CHEMICAL HERITAGE FOUNDATION

JENNIE R. PATRICK

Transcript of an Interview
Conducted by

Jeannette E. Brown

at

Atlanta, Georgia

on

30 March 2006

(With Subsequent Corrections and Additions)

CHEMICAL HERITAGE FOUNDATION
Oral History Program
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Chemical Heritage Foundation
Oral History Program
315 Chestnut Street
Philadelphia, Pennsylvania 19106

JENNIE R. PATRICK

1949 Born in Gadsden, Alabama on 1 January

Education

1973 B.S., University of California, Berkeley, Chemical Engineering
1979 Sc.D., Massachusetts Institute of Technology, Chemical Engineering

Professional Experience

General Electric, Schenectady, New York
1979-1983 Research Engineer, Research and Development

Rensselaer Polytechnic Institute, Troy, New York
1982-1985 Adjunct Professor, Chemical Engineering

Georgia Institute of Technology, Atlanta, Georgia
1983-1987 Adjunct Professor, Chemical Engineering

Phillip Morris, Richmond, Virginia
1983-1985 Project Manager, Research Center

Rohm & Haas, Bristol, Pennsylvania
1985-1990 Manager of Fundamental Chemical Engineering Research

Southern Company Services, Birmingham, Alabama
1990-1993 Assistant Executive Vice President

Tuskegee University, Tuskegee, Alabama
1993-1997 3M Eminent Scholar and Professor of Chemical Engineering

1997-2000 Raytheon Engineers and Constructors, Birmingham, Alabama

Environmental Wellness Institute, Atlanta, Georgia
2000-present Founder

Honors

1979 First African-American woman in U.S. to earn a doctorate in Traditional

	Chemical Engineering
1980	National Organization for the Professional Advancement of Black Chemists and Chemical Engineers Outstanding Women in Science and Engineering Award
1983	Served as Principle in Ciba-Geigy Exceptional Black Scientists Poster Program
1984	Honorary Doctor of Science from Tuskegee University
1987	Presidential Citation from the National Association for Equal Opportunity in Higher Education
1989	The World Who's Who of Women
1990	Dictionary for International Biography
1994-1995	Teacher of the Year, Chemical Engineering, Tuskegee University
1996	Who's Who among America's Teachers/Who's Who in the World/Who's Who of American Women
2000	Williams W. Grimes Award, American Institute of Chemical Engineers

ABSTRACT

Jennie R. Patrick grew up in Gadsden, a small, typically Southern, town in Alabama, the fourth of five children. Her parents were laborers whose formal education stopped in junior high school. As a child, she had no real experience of science, except that she was a curious child who always wanted to know how and why things worked. By junior high school she had decided she wanted to be a chemist. Her high school years involved forcible integration, and she was one of only eleven black students, of whom half left the white school before graduation. Jennie, however, was determined to succeed and to get the best education she could.

Patrick's mother vetoed her scholarship to University of California, Berkeley, her dream school, so Patrick entered Tuskegee Institute. She later transferred to Berkeley, where, as the only black and only American woman in chemical engineering, she continued to suffer racism. She excelled anyway and decided to go to Massachusetts Institute of Technology (MIT) for her ScD. There she found more black students and professors, including John Turner, who was a dean of students, and less hostility. She also found a tough and challenging atmosphere that she loved. Her advisor was Robert C. Reid, and her thesis topic dealt with nucleation phenomena.

Patrick's first job was as research engineer at General Electric Research Center. Next, she became project manager at Philip Morris, working on supercritical extraction. Then she spent five years as research manager at Rohm and Haas Chemical Company in Philadelphia. She moved back south to Birmingham, Alabama, as Assistant Executive Vice President at Southern Company Services, working on increasing the efficiency of technology. She made this career change in part to enable her to care for her aging parents. She then was 3M Eminent Scholar at Tuskegee University for three years. While there she developed a mentoring program for girls in science. Five years ago, she retired from her last job, which was as technical consultant at Raytheon in Birmingham, Alabama, where she studied the education of urban children.

Near the end of the interview, Patrick reflects on people who played an important role in her early education, particularly remembers Anthony Knowledges, her fifth-grade teacher, and Pinkie Bridges, her sixth-grade home room teacher. Harry Morrison at Berkeley also encouraged her and helped her get a scholarship. Patrick's entire career was in industry, but always she was always associated with a university. She found balancing her demanding career with her personal life difficult but rewarding. She is now married to her best friend. Patrick believes that her most important contribution is her work on supercritical extraction, which formed the basis for subsequent research, though being in industry did not afford her to publish many articles. When asked what she would tell aspiring chemical engineers she advises them to persevere but to be careful of their health; chemicals are dangerous. She also advises youngsters to learn from their predecessors.

INTERVIEWER

Jeannette E. Brown has a research MS degree from the University of Minnesota and a BS degree in the Field of Chemistry from Hunter College. She started her industrial career at CIBA Pharmaceutical Co. as a junior chemist, working there for eleven years, and she held the position of Research Chemist at Merck & Co. Inc. for twenty-five years. Brown is a former

Faculty Associate in the department of Pre-College Programs at the New Jersey Institute of Technology, holding the title of New Jersey Statewide Systemic Initiative (NJSSI) Regional Director. She was appointed to the National Science Foundation Committee on Equal Opportunities for Women Minorities and Persons with Disabilities (CEOSE) and served on that committee for six years. She is the 2005 recipient of the American Chemical Society Dreyfus Award for mentoring minorities in science and she is currently working on a book about the history of African-American women chemists.

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INTERVIEWER: **Jeannette E. Brown**

LOCATION: **Atlanta, Georgia**

DATE: **30 March 2006**

BROWN: Jennie Patrick, 30 March 2006, in Atlanta, Georgia. Okay. Good afternoon, Miss Patrick.

PATRICK: [Hello]. Good afternoon.

BROWN: Please describe your family background.

PATRICK: […] I'm the fourth of five children, and I'm from a close-knit, loving home environment. I have two sisters, and two brothers, both parents are deceased. [Do] you want me to [expand upon this]?

BROWN: Oh, yeah. What, what were the occupations of your parents and their education?

PATRICK: My parents were both laborers. They had very little formal education. My father and mother probably did not have more than middle school education.

BROWN: What kind of community did you grow up in?

PATRICK: I grew up in a somewhat rural environment. I grew up in a small town in Alabama by the name of Gadsden, [Alabama].

BROWN: Oh, describe Gadsden.

PATRICK: Gadsden, when I grew up, was about a forty thousand people little town. Quite rural, very slow, just a typical southern town.

BROWN: And what did people do in Gadsden?

PATRICK: Gadsden, Alabama had very little industry. The two major industries there were the Goodyear [Tire and] Rubber Company, and the [Republic] Steel [Corporation] plant. [Also, there were] a couple of medium size hospitals. [It was] just a typical, small southern town.

BROWN: Okay. What were your early experiences with science?

PATRICK: Other than the fact that I was a curious child, I did not…I cannot say I had a lot of early experiences with science. My basic personality made me very curious. [I] just wanted to understand why things were, and how things operated. Living in a rural setting allowed me to be very close to nature. The wonders of nature seemed to have fueled my desire even more so, to understand why things happened in a certain way. I realized very early in life that science would probably provide some of [the] answers to my many questions.

BROWN: How did you know about science? I mean, you were in a rural town in Alabama. How did the word "science" come up?

PATRICK: Well, as early as elementary school, I knew I wanted to be involved in science somehow. Perhaps I did not totally understand the concept of what science was, but I knew that it offered many interesting and fascinating explanations to things that I did not understand. I had a science teacher that I found very interesting. And so, early on I thought I wanted to be a science teacher. I really enjoyed the educational challenges of my science classes. Such classes were fun to me, because I could better understand how things functioned. By the time I was in junior high school, I had decided I wanted to be a chemist.

BROWN: How did you know about chemistry in junior high?

PATRICK: Well, in junior high, I took science classes that had some chemical element to it as well as biological element, and so, of course, we did the typical dissecting of a frog or something of that sort. We had the little small sets that they would often distribute to schools—the chemistry sets—and so we got some exposure through things of that sort.

BROWN: Tell me about school, because you grew up in the South there. What year are we talking about?

PATRICK: What year? [Let] me think really hard.

BROWN: Wasn't there segregation? Were your schools segregated?

PATRICK: Yes. I grew up in segregated schools. I think I started elementary school in [1955] <**T: 05 min**>, if I'm not mistaken. The schools were integrated in 1964, I think, in the South. Up to the ninth grade, I attended totally segregated schools. The first year of integration, I attended a previously all white school called Gadsden [City] High [School]. It was the best public high school in the city. In [a] sense […] even within the normal school system, there was a sense of social segregation among the whites, where the more wealthy kids went to one white high school, and the more poor kids went to another school. And so, once the integration came about, I selected the better white high school.

BROWN: Did you have any problems?

PATRICK: Gadsden High [for] the first year, [and] the first days of integration was just really beyond most people's comprehension. We were greeted by huge, angry mobs—parents. The first day of the school session, I recall going to school with two husky young black men, and both of them were literally shaking. The mobs were…as I said, they were angry, very, very vocal, and very, very brutal in the things that they said. We were protected by state troopers and police officers who looked at us as if they wished they could hang us themselves.

BROWN: Oh, my gosh.

PATRICK: For me, I was not frightened, but it was a very striking thing to see the anger, […] as we walked past the mob to enter the school. I recall very vividly to this day an incident […] where this student that was with me, began to cry and shake. And I said to him, "What's wrong?" And he said, "I'm afraid." And I said, "Well, you can't be afraid because the mob will understand that you're afraid and they will become even more vocal. So, you move to the inside, and allow me to walk outside near the mob." And that was what I did. I walked closer to the mob, and just looked at them and looked into their faces. Interesting enough, many of them seemed you know, really shocked that they didn't see fear in me. Because at that point, I didn't feel any fear. I had made a decision, and the decision was to do something that I thought was important and I was willing to die for that decision.

BROWN: Oh, wow. That took courage to go to school like that.

PATRICK: Yes. That was just the beginning; […] the school that we integrated had fifteen hundred white students, and there were eleven black kids. The first effort to organize blacks to go to the school…it was very difficult to get them to agree to attend. I was the first black kid to sign up to integrate the school. My mother, in particular, was extremely upset about it, because the [Ku Klux] Klan had promised to kill any black kid [and] the families of that kid who integrated the [schools].

BROWN: Not only you, but the family?

PATRICK: Yes. […] My father had said that if it was something that I wanted to do, that he would support me and [would] help…try to help protect me. But the interesting thing was once we entered the schools and the classes started, there was an enormous amount of violence against the eleven black students that integrated the [school]. And so, you had to be not only mentally and emotionally very strong, but you had to be willing to protect yourself.

BROWN: How did you study chemistry in an atmosphere like that?

PATRICK: Well, I went to the school with one notion, and that was to get the best education that I could possibly get. And I've always had the mental and emotional strength to be focused. And so, it was irrelevant to me whether or not they wanted me there or not. I [stayed] focused on my purpose, and that was to excel and that was what I <**T: 10 min**> did. I excelled while in that environment. At the same time, I was more than willing to physically protect myself. I did whatever was necessary […] to make it clear that if you approached me in a violent way, you will receive the same violence that you deliver.

BROWN: What kind of courses did they have? Did they have AP [advanced placement], or regular or…what did you study in high school?

PATRICK: Well, I studied college prep courses. I'm sure the labeling of those courses are very different from today's labeling of children's curriculum and their courses. But I took the most challenging courses that the school had to offer. As I said, my purpose was to go there and get the very best of education that I could get. I took all of their chemistry, the physics courses, and as much math as was available at the school.

BROWN: So, who helped you? Did you have any mentors there in school? How did you decide on going to college with the…

PATRICK: No. It was a very interesting experience. What I'd like to share with you is that at the end of the first semester, the environment was so violent that many of the black kids…about half of them had dropped out by the end of the first semester. The kids were at times beaten to the point of hospitalization. Harassed. So, it's very difficult when you're trying to focus on learning and at the same time focus on not getting killed or hurt. And so, at the end of that first semester there were about five or six of us left, and half of us were, you know, young women, usually petite. [We were] the ones that were left. [We were] also very physically oriented, very willing to fight and stand our own grounds and protect our well-being. I can't remember what was the focus of this [question]?

BROWN: Mentoring and did you have anybody…

PATRICK: Well, the teachers did not want you there. The students, for the most part, did not want you there. And the counselors of course, did not expect you to excel, and did not want you to excel. [They] did not expect you [to] and did not want you to go to college, so there was nothing there within that environment that nurtured you as a young black kid. However, from the black high school that I had gone to earlier—it really was a [combination] middle school, I guess junior high school in the terms that I knew as a youngster. I had a couple of black teachers who were very, very supportive. [They were] very, very loving to always encourage me to continue what I was doing there and supported me in any way that they could. You know, if I needed a question answered, I could feel free to call one of them to see if he had any idea of the best way to approach […] a particular challenge [or] technical problem.

BROWN: Oh, okay. That's good. So, even though you were at the white school, you still had black mentors to help you.

PATRICK: Yes.

BROWN: Well who, who advised you to go to college? How did you decide what college to go to? You were in Alabama…

PATRICK: Well, no [one]. I had always dreamed to go to [University of California] Berkeley. I looked at a number of black institutions, but my heart was set on Berkeley. Out of high school, I had a scholarship to Berkeley, but my mother in particular, was very much against her young daughter leaving Alabama and going all the way to Berkeley, California to attend college. She did not allow that and so I lost the scholarship. I had also a scholarship to Tuskegee Institute which is now known as Tuskegee University. So, I ended up at Tuskegee for the first few years of my education.

BROWN: And then…?

PATRICK: Then I transferred to Berkeley. I started out at Tuskegee majoring <**T: 15 min**> in chemistry as a freshman, and by the end of that freshman year, they were starting to open up the chemical engineering department. […] I was the first person to sign up to major in chemical engineering. [This was] a very interesting and sort of heart-breaking situation, because the head of the chemical engineering department was a white southern male who did not believe that a young black woman should be majoring in chemical engineering, so he was very, very upset with me, and very [nasty to me].

BROWN: This is in a black school?

PATRICK: In a black school.

BROWN: Wonderful.

PATRICK: […] So I transferred to Berkeley, and finished a B.S. in chemical engineering at UC [University of California] Berkeley, and then moved on to MIT [Massachusetts Institute of Technology] to do [graduate studies].

BROWN: Wait a minute. Did you have any problems at Berkeley?

PATRICK: Well, yeah. Berkeley was an interesting environment as well. There were very, very few blacks in engineering there at that time. In the chemical engineering department, I was the only American female undergraduate. There were two Asian female undergraduates in chemical engineering. There were no black male undergraduates. And I had been told by one of the faculty members at that time that they had not had a black male or a black person, period, in ten years. So, it was [a] very [difficult and racist situation].

BROWN: In ten years? Ten years at the school or ten years at engineering?

PATRICK: […] Ten years for [the chemical engineering] department. They had not had a black come through there as an undergraduate in ten years.

BROWN: Wow. And so you were a pioneer at Berkeley.

PATRICK: Yes, I was a pioneer. I had gone to Berkeley because during that time you would hear a lot about demonstrations and everything at Berkeley, [so] you thought of it as a liberal school. But that liberalism was clearly not in the engineering department or the sciences. It was probably in the liberal arts, because I faced quite a bit of intense racism as a student there, as well as very, very intense sexism. Now, I felt it was not a very pleasant environment. It was indeed extremely challenging.

I've often told the story of a math professor, [of how he related] when I entered his class the first day to register for the course. We used to have those old computer cards [for registration]. The professor would pass out these cards, and you would take them as part of your registration package. He gave every student in the class a card, except me. He passed by me. I asked him you know, "Please give me a card." And he said, "You're clearly in the wrong classroom." And I said, "No. I have signed up for this course." He repeated again, and he said, "I said you are clearly in the wrong classroom." And walked by me again, and I said, "I asked you for a card." And then, at that point, I hit my fist on the desk, and I said, "Give me my computer card."

BROWN: Oh, wow. Oh, my God. Welcome to Berkeley. Well, you managed to get through, I guess.

PATRICK: Yes. I realized that I needed to be particularly conscientious dealing with someone who had that intense negative kind of response, so I went to a Ph.D. student who was a […] physicist. I think…at the time [he was] doing a Ph.D. in physics. He was an African fellow from West Africa. I asked him if [he was] willing to be a tutor for me to make certain that I was always ahead of my class work. He agreed to do that, and did as much as he could. So, one of the most mind-boggling kinds of things that happened to me in this class was that for the first month when the professor would walk into the classroom, he would spit on the floor in front of me. He was so angry that I was in his class.

[…] I knew a student from chemical engineering, a young Asian guy [in the class]. <**T: 20 min**> And he said to me, "Jennie, don't look at me. Don't speak to me in this class. I don't want to be associated with you, because I don't want the professor doing to me, what he's doing to you." And I said, "I understand." And so, [for] the first exam of course, I was more than prepared and I did very well on the exam. So, when the professor came into the room…well, let me go back. On the […] day of the exam the professor normally would come into the classroom [and] pass out the exam. And of course, [he] normally stays at the head of the room to observe students. But the […] day of our [first] exam instead of situating himself at the front of the classroom, the professor came to *my* table where I was sitting to take my exam. [He puts] his elbows on the table, [puts] his hand [to] his chin, and stared at me. I guess […] the whole point

[was to make me] so nervous that I would not perform on the exam. And as I said, I've always been a very focused, very determined, and strong person. So, I looked at him, and looked up and I said a rather foul word and looked back at him. [I] focused on excelling on the exam, which I did. […] The day that the exams were returned, the professor came into the classroom [and] he did not spit on the floor. He spoke to me by name.

BROWN: Whoa. You turned him around.

PATRICK: Well, I won't say I turned him around […]. People with that mindset [are difficult to change]. He was obviously shocked with my performance. And so, the young Asian boy said to me, "Well, Jennie, you must have done very well on the exam." And I said, "Yes, I did." But that is very, very sad [because] many people, first of all, would not have had the mental determination or the emotional strength to be focused when a professor is sitting less than a foot and a half from your face, staring at your face with a frown on his face while you're trying to take an exam. So, that's really, really sad. And of course, I got through the course. I deserved [an A] in the course, [but] the professor cheated and gave me a B+. When I went to him to confront him about it, his response to me was, "You people…you normally can't do math. I don't understand why you're upset that you got a B+." I said, "The fact is, I'm not upset that I got a B+. I'm upset because I earned an A, and you gave me a B+."

So, Berkeley, to put it mildly, was a very challenging environment. And after graduating from Berkeley, I moved forward to do a Ph.D. at MIT. MIT was a much different type of environment, because it was a technical school. People [at MIT] were accustomed to seeing black scientists and black engineers, black people doing math and science, and technical things. So, it was not as intensely hostile as Berkeley had been. So that was enormously relieving for me, and refreshing. But in addition to that, MIT had, by my standard a lot of black students in engineering and science.

BROWN: What year were you at MIT?

PATRICK: I arrived at MIT in 1973.

BROWN: Okay. What was the dean? Was Shirley [Mathis McBay] dean, then?

PATRICK: No.

BROWN: Okay.

PATRICK: She did not arrive to MIT until the late 1970s.

BROWN: Okay.

PATRICK: It was a fellow by the name of [Dr.] John Turner. [He] was a young black man who was a dean in the graduate school.

BROWN: But MIT was more…Boston [Massachusetts] area…

PATRICK: Yes. Boston is a very conservative area. MIT on the other hand…it's conservative, but the technical demands [or] the academic demands <**T: 25 min**> and the kinds of students that you have there, everybody is into their own thing. MIT is really a pressure cooker. And so, here you have a collection of students from all over the world, who are some of the brightest and the most gifted students. So, for me it was just a refreshing environment. Even though, it was academically very, very demanding and very, very challenging, I enjoy it. You know, I simply enjoyed it, and just did my work. […] I worked seven days a week.

BROWN: What was your thesis on? Chemical engineering?

PATRICK: I did my thesis on the nucleation phenomena.

[recording pasued]

BROWN: …at MIT.

PATRICK: MIT was a really nice atmosphere in terms of educational challenges, and just having the opportunity to interact with people who were some of the sharpest people that you'll ever find. And so, I really enjoyed the experience. It was enormously demanding in terms of time, energy, and emotional strength, but I enjoyed it.

BROWN: Why did you decide to go to graduate school anyway? Engineers - usually you don't have to.

PATRICK: No, you usually don't have to, but I always wanted the highest education possible. I just felt like I would not have completed the process without doing so, without getting the Ph.D.

BROWN: You had a fellowship or something?

PATRICK: Yes. Actually, all of my education…as I said, my parents were not highly educated and therefore, definitely didn't have the financial means to send me to these institutions. So, at every step of the way of my educational process, I was on […] some type of scholarship or fellowship.

BROWN: We were talking about your research focus, and why you chose that.

PATRICK: My research focus was on homogeneous nucleation. It was not so much that I chose the focus…it was in the area of thermodynamics. The advisor that I had…his specialty was thermodynamics. Thermodynamics is one of the more challenging areas of engineering, period, because it's the foundation [of] understanding energy and how things happen and how, and what makes [things] work. I just, again, always have enjoyed [the] challenge of understanding and just really enjoyed the research, because of that.

BROWN: Who was your thesis advisor?

PATRICK: My thesis advisor's name was Robert [C.] Reid, and he was worldwide known as a thermodynamicist, and had written a couple of books at that time.[1]

BROWN: Were you his first African-American student?

PATRICK: I think so. You know, I can't say precisely that's the case, but from all indications, I probably was his first African-American student. He informed me later, after I finished my Ph.D. that I would become the first African-American female to earn a Ph.D. in chemical engineering. So, he was, I guess, one of the grandfathers, you may say, of the area of chemical engineering and knew the history of what had taken place in chemical engineering.

[1] Robert C. Reid, John M. Prausnitz, Bruce E. Poling, *The Properties of Gases and Liquids*, McGraw-Hill Chemical Engineering Series (New York: McGraw-Hill, 1977); Michael Modell and Robert C. Reid, *Thermodynamics and Its Applications* (New York: Prentice-Hall, 1983).

And on that point, I would like to clear up for history's sake something that happened later. As I got notoriety for having the title of the first African-American to earn a Ph.D. in chemical engineering, another black female [Dr. Lilia A. Abron] came forward and said that she was the first African-American to earn a Ph.D. in chemical engineering. Well, the fact of the matter is that this woman had not been trained as a chemical engineer. Her actual educational background is civil engineering. Her advisor died [or left] at the latter stages of her thesis work. The university tried to find someone who had a similar area of expertise and that person happened to be a faculty member in chemical engineering, who then supervised her thesis work to the completion of it. For whatever reason, the university, <**T: 30 min**> even though she had [not] taken [courses] in chemical engineering, actually, I'm told, I cannot say this for a fact, titled her degree chemical engineering. She was not allowed to teach chemical engineering as a chemical engineer because she did not have the technical background as a chemical engineer.

BROWN: Okay. Oh, that clears that up, because I've been looking at that. What prompted your…what happened to you next? You've got a Ph.D. What did you do?

PATRICK: I went to work at General Electric Research Center in Schenectady, New York. It was my first job.

[END OF AUDIO, FILE 1.1]

PATRICK: [General Electric] and IBM at that time [employed] some of the finest researchers in the world. [General Electric was] one of the best research facilities that you could ever imagine being a part of. I just really enjoyed it. [It was], again, a very elite group of highly trained, selected engineers and chemists operating in that environment.

BROWN: You chose…but with a Ph.D. you could have gone to an academic…

PATRICK: At that time, I was not thinking in terms of academics. I had basically only interviewed big corporations, because those were the people who were coming after me, to consider them. [I] just had not really thought about academics at that point.

BROWN: So, I think we've answered the next question. You brought your experiences being different in graduate school, because you were an African-American woman. I think we covered that.

PATRICK: Yes.

BROWN: Anything you want to add?

PATRICK: Well, you know, I would say, yes, my experiences were different. And you know, I think the biggest thing is that oftentimes people are shocked when they see an African-American female, in particular, doing technical things. So, oftentimes, they're skeptical of you or find it hard to believe that you're actually capable of doing the work. […] That's one of the biggest challenges that you face.

BROWN: You started at General Electric. What else…what was your career path?

PATRICK: I left General Electric and went to Philip Morris Research Center in Richmond, Virginia, and worked on an extraction process that was really the state of the art, supercritical extraction. [I] was one of the few people who had a background [in the area] at that time in the country. Supercritical extraction is the technology that allows you to separate products using, you know, substances like carbon dioxide and supercritical water, therefore eliminating the need to use harsh hydrocarbons that are carcinogenic and become a part of the substance or the food product that you're trying to extract […].

BROWN: Well, I never think of Philip Morris as a food producer, but they are.

PATRICK: Yes. Well, at the time I went to Philip Morris, I worked on [their] tobacco products. [I] used the technology to extract the flavors and essence from tobacco. It was also the technology to be used to impregnate tobacco with high quality flavors and essence.

BROWN: Where else?

PATRICK: From Philip Morris I moved to Rohm & Haas Chemical Company in Bristol, Pennsylvania, which is headquartered in Philadelphia, [Pennsylvania. I] worked there for five years. [I] was a research manager there [for] a group of young engineers and scientists […]. We really [were] the brain power for making sure that their plants ran well, making sure that we developed new technology in terms of process technologies for their facilities. From Rohm & Haas, I moved on to Birmingham, Alabama and worked for Southern Company Services, which was, again, another research wing. There I [worked] in the capacity of a manager that looked at more…the operations of things and […] how to make things more efficient in terms of what the company did [and] in terms of its technological approaches. From Birmingham, Southern Company Services, I moved on to become an Endowed Chair Professor at Tuskegee University.

It was the 3M Eminent Scholar Program with [Tuskegee University and] the state of Alabama. I stayed there and taught for three years. [I] lived on the campus, developed [a] program for young black women. […] I lived in a dorm with honor students that I selected [individually]. I had about thirty-eight girls that lived in this facility with me. I basically was their mentor. [One] purpose of my staying with them was to give them the exposure to someone mature. <**T: 05 min**> [I wanted] to help, hopefully […] give them an upper hand on understanding what the real world was like and what they needed to do in terms of personal development to excel in that world. [This program] was something that I really enjoyed during those three years.

After I left Tuskegee, I moved back to Birmingham. Actually, my home place was in Birmingham, the whole time. [I took] a job at Raytheon Engineers and Constructors. [I] served as a technical consultant, as well as someone grounded in the community, working with other corporations on community affairs. [I worked] with the schools there in Birmingham, looking at the educational process of urban children.

BROWN: You kept moving around from one place to another, was that just because of career advancement or…?

PATRICK: Well, it was a combination. Some was for career advancement. Some was for personal reasons—for family reasons. I needed to deal with family issues. The move to Birmingham was really to take care of my aging and elderly…my ailing and elderly parents.

BROWN: They were in Birmingham then?

PATRICK: My parents lived in my hometown Gadsden, which was about an hour away from Birmingham. So, the purpose was to have them come and live with me. [I was] close enough to their home house so that I could give them [the] enjoyment of being able to go back and forth to their home their last years.

BROWN: Considering you were talking about lots of people who helped you on your way, mentors, did you have any mentors that you'd like to…what role they played?

PATRICK: Well, I didn't have a lot of mentors. Some of my first mentors were probably my [teachers]; the most important ones, [were] during my elementary school days. My fifth grade teacher, who was a man named Mr. Knowledges, Mr. Anthony Knowledges, that I adore. [He] started teaching me math on his own accord, that was at a much higher level than a fifth grade student. My sixth grade home room teacher was named Mrs. Pinkie Bridges and she was the epitome of sophistication and womanhood, [She] was very, very inspirational to me, always made me believe that I could achieve anything that I wanted. And I just loved her and enjoyed

being in her classroom. [I] loved looking at her, and hoping one day that I could be just as much […] of a lady as she was.

BROWN: So, no mentors in your adult life?

PATRICK: Very few mentors in my adult life. While I was a student at Berkeley, there was a professor, a young black physicist, theoretical physicist, […] by the name of [Dr.] Harry [L.] Morrison, [who] I took a class from […]. He took interest in me. I was struggling at the time financially at Berkeley. […] When I transferred to Berkeley, initially they would not give me any financial support because that was their policy. He took it upon himself, to go forward to the administration and demand that they help me. […] His comments were that I was a worthy student, and that it did not make sense to have me there, struggling to eat, and to house myself.

BROWN: And so they did…Berkeley?

PATRICK: Yes, they did. They gave me a grant, [which] took off an enormous amount of pressure.

BROWN: Well, that's great.

PATRICK: Yes. But, other than those few people, I've just never been fortunate enough to be in an [educational] environment, [or] my work environment [in which I] had someone that I felt truly had my best interests at heart and wanted to help me to achieve what I was really intellectually capable of achieving. In fact, it usually was the opposite, for the most part. I found myself in environments where people wanted to use my intellect <**T: 10 min**> and not give me credit for that usage.

BROWN: You were mostly in industrial environments, is that [true]?

PATRICK: Yes. Research [industrial] environments, yes. Even though I worked in industry most of my career, I always had some type of association with a university, as an adjunct professor. I would always try to support [selected] research projects. [I was] involved in […] some student's research program providing monies for research on a master level or Ph.D. level for a student.

BROWN: Okay. Students always want to know about how you balance your work and your family. They all say well, how can you be a chemist and be involved with, have a family? Tell me…

PATRICK: Well, you know, at this point, in 2006, I am no longer working, and I have not worked for five years, because I became physically disabled. But while I worked, I found it very, very demanding to balance the challenges and demands that work required versus family. I've always valued my family more than anything else, so if something had to be put on a back burner momentarily, it was my career or the work situation.

I, you know, moved to Birmingham, Alabama right after a promotion at […] Rohm & Haas, because I felt I had a responsibility to make sure that my parents had the best medical or the best care, physical care, possible in their old age, and so that was a personal sacrifice that I made, and [I] would have done it again. I thought it was important to be able to look outward, rather than inward, and [not always place] myself first.

BROWN: What about marriage?

PATRICK: Marriage. I've never had a problem in my personal life. I've always had, a significant other in my life. I'm married to my very best friend today, and he is just a wonderful human being. Just a wonderful person to have in my life, and I feel very blessed. And so, oftentimes, they stereotype women in terms of being a scientist or an engineer that you will have no personal life. But fortunately, for me, that has never been a situation or a real concern that I've ever had. I've always had as much social life as I desired.

BROWN: That'd work. Okay. What do you think is your most important contribution to the field of science? You talked about when you were at Tuskegee, working with the girls, is there something else that you think…

PATRICK: You know, I guess it would be difficult for me to, at this stage, to say something was that significant. I did some very interesting things as a researcher in the area of supercritical extraction. I was a pioneer in the area. I think that [my] initial work opened doors for a lot of other investigators, scientific investigators to come forth and use that information. [They used] it as a stepping [stone] and [improved] the technology that was there.

BROWN: Do you have a lot of publications?

PATRICK: No, I do not have a […] lot of publications. One of the interesting things in industry is that oftentimes, a researcher is […] caught in a situation where your intellect has in many ways been abused. What I mean by that is that, these companies have the legal rights [to] your ideas. [They] belong to them. And there's always a lot of politics involved. Therefore, depending on who you are, even though your idea may be revolutionary, they may choose to <**T: 15 min**> take that idea, and shelve it. You will never be able, as an individual, to publicize that information or use it. They [can] make the decision never to give you recognition for that work.

And so, many of the projects that I worked on, they have not allowed me to publish the information. They did not move forward granting patents. So after a point, you start realizing, well, maybe it's, sort of, fruitless to give all this information to a corporation. So, it's a very tricky situation to be in, and it takes some balancing, because you have to be productive. At the same time, you recognize that productivity is not necessarily always used in the wisest fashion.

BROWN: Okay. We're almost through. Now this tape will be used to mentor young women or women who might be interested in becoming a chemical engineer. Do you have anything else you would like to say?

PATRICK: Well, yes. I would like to say that I think it's important that young people follow their dreams, but I think it's also important that young people be told the truth. And sometimes, the field that one selects can be potentially very detrimental to your health and your lifespan. I would simply like to make young people become more aware that fields like chemistry, and chemical engineering, and even some biological research areas, the computer industry, [and] the [manufacture of] computers using […] vapor deposition technology, these areas are [filled with] a lot of job hazards. Oftentimes, corporations are not straight, forthcoming in telling you and making absolutely sure that you understand the toll that some of the activities that are required of you may have on your body.

I have not worked for five years, as I said earlier, because I'm disabled. I became chemically ill by being exposed repeatedly in the chemical industry to extremely toxic chemicals that destroyed my immune system and destroyed the normal functions of my body. What's so incredibly sad is that, once something happens to you that is detrimental to you, you quickly realize that it is a personal problem and that corporations take very little responsibility to helping you resolve those issues. Nor are they very concerned about helping you to resolve those issues. So, the point of this discussion is to say be careful, be thoughtful, and just be pragmatic.

Chemicals, for the most part, are not good for the human body, and if you are in an industry or in an area, a professional area that constantly exposes you, you're going to have some health problems. You cannot expect the medical field to be in a position to help you resolve these problems. […] These problems become so complex, and medical technology oftentimes is not at the stage that the average person wants to believe. […] Medical doctors are

trained just like […] other professions. We have our areas of expertise, and so if you go in to see a cardiologist, that person can only take care of your heart and your liver may be killing you, you understand. And so, it's [tough]: the human body is complicated.

So, I would just say to you, be wise, be smart, be a private investigator, and be suspicious of the work environment, even if it's not a chemical <**T: 20 min**> environment. The quality of the indoor air can destroy your health. But just be very, very thoughtful about what area that you pursue, and think of it in terms of your life, the longevity that you wish or not wish to have. You just really have to think about these things, and no one can make that determination for you.

BROWN: Well, thank you. You have anything else to say?

PATRICK: No, I cannot think of anything else at the moment. […] I guess the only other thing that I would say is that, whatever choices that a young person makes in their teens or early twenties, oftentimes, when we're at that stage of our life, our lives, we really don't understand how wonderful that period of time is. [It is] sometimes very difficult for young people to accept the knowledge from older people. If a young person ever reads or hears my words, I would say to you that, you're very, very wise if you can sit down and absorb the words of someone who has gone before you, so that you not make the same mistakes. That [way] you get a jump start to your life and your career. [Then] you're much smarter than those who have gone before you. Thank you so much.

BROWN: Okay, thank you. Thank you very much.

[END OF AUDIO, FILE 1.2]

[END OF INTERVIEW]

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