. I actually went off to college while we were still in South Carolina.

You have brothers and sisters?

Yes. I have one sister, two younger brothers. My sister is in the medical profession also. My brothers are both musicians.

I met one at your graduation.

Yes. He goes by Levi. Both my parents' families, all of their brothers and sisters, went to college and



A marriage of MIT graduates—Robert Satcher and D'Juanna White ('86), summer 1997. Source: Robert Satcher and D'Juanna White Satcher.

education was stressed. I guess it really came from my grandparents on both sides. They really stressed education. They made sure that all of their kids went to college, so that sort of filtered down to us.

Your grandparents, did you know very much about them?
Yes, I did. On my mother's side, my grandfather spent a lot of time in the service, in the Army actually. My grandmother did mostly domestic work, but—and I don't remember the number honestly—I think they had nine kids. I always used to count them up. They had nine kids.

It was the same on my dad's side. They were farmers, basically. Then on the side he worked in a steel mill. Both sets of grandparents just knew the value of education at a time when really it was just becoming possible for black folks to take advantage of some of the educational opportunities like college and graduate school. The remarkable thing is that so many of them went on to get advanced degrees.

Both of your families' backgrounds were out of the South, is that right?

Yes. I guess in retrospect, then, it was really from their example more than anything else. That has been sort of an inspiration for me and some sort of tradition, not just like somebody arriving out of the blue. I know that a lot of what they did has made it possible for me to do things.

Your high school was where?
Denmark, South Carolina.

How did you find out about MIT?

My parents may have seen something on TV or something like that. My parents knew about Ivy League schools and schools like MIT. When my sister came up, finishing high school, she applied to a lot of the schools. She wound up going to University of the South, which is a very good private school in Tennessee. It's along the lines of schools like Williams College—schools like that, liberal arts. So she decided not to go away too far from home.

When I came up, I figured I wanted to go away just to see something different. It was just a sense of adventure. I just wanted to see something different. My grades had been good throughout school. Probably around ninth or tenth grade or so, that's when my parents started saying, "You should be able to go to an Ivy League school. You should be able to go to Harvard or MIT or

somewhere like that." The interesting thing is it didn't come from a lot of the teachers I had.

Interesting. It came from your parents.

It came from my parents, yes. A lot of what they said, I think, kind of swayed some of my teachers a little bit later that these people weren't just whistling Dixie and what not. I think a lot of them had not had any experience with any students who had gone off to places like that. With the white teachers, of course, I always suspected or sensed their motives. But I think with the black teachers, a lot of them just had not had kids who had gone off to these types of schools, and so they didn't really know any better until the involvement of my parents and some other people. They actually became very supportive and very encouraging as time went on.

How many students were in your senior class, would you say?

A little more than a hundred. It was a small high school in a rural town.

But it was an integrated school.

Yes, it was integrated. A lot of the whites in the area sent their kids off to private schools. There were still a few white kids who actually were pretty good, though, at the school, pretty bright.

You did well, but you didn't say very much. Knowing you, you're very modest, but how did you do? I'm not going to let you off on this. How did you do in high school?

I did well in high school. I finished first. I was the valedictorian. I think I was actually the first black male valedictorian in my high school. I finished a year early. Basically, when I went there I had already been on the AP track or whatever. This high school just wasn't one that's geared towards kids who are kind of pushing forward and moving ahead and doing that sort of thing. I had taken most of the advanced classes by the time I got to sophomore year. There just wasn't much reason for me to stay around. I started taking some courses at the college there.

So you actually finished a year early because you had done everything that they had to offer you, is that right?

Yes. My parents knew that if I had just stayed around an extra year, it probably would just mean trouble—sitting out there with nothing to do, just trouble.

So you applied to a number of the Ivy League schools? Yes.

What were some of the schools you applied to?
I applied to a lot of Ivy League schools. I applied to Harvard, Brown, Princeton, Johns Hopkins—I don't know if that's Ivy League.

It's in that category. It's definitely in that category.
I don't remember if I applied to Yale. I might have. I think I applied to Cornell. Then I applied to schools in the region. I applied to Georgia Tech. I applied to a couple of schools in South Carolina. There's a college in Charleston.

The University of Charleston? It's a very good school.
The Citadel. I actually applied to the Citadel. That's in South Carolina. I applied to the University of South Carolina, Clemson, and University of the South, where my sister went.

You really did apply to a lot of schools.
Yes, but nothing out West. I didn't apply to Stanford. I applied to Morehouse. I think I applied to Hampton University. I can't remember. That was about it.

And you applied, of course, to MIT.
And MIT, of course.

How did you go about deciding where you would go?
Actually, now I remember. I had to stop to think about that for a while. I got into a lot of places, including Harvard and Princeton, and I was thinking a lot about those places because it just seemed like it would probably be neat to go there, just in that simple way of thinking about it at the time. What swayed me, finally, was that I got this scholarship. It was from DuPont, actually. It paid for a large percentage of my tuition, books, fees, and everything if I majored in engineering. I figured I probably should take that because I knew when we got the financial statements from those places, from these schools, the tuition was much more than anything that I had seen before—and I'm sure my parents too, even though they were saying, "We'll figure out some kind of way to pay for it." But when I looked at it I was like, "This is really a lot. I don't really have a strong feeling right now of what exactly I want to major in. I think I want to do some kind of science or engineering."

But if it was going to be paid for, it made sense for me to sort of go along those lines, in that direction. So I said, "Well, if I'm going to do sci-

ence or engineering, I might as well go to the place that has the best overall curriculum, research, and everything for those." I thought about Harvard. It came down to Harvard and MIT at that point because pure science at Harvard is very good. What ultimately swayed me, though, was just that the engineering is kind of weak at Harvard. It's all at MIT, basically.

Did you visit the campus before you decided?
Not at all, cold turkey. I just saw the pictures in the brochures. My first time visiting was when I came up, when I arrived on campus. Honestly, at that point in my life it didn't really matter that much. It was kind of, "Whatever's there is there. It will be a lot different than anything I have seen." Even though we had traveled a lot with the family—we had been overseas, we had been to Africa, we had been to Europe—I figured it was a lot different than anything in recent times. It certainly was a lot different than South Carolina, rural South Carolina.

When you look back, how would you characterize your MIT experience?
Overall, it was good.

Undergraduate. I mean, we have a long way to go with you at MIT.

Overall, it was good. It was unlike anything else I've experienced. I'm sure you hear that from a lot of people. As I was alluding to earlier, when I came up, I came up pretty much in predominantly African-American communities—from childhood all the way up, with only one or two exceptions which were when I was so young that it didn't really impress me too much. So going off to college and arriving at MIT was almost like arriving on another planet. It was the first time I was in a predominantly non-black situation. So a lot of what I remember from the first few years, a lot of my experiences, had to do with just acclimating to that kind of situation, learning about white people more than anything else. I had heard about them from my parents. They described it. My relatives would sort of describe it. A lot of times when we would go home—I'd go back to my grandparents' on holidays and stuff—they'd sit around and amongst other things, amongst a lot of other things, conversations would come up regarding just interactions with white people and how they're different. They would talk about it and joke about it and everything.

So I had that sort of a notion from those conversations about what it would be like, but I had never been in a situation where I had to deal with them as a majority, which brings a whole new set of issues surrounding just how you live on a daily basis, how you interact with everybody. It also makes you think a lot about yourself in terms of your own identity, who you are, where you're coming from, and what you're about. They have so many opinions about you already that you have to know how to deal with that. I think in order to flourish in a situation like that, you have to basically not be confused, and not be confused about who you are.

So academics, during the first few years, was almost like a sanctuary in a certain way. This is kind of more in retrospect than when I was going through it. I actually made some very good friends while I was at MIT—people who I still am in contact with now, people who are very close to me and who will continue to be for the rest of my life probably, or at least I hope. Social life for me wasn't too big of an issue when I first got there. In my mind when I got there, the main thing I wanted to do was to prove to myself that I could do okay, that I actually was capable of competing academically with students at a place like that, because I had never had that kind of experience. Just the way I conceptualized it was that I needed to have some kind of an outlet socially, so I needed a few friends. I needed to know some people. Of course I knew I was more comfortable with black people. When I got there, after being there a couple of days and seeing seas of white faces, I was starting to get to know some white people, but also kind of being tripped out at how different they were and just how differently they lived, in terms of just how they kept their rooms and stuff like that. I decided, "Well, I want to get to know some of these black folks around here because I know they're probably more like me, a little bit more what I'm used to."

That's what I found, of course. I sought out the black faces I could see. One of the first people I met, actually, was this guy who's actually my best friend. He's going to be the best man at my wedding. He was one of the first people I met. At any rate, that part of my life was not all that much of a concern for me. If anything, I saw being around all these other different kinds of people was more of an irritation. You know, they liked different kinds

of music. They would be talking and it was becoming apparent to me—I mean, it's apparent to me now, but it was becoming apparent to me then—that their experience was just entirely different than mine. Not that I had any sort of misgivings about it or anything, but I realized they were just different. They were different people, different experiences. So any time you're in a situation like that, it's not as comfortable as being around—like back home—nothing but black folks around. Everybody knows what I mean when I joke in certain ways and talk certain ways. They like the same kind of music I do, they like the kind of food I like. It's not as comfortable as that, so you're sort of like an alien to a certain extent, always like on another planet.

The one thing I could do which allowed me to sort of escape that, to some extent, was doing the academics. That's what I had done all my life anyway and enjoyed. The one constant, besides the people I had left behind, was academics. I spent a lot of time with it and the more time I spent with it, the more I enjoyed it. I spent a lot of time with it and found that it wasn't just jumping in and right away being able to perform real well. Actually, there was a little adjustment period—probably first semester—where I had to figure out how to study. It was totally different than how I studied back in high school.

What were some of the differences or adjustments that you had to make in that arena during your freshman year in order to be able to deal with how you were going to work at MIT?

Mostly it was time. It just required an investment of time, just an up-front investment of time rather than waiting around till later. I just sort of jumped into it right away. I sought out a lot of the aids and accessories. They had tutorial sessions in certain courses, which were available to everybody. I would just go there and ask all my dumb questions, basically. It's like with everything else. If you practice it enough, you start to sort of get the hang of it, sort of find the rhythm, find what works for you. You're able to carry on and the more time you invest up front, the easier it gets down the road. It certainly was that for me. By the time I got to my later years, junior and senior year, I wasn't spending as much time studying, but I was still performing just as well. It was just at that point I knew what I needed to do. That also allowed me to do a lot of other things, get

involved with a lot of other things that I always wanted to be involved with.

I think the main difference, just if I look at the way that I studied, is that back in high school it was a lot more kind of rote repetition. The problem-based learning was not as intense. That's the stuff I always liked the most, but it just wasn't as extensive. There was a lot of memorization. That's an entirely different kind of learning, and I had to go back to that when I went to medical school. The hardest thing about medical school was doing that. I don't like that kind of learning. It just took discipline, basically, to sort of just sit there and say, "Okay, I've got to memorize this stuff." What I enjoy, what I truly enjoy is problem-solving, problem-based learning.

That's what I learned to do when I got to MIT. It's basically going through and making sure that you really understand concepts and their general application. The problem is that it's really understanding how you arrive at these final conclusions. You've got to go back and understand the basic principles behind certain statements expressed as laws or some sort of mathematical expression or some sort of corollary or whatever. You have to understand some basic principles, going back to just thinking of it in very simple terms—you know, how you arrive at this expression. Then once you go there you can go on and find that with other stats, which gets expressed in usually certain languages like mathematics. Underlying that is the natural phenomena or processes. That's really enjoyable to me because it really makes me feel like I'm doing something which is getting at a greater understanding of how the world works and how things go on around you.

Just carrying that theme a little further, during that undergraduate education of yours at MIT, if you had to say what experience or experiences were significant during that period to your current success in your field, would you say somewhat the same kinds of things? How would you answer that?

Yes. I think clearly the education I got there probably has been one of the most pivotal things for me in general. It will continue to be for my professional career. That's why I say in an unqualified way that it was a good experience. I think it would have been hard to get that at many other places. There are probably a few other places, but it would have been hard to find that anywhere else. I know that a

lot of the other schools I was thinking about, I probably wouldn't have gotten it. When I went to MIT, too, I was really young. I was like sixteen.

That's right, because you finished high school early.

In a weird way, I think it worked there to my advantage, whereas in other places it probably wouldn't have worked as much to my advantage. It would have been a little bit more difficult to find a groove in that way. It's not all good, in the sense that I think it's a double-edged sword and maybe the sword drawn has more negatives to it for most people. MIT is the kind of place where you can go and bury yourself in academics. You can just go bury yourself in the books and nobody will bother you. That's what I was prepared to do, at least for my first two years. I was prepared to do that. If I had gone to some other school where they actually are more concerned about your whole development, where there's a little bit more peer pressure—and not only peer pressure, but attention from the staff, sort of, "Are you getting out, are you going and doing other things?" etc., etc.—there might have been some concern about me.

I was fine. I knew I was fine, but in other places they might have wondered. The reason why I know that is because I actually went to Harvard as a dorm counselor when I was in medical school. I was actually what they call a freshman proctor. I was responsible for advising students and following them along, and we were concerned about anybody that was like me freshman year. I was concerned about people like that, wondering "Are they doing okay? Is there something wrong with them? Why aren't they interacting as much as everybody else?" Then you would go and actually call them in and talk to them and find out whether or not there's something going on, something bad in their life, something that you needed to be concerned about. You try to encourage them to go on and be involved with these other things, which, from my own personal experience, would have just been a distraction and a waste of time, and I didn't really want to distract myself.

It's actually fortunate that things worked out the way they did and that I went through and did that, because I haven't been able to focus that much on pure book learning since those years. I've done a lot more of it, but I don't think I'll ever be able to do that again—at least not in the sense of excitement, discovery.

One other follow-up question in that arena. When you think about your experience at MIT, what was worst about the experience there?

It clearly wasn't academics-related. Actually, it was not having to do with studying. The worst part about it was the lack of representation—the lack of diversity, as everybody likes to put it. For me, it was the lack of other black people. That was the worst part.

That was the worst part.

Yes, and it really is distracting. I made other friends there. I really am certain I didn't realize how good they were as people until I got close to them, and some of them after I left. These are white people, people of other backgrounds. Part of that was just because I got there and because there are so few black people there and because in certain ways, when you're in a situation like that, there's this whole—in a certain way—a cultural non-acknowledgment, I guess. Everybody sort of assumes things that they're used to. Since most of the people were white, they assume that that's how things should be and that's how you should be thinking. Then they have these distorted images about black people, so you get this weird admixture. They get comfortable enough with you to where they don't feel like you're one of these icons, that you're going to steal something from them and hit them over the head—you know, something like that. They get comfortable enough with you to get beyond that. Then, they basically think that you're supposed to be like them. They can't understand how you are in any way in any sort of a continuity or on any part of a spectrum that has anything to do with the black images they see in the news. Part of that is you, but of course not what you see in the news. That's just focusing on what the media hypes up, which sells and what people want to see. They can't understand how you would have any connection with that. They think that you must be like them, but of course you're not like them and so they say things which, if they were put in that position, they would understand how it's offensive. But they say things and they don't think it's offensive. They say a lot of things which are disrespectful.

So you're put in that kind of a situation. The bad thing about MIT is that there weren't more black people on every level. You sort of feel a certain sense of isolation, which feeds into making

things a little more polarized. As a result of that, I think you can become a little shortsighted at times and not recognize some of the good things that have happened to you or that are happening to you, some of the good people that you do come across. Fortunately, I didn't get so angry or disgruntled or tripped out or whatever by it, and I think that just had to do with having a strong sense of self and being able to get away from it all. That just gave me a perspective on the whole thing. So I didn't get so angry that I alienated people who were really good people, but fortunately I developed friendships.

As I said, the odd thing was that I wasn't as good friends with some people while I was there, and I think it was because of that. I just was not willing to trust. I think there was always a sense of "I can't really have a truly open conversation with this person," especially if it was somebody who had something to do with my progression through the place. In retrospect, I see that some of these people actually really were good people and they had been nothing but supportive. They really have been people who helped me go on and do things that I wanted to do and who have been in my corner, and they probably always were. Fortunately, they didn't write me off, saying, "This guy, he never wants to talk to me and tell me what he really thinks and so I'm not going to deal with him."

That's well said. I just have a couple more questions. Based on your own experience, is there any advice you might offer to a young Robert Satcher coming to MIT? You want to change the question? A young person?

Coming to MIT as you see it now—a student coming, a young Robert Satcher coming to MIT. If you had a chance to give it him, and I'll say her as well, what advice would you give?

Well, I'll just generalize. That's a hard question to answer. It's funny when I think of it that way because I remember when I was in that position looking for advice from people like yourself, "What advice do you have?" I probably even asked you that question at some point. There is always this look when you ask people that. They have to pause and think about it, and oftentimes you wouldn't get the kind of answer that you think you should get. I'd be wondering, "Why can't they just say, 'Do A, B, and C?'" Now, having gone through it, I kind of realize why that is so. It's not

a very straightforward thing to answer, and it's hard to answer that not knowing who I'm talking to.

There are some people who, and I always thought this to be kind of a shocking thing for people to say, always say, "There are some people who I don't think should go to MIT." That's probably true. I hate to say it, but actually it's probably true. This is kind of a strange place. It's not exactly an average cross-section of this country and certain elements are missing, depending on what you're looking for. Either you'll deal with it or you're undone, kind of thing. It really depends on whether or not there's a match in terms of you looking for the kinds of things that you actually can get here. What I would advise a person who thinks that that's the kind of place for them, which is not always possible to know before you come—I went there just blind and fortunately there was a match—is that if you're a little bit better informed and you sort of think that it's the place for you and you have some sort of sense of what you want to get done there, my advice would be that it's a very intensive place academically and you shouldn't forget that. People come in at different levels of skills and it actually sort of gets balanced out after about a year or so. There are some people who come in there and they've just had incredible backgrounds and been performing at high levels, but one thing that you can't do about it—and you probably weigh it for a while—is that that may be exhausting after about a year. That's everybody. You have to have a discipline, just a method that you're going to use in order to get through the training and the rigors of the courses there.

So I would say, "Regardless of what your background is, spend some time feeling the place out and learning what you need to do to be able to learn there." That takes different amounts for different people. If you're like me and came from backwoods wherever and had never really been challenged that much, you've got to know how to work hard. If you come from some private school where they've been drilling you ever since ninth grade, you're probably not going to have to work as hard your first year, but you do need to learn what resources are around and kind of hone your skills and figure out what sort of changes you need to make. That takes time too.

So as an undergraduate you pretty much did the same thing you did in high school. Is that about right?

Yes.

Why did you choose chemical engineering and then also how did you do academically?

I did well. How did I choose chemical engineering? I was thinking at first chemistry, and I think it was just because I was pre-med. They were sticking all this stuff in my face. Before I knew it, I was familiar with it and the courses that I initially did extremely well in were in chemistry, organic chemistry. There's this huge freshman organic chemistry class and I got the highest score on the final. That was pretty good. They always print the distribution of scores, and it was a hard final. I always remember it because there was this one kid who just like cracked up. It's not funny, but in retrospect it is funny. He was so wound up that he just started shaking.

He couldn't even perform.

He peed on himself. They came in with a stretcher, threw him on the stretcher, and carried him out. Yes, pretty cold. Everybody just looked up and said, "Wow," and then just kept working. It was pretty awful, pretty awful.

At any rate, I got my final back. I wanted to, of course, get the whole thing right. I was always pushing myself to do well. I had spent a fair amount of time studying for it and I felt like I knew stuff. I went in and I was like, "Yeah, this is a really hard test, but I can get through it." There were a couple of really hard questions. I was dawdling around one and then finally I saw how to do it, and I was like, "Yeah." You come out of the test and there's a lot of people saying, "I didn't do well on that," or "That was impossible, that was terrible," and all this. I felt like I probably did okay. I didn't want to tell anybody, but I felt like I probably did okay. Then I got the test back and looked at the distribution. I felt like I couldn't just say that to people because I didn't want to appear to be arrogant or whatever about it, but when I got back upstairs—when I got away from people—I was like, "Yeah!"

There were other things to think about too. I know other black students who are there and just the perception, as with everything else, is that the black students don't do as well and all this stuff. The few people whom I really kind of let know were some of the arrogant white students. I would always kind of let them know, "I'm doing better than you." After a while, I got to know some of them. They came to realize at some point that I was actually outscoring them on a lot of

tests. There was one other guy in particular, who lived in my dormitory, who was a very bright guy—nice guy, too. I actually know him. Our senior year, we were working together on a number of projects because he sort of realized, “This guy is doing better than me. I must do something he is doing.” But yes, I always sort of liked to mess with them a little bit. But they were the only people.

I'm surprised that you even did that, because you were really laid back in a way. I know you don't like that sort of thing.

Yes. The instructors would know. Some of them would come up to me and say things to encourage me and stuff. Anyway, I just always found it satisfying from a personal point of view.

Well, it was very satisfying to a number of us, too. I know I kept my eyes on it.

I actually never really thought too much of it, outside of just saying, “I’m doing okay. My grades are okay.” I never really thought much about it. When I first got a sense of “Okay, I guess I am doing really well,” was in a class where I thought I didn’t do as well as I should do. I mean, I still got an A in the class and I did actually pretty well on some of the exams. I actually did very well on one or two of them. The reason why I was kind of pushing myself in this class was that it was the first class I had with a black professor. I really felt, “I want to do well in this class because it’s a black guy.” I fell asleep in his class on one of the days. The funny thing is, he noticed it first of all. He noticed that I fell asleep. The second thing is, the way it came up was that he said, “I wanted to get angry at you for falling asleep in my class, but you were high scoring on a lot of the exams, so what could I say?” So it was kind of funny.

Plus, you were in class. You weren't out of class. A lot of folks wouldn't even come, and fall asleep.

He had kind of a hard class, so a lot of people were in there. I wish I had had more black professors.

You're talking about what, during the mid-'80's? You were fortunate to be able to have one, based on the numbers that we had there.

One other thing that came to mind as you were talking, if you had to look at your experiences at MIT and your next experience which was Harvard—that is, well, your Ph.D. at MIT and Harvard—explain to me just for the record what that was all about and why you

decided that you wanted to go into that kind of arena to get a Ph.D./MD type of program.

Well, I didn’t know that I wanted to get a Ph.D. That sort of developed as a reaction to medical school. That’s probably how it first started off, but clearly it’s not the way it wound up being. I think it was a very good thing for me to do. In a lot of ways I needed to do it, and it’s a part of who I think I should have become. The attraction of going to Harvard, the thing that attracted me the most as opposed to all the other medical schools that I went around and looked at, was that when I went there, there was a really strong black community there. That, coupled with the fact that Harvard is the best medical school—it was like, well, what more can you ask? Then they had this combined curriculum between Harvard and MIT. I knew how much I liked engineering. I figured since the curriculum basically tries to teach medical students the importance of working from an analytical perspective, I figured that was probably the best vehicle for me to go with if I was going to be there.

I thought strongly about going to Johns Hopkins because the financial package was better. They were going to give me more money up front. I thought long and hard about going there. If I had gone anywhere else, it would have been there. I applied to a bunch of other medical schools. I got into most of them. There was one place I didn’t get into that I can’t remember.

Really? I can't believe that.

I was surprised, too.

You get into Harvard, you get into the toughest schools.

I wanted to remember it. It was one of these things where you want to remember it, so one day you can go back and say, “Okay.” I applied to maybe ten or eleven medical schools and I got into all of them except that one place. I went out and visited a significant number of them. Hopkins was really nice, but Harvard had a large number of black students there, very strong community, and they were very coherent and supportive of each other. That was like night and day coming from MIT, where we weren’t quite as close-knit. There was a small circle of people whom I felt that I really could rely on at MIT. But when you went to Harvard, you really got this sense that just everybody there was just trying to be on each other’s side and not trying to trip you up, not put crabs in the bucket type

of thing. Everybody really was on the same gene kind of thing. They had a very strong presence in the medical school, I remember also. They did a lot of arm-twisting of the administration and they got a lot of things. So I said, "Well, I think I want to go somewhere where people are kind of empowered like that and know what they're doing, because I think I can learn a lot from that."

It's probably the most of what I learned at Harvard, just kind of how to work things. The medical education, you'll get that anywhere basically. You get the same textbooks everywhere, similar facilities are everywhere, but I think that going to Harvard plugs you into a network. You get exposed to a lot of people. You get a lot of opportunities. Doors are open that might not otherwise be open to you, and that's really the main reason. Also, like I said, just learning how to be a leader. In certain ways, there were a lot of people there whom I would classify as being leaders and shakers, and I was kind of learning how to do that—I mean, not just looking at something and saying, "Why can't it change?" and not actually getting into trying to actually make it change.

So when I was at Harvard I got involved in a number of things. There was a minority faculty development program that I wound up working on with two other black students. One is at Walter Reed Hospital now. Another one is Robin Stanton, who's actually back in Boston now. We just put together a proposal. We knocked on enough doors and went around. They finally caved in and supported it, as they always do, kind of in a superficial way at first, but they allowed it to be established. They finally got a person to fill the position of director of the thing. In reality, it was kind of more of a symbolic thing than reality right now. Most of their work right now in that office is focused on lower levels and not actually at the faculty level. The reality of the thing is that it's the chairman, as it always is, but at least that was put on the map. There were a couple of other projects too that weren't of that magnitude, but that I got exposed to and involved with. That really shaped my experience there. I had a great time there. Once again, there were a lot of good people I met there and a lot of black people that I still am in contact with. As a result of that, I know people all over the country at almost all major medical schools.

That's powerful. How did you get here?

To San Francisco?

Yes.

Well, first I went back to MIT.

That's right, you did.

And Harvard. As I said, I think probably initially it was more of a reaction to medical school, in that I got tired of just memorizing stuff. My first year in medical school, I felt like, "Geez." I got through two years of medical school, somehow miraculously passed the boards. I felt like, "Man, I don't feel like doing this. This isn't what I really, really in my heart of hearts like doing."

You didn't really like it.

Yes. What I like about medicine is helping people, but you don't really get to that for a year. So I said I'd like to get back to actually thinking for a change. I said, "Well, let me get back in here. Let me start doing a research project." I started doing that while I was still in my second year of medical school. Then there were some other people I was exposed to, like Robin Stanton. I'd say she was probably one of the most influential people I got exposed to in medical school. She was doing the MD/Ph.D. I actually just met her riding on the bus. There's a shuttle that goes between MIT and Harvard and I just met her riding on that.

For the record, where is she?

Robin Stanton? She's a doctor now. She's a surgeon and she's also a researcher. She's doing research right now back in Boston, at Harvard. She was an MD/Ph.D. student when I first met her. Of course, I didn't know that at the time. She's a very interesting person herself. When you first see her, how tall is she? She's maybe 5'2", 5'3", something like that. She's very—I won't say frail, but she's just very soft-spoken, very nice, very courteous. It takes a lot to get to know her. When I first met her, I just thought she was some other random medical student. I didn't really know much about her. We just kind of stumbled into a conversation on the bus. I sat next to her or something and I had seen her around. We started talking and I'm sure our first conversation didn't go much of anywhere. Then just kind of progressively I found out a little more about her. I ran into her again. There was about a year where I was always riding the bus and she was too, because she was actually a tutor up at one of the Harvard houses. So we would get into these conversations. They started becoming very interesting conversations, where we started talking about issues and things of that sort. Then that led

to me finding out more things about her, that she was an MD/Ph.D. student. It took a long time for me to find that out. Then I found out she was doing all this research and all this stuff.

I just thought she was one of the most impressive people I had ever met—just really nice, very genuine, and she's really bright. Then I think she saw that I was sort of interested. We started talking more about it. I sort of started thinking a little bit more, after I started doing this research, maybe I should think about doing a Ph.D. The thing about it was that if I did a Ph.D., I would be back at MIT and I just had a negative picture of that. People said, "Oh, you'll never get out." I was like, "Man, I don't really know if I should do it." There was a lot of trepidation. I don't want to be caught up in some place and have to be working on some degree for like eight or nine years or something crazy, you know. I just couldn't really fathom that, so I sort of set up myself not to do the Ph.D. Essentially I said, "If I don't get this, then I won't do the Ph.D. First thing, let me just apply to grad school. If I don't get in, then I'm not going to do it."

So I applied and got in. Then I said, "Okay, well, still I should think about it. I'll apply for this NIH funding, MSTP funding. If I don't get that, then I'm not going to do this because it doesn't make sense. It will cost too much." So then I got that. It came through and I was like, "Oh, man, it kind of looks like I should go." The decision was a hard one. So I said, "Well, I applied, and if these things didn't come through, I wouldn't go. But all these things have come through, so I probably should go in and do it."

So I decided to do it. Of course, it was chemical engineering. There was never any doubt about that. When I got back to take some classes the first year, of course, it was very enjoyable. My perspective was different when I went back because I had been exposed to a lot more. It wasn't enough to go and just bury myself in the books. At that point I felt like I needed to be doing other things. I needed to be involved. I needed to be helping with other students and building more of a community, because I had seen what the benefits of a strong community are. I felt like the potential for that was there because there were a lot of good people around. It was just kind of a matter of trying to string all those people together and put the pieces together. So when I got back, I just decided

I would get involved with the students and with the black community, the BGSA, and a couple other things.

Now, you had an advisor. Was it based on just the area that you had been into? I forgot his name, but the professor over in mechanical engineering?

Dewey?

Yes.

That was primarily based on the work he was doing, to tell you the truth, at the time. There was also a certain amount of luck involved. I've been fortunate in maybe having a certain amount of instincts and having a feel for who good people are, nice people outside of what they do. I also had heard from one or two people that he was a nice guy. When I went and talked to him the first few times, it was very official. It was, "Tell me about yourself;" and giving in my resumé, and all this kind of stuff. I told him, "I think I'm interested in working on a project here." As it turns out, I sort of realized that since I was coming with my own money and everything, he would have been crazy not to take me.

Once he looked at my transcript, it was "Sign him up." He was somewhat reserved. He said, "I'll look over your stuff;" and all this. Of course, he gets back to me. He says, "I think I'd be interested in bringing you on board. Why don't you come in and meet some of the students, if you're interested?" I think I told them I was still considering one or two places, because I was thinking about Langer's lab also. I was thinking about them. Plus, I was thinking that if I worked in Langer's lab, I still actually might be able to work on some other stuff. I was thinking that that would be cool to work in Langer's lab. But in all honesty, the type of problems they were working on in Langer's lab didn't fire me up as much. I could do it, but it wasn't stuff that really, really got me excited. I looked at the stuff that was going on in Dewey's lab and the stuff he was doing. That stuff was really exciting. I went around and I talked to some of the other students in his group and they were really nice people. One woman was from South America. She was from Venezuela and she was very nice. I spent a lot of time talking to her. This other guy from China was really nice. I got a good feeling from talking to these people. Then the project itself was very exciting, so I said, "Well, I think I'm going to go with that." I didn't feel one hundred

percent sure about it, by any means, but I said, “I think I’ll try it.”

And I got lucky. It was a wonderful project. I had a wonderful time doing it. It’s like anything. There were definitely certain points that were stressful points. It’s just like, “Geez, man, why did I choose to do this type of thing?” It’s never that bad, though. There were certain times which were stressful, mostly like when I had to take the qualifiers. Also, once I got towards thinking about finishing and trying to pull my committee together and make that work, that’s where it gets a little more stressful. Fortunately again, I feel that there were good people who really were not trying to in any sort of unnecessary way treat me differently. They pushed me a little bit on the project, and as a result I went on and solved a few more problems which turned it from just a good project into something that really worked out very well.

In layman’s terms, what was that project?

I was looking at endothelial cells, which are the cells that line the arteries, and how blood flow patterns might play a role in where plaque develops. Really what it’s focusing on is just how a force on the cell affects the cell. Blood flowing past it causes a force on the cell. So there’s this whole school of thought that that plays a significant role in where plaque starts to develop, which has found a basis in a variety of experimental models—animal models—and also in humans if you look at the distributions of where the disease starts. It usually forms where there are altered patterns of blood flow.

That wasn’t known, at least that well when we started it off, but there have been large developments in the field over the last ten years. A lot more is known now. But when I first started out, not really much was known. The foresight that Professor Dewey had was that there needed to be an understanding of the mechanics of the cell. If you put this force on the top, how does that affect the cell and what inside the cell is responsible for that happening? I started off looking at trying to get a sense of what the structure of the cell was and what sort of proteins are in the cell which might be altered when they’re exposed to flow; then just going on and pursuing that more and more and getting into the detailed structure of the cytoskeleton, which is the skeleton inside the cell, and actually coming up with how that behaves mechanically and how much the cell will distort if you put a force on it; and correlating that or try-

ing to find elements inside the cell which might be affected by this distortion, so you can predict where the response is coming from in the cell. Why do the cells have responses to this force on the top? What’s being distorted? Where is the distortion taking place?

What some people are doing now, following up on what I did, is studying the dynamics of the cytoskeleton inside the cell and how the cell sort of pushes around or how the cell controls the cytoskeleton. There are a couple of major schools of thought about the structure of endothelial cells and how they’re put together. I’m not going to get into details.

Confidential?

No not confidential, but just what will keep you awake.

Well, I get the point.

The cytoskeleton is made up of three different major types of proteins. One school of thought thinks that these proteins are strung together in one way and that one type of protein plays a huge role. Then another school of thought, which we have sort of fallen into, is that there’s another protein which plays a huge role. Science a lot of times is not completely objective. You sort of have to advocate your way of thinking.

I see, your way of thinking.

To some extent. Of course, I think we had a better look at the inside of the cell than anybody else and we kind of have more supporting evidence that the way that we think is probably the more truthful. What that has to do exactly with why a cell responds to forces the way that it does, I’m not completely sure yet. I have a few ideas. The wonderful thing about the whole thing, though, is that it has kind of led to some research that I’m trying to continue with now and that hopefully I will be able to follow up on. I don’t know how this project is going to work out, the one I’m starting out now, but I’m going to be kind of following up on what I did and looking at a different kind of cell and a different kind of system. A lot of the approach is the same. The details are going to work out differently.

If I hear you correctly, the experience in the Ph.D. program, including working with your advisor, was a very positive one. Is that right?

Oh, yes.

So you finished all that. Then, did you have an idea of what you would do next?

Yes, I had to finish medical school.

You had to go back.

I knew I was going to go back and do that.

Did you feel better about going back to do it after you finished the other?

Yes and no. Yes, in the sense that I knew what the appeal of medical school was to me. I knew that going and being able to treat a patient kind of gives you a good feeling. It's a very unique experience, the kinds of interactions you have with people. The way that you are able to help them is different from what you would get anywhere else, I would say, in any other profession, the way you get a similar type of feeling. But grad school had been such a good experience.

There aren't many folks I have talked to—in fact, I can't think of anybody I have talked to—who at your age have done as much as you've done.

You are gracious, as always. At any rate, grad school had been such a good experience. When I came out, again I got a lot of encouragement. My advisor and others—I ended up having three advisors—all said, "Leave. Just forget about this going back to med school stuff. Why do you want to waste your time with that? Go on and get an academic position. That's what you really should do." Truthfully, I know that there's probably some truth to that. When I look at the type of personality I have, the way I've been doing things, that's probably the most natural place for me to be, to tell you the truth.

I do well in medicine also. I'm not as natural a fit in surgery, to tell you the truth. Traditionally, you've got like all these jocks in it. A lot of them, they're able to do what they do, but they're not people you would characterize as being intellectuals. So it's not the most natural course for me to take. It's not the most obvious fit. If I was offered an engineering professorship somewhere, that would probably be a more natural fit. I know I'd be enjoying it a lot. It's always in the back of my mind when I'm dealing with some of the difficulties I have here. There's a huge contribution to be made as an engineering professor because there are not too many out there. I have a lot of buddies in grad school at MIT, a whole crew. So I knew there were positions opening up and all these kinds of things, but I stuck to what I

thought was where I should go and try. But I think I'm going to definitely get back to engineering at some point. I'm not sure when exactly, but it makes a lot of sense now.

Surgery is just not the type of profession now that a lot of people stay in for a lifetime. There are people who do it for a while. That's increasingly true now, but it used to be something where you did it all your life. You retired. Nowadays it's just because it's so much less of a secure profession, people tend to keep their eye on other things. The area that I've gotten into, orthopedic surgery, there's a close relationship between it and engineering. A lot of the developmental research is done by engineers. It's one of the few areas in medicine where there's sort of a natural marriage between the two. I'm going to follow up on that and I will certainly plan on being at some engineering school somewhere. I think that will be a lot of fun, you know, to teach that stuff.

So, actually, it appears that you will be able to use all of the skills that you are developing in both of those professions in a very unique way.

Yes.

I have two other questions and then we'll stop. If you had to put your hands on a critical situation that you have had to face or overcome—what we may call a critical point—at this point in your career, what would you say about that?

Well, probably the same thing that a lot of people would have to say—overcoming failure. In everything I've done, there have been setbacks. So just being able to figure out how to not give up and just keep going forward and how to overcome those things.

Can you give any examples?

There have always been times where I failed tests.

When was the last time you failed a test?

It hasn't happened in the areas which are my strongest areas. It has happened in other arenas. As you go along, you start venturing out and you start looking at other things. When I was in grad school, I basically decided I wanted to go to Africa. Basically, the best opportunity that I could find was going to French-speaking Africa. So I said, "All right, I've got to learn French." Language was not one of my strongest areas. I got into this French class. There are some people who are really good at it, who catch on really fast. Me, no. I really had to

struggle. All of a sudden, I'm put in this situation where I'm not where I'm used to being, I see these guys in these other classes, I'm looking at them like, "Okay, you wish I wasn't here." But now I'm in there and it's like they can run circles around me and I'm having to really struggle with this.

It was just having to get through that, situations like that. There were some other classes in medical school too, and it's just because I had this aversion to memorizing, I really had to be disciplined enough. I didn't do as well as I probably could have done if I motivated myself to do it. Taking the boards, that was just an exercise.

It's just memorization.

It's all memorization and I just had to really force myself to study. It's like, "Oh man, I don't know if I passed that." But I've managed to get by. I have the biggest board to do yet, to be certified as an orthopedic surgeon.

That will come up when?

That will come up after I finish. The year that you finish, you take your summer to prepare. That's going to be a big one. It's going to be a challenge. I'm going to have to work hard to do that. There are certain things where I should jump through the hoop and be okay. I have come to sort of deal with these other things where I know it's not my strong point. Part of that I attribute to sort of this sense of personal pride or whatever. I think part of it too, I had to go back to undergraduate to just learn the discipline—the academic discipline—even if it's something you don't really like. You go on and you stick it out and you do what you've got to do.

When you look back, pre-college days all the way to where you are now, who are the people who were most influential? You made some references earlier, but I want you to be more clear about it. For a person of your stature, I think it's very important how you see these things as you have come through your life.

Well, let's see. Who were my mentors and role models back in undergraduate school? The professors I admired the most, one was an organic chemistry professor I had. It was a white guy, but this guy was really on top of it. He was an excellent teacher. He was a great influence just from an academic standpoint. Of all the black professors I had—well, not all of them actually, I never really got to know them—there were two I liked a lot. One of them was Willard Johnson because he was

such an interesting person. He also was very good at what he does.

He's a good professor, a good teacher.

Yes. I took his class about international politics or international relations with a focus on Africa. Part of it is that that's an area that just holds a great interest for me, so it was great in that sense. But also, he was great in terms of being very rigorous about not letting you just get off with your whatever wacky political ideas and making you appreciate that there's actually an academic discipline—a structure, in fact—that forms the basis for this area of humanities. It's not just about talking off the top of your head or whatever your emotions might be. He's probably one of the few people who could make me appreciate that in that area. I had this other professor that gave some of the lectures. He was a white guy. We were talking about South Africa and some issues like that. He would just get me hot under the collar. I don't need to get into that, but he got me hot under the collar.

Then the other was this guy who's kind of a weird guy—Phil Phillips. You probably remember Phil Phillips.

I remember him very well.

He was kind of a weird guy, weird in the sense that he came up in Washington State or somewhere strange like that. He's not a person who solely associated with African Americans. He noticed me because I did very well in his class. I got to know him actually as a result of that. I sort of knew about a lot of what he went through when he attempted to get tenure. It was always interesting, because when I looked at him I always had conflicting feelings. I wanted him to get tenure. My overall sense was that I wanted him to get tenure because this guy's a black guy, he's young, etc., even though he's not as into the cultural background, etc. It's what people see him as, especially including the black students and other black faculty, etc. He's not as "black" as I wish he would be. I could have been wrong, but I thought that part of it was due to the fact that he had come up in such strange circumstances where he hadn't been around too many black people all his life.

Interestingly enough, in some of our discussions when it came up, I found it kind of curious—well, not really curious—that I guess I sort of understood, my understanding of it was better than his in those situations. It was like I'd be explaining

stuff to him. It was kind of funny in a certain way, but he listened to me. He actually did seem to listen to me and that did seem to affect how he was thinking about this. He actually accepted looking at things a little bit differently, or started looking at things in a little bit different of a way. That was a hard thing for anybody to deal with. Anybody black in this country has a hard time dealing with it. I think he started dealing with things in a little bit more of what I thought was a realistic way. I don't know where he is now.

He's doing quite well. He's at the University of Illinois and he is in fact being considered for a major honor in the AAAS because of the some of the major research he has done. That just happened this year.

He is an extremely bright guy. It's always great when you talk to people like that, especially somebody black. That was just great. It was inspirational just seeing him there and teaching the types of classes he did. Those were some of the hardest ones, just because the subject material was hard. He didn't have to make it hard.

It was just hard in itself. I couldn't agree with you more. I got to know him on a personal level somewhat over the years he was there, in particular that latter part. I think much of what you're saying is absolutely true. I found him just simply not knowing a lot. In many cases, people in the black community did not like him because of what they saw from the outside. But he really in many cases didn't know he offended people. I think it is because of the general opinion. I think he made mistakes that typically he didn't understand.

His style was just unconventional.

Absolutely.

They would have done very well to have him. It really angered me when he didn't get tenure. Come on, you're not going to find anybody brighter. He's doing exciting research, cutting edge. There was nobody, I couldn't think of anybody better. Well, there's a couple of people in the chemistry department there doing work of similar caliber, but not many. I mean, he was really amazing.

Do you know that department actually split?

The politics of it.

From everything I could gather, particularly the people who actually supported him were people who were the judge.

I actually remember the ones who didn't support him. Yes, politics. I was going to say it was a lesson

that I saw in that also for myself, and I don't know if I'm going to escape it. I'm not unconventional up here, but relatively speaking in any area that I'm in, I probably am as unconventional as he is. I've spent a lot of time making people more comfortable with me. It's just that if I don't do that, there are huge prices to be paid. It's one of the pains, I would say, of having chosen to do what I do, simply because people look at you and they don't know what to make of you. They see you coming and you don't look like them and yet there's all these other things that I bring, so it's trying to come to some sort of rationalization of how I should be part of whatever your network or club or whatever is. They always think that I have some sort of other agenda or something that I'm trying to do.

I know that there are other people who have come before me who bring all the same things. When we were talking earlier about Dr. Augustus White and a lot of what he's gone through, I wonder if that's where things are going to go for me eventually. One thing that I've sort of decided out of all this is that I think the important thing to do is to try to make things better for other people. I'm not sure how much sacrifice that's going to take, but I think that's the thing to do so that the next guy who comes along is not going to have to face that kind of situation.

Well, I'm sure you'll do well. People like you are trailblazers. That's just the nature of who you are. You bring out the worst in all the people simply because of the fact that they don't know what to do with you. When they look at you in all dimensions, they can't touch it, so you become a real target. It's a tough road.

Another role model was someone who didn't have anything to do with MIT or Harvard, a minister. Wonderful guy. He basically spent a lot of time learning about religions, and he knows a lot of the black history of the church. He also just knows a lot about spiritual questions, questions of faith and all this kind of thing. He's just a great wise guy to talk to. I became friends with him when I was there just going to his church and stuff.

There are other students I think were wonderful. A lot of the black students I met at MIT and at Harvard are colleagues. A couple of other guys were ahead of me. They've got a couple of black faculty there, Emory Brown, an anesthesia professor: he ran the MD/Ph.D. program. He was an eccentric guy, kind of like Phil Phillips—eccen-

tric, but really an extremely bright guy. Of course, my advisors I thought were wonderful role models. They were cool—wonderful role models, great people, a lot of integrity, more so than a lot of other people I've seen. Integrity is not only in your personal life but in your profession, actually being straight with things.

I don't want to embarrass you, but you were also one of those people who was a role model for me too. I think I speak for a lot of people. We always saw you as being somebody who helped keep people grounded and not lose sight of what the important things are. You called me up and I was like, "Geez, I'm honored." You said, "Can you come over?" I was like, "Are you kidding me?"

Well, I appreciate the compliment.