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# Clark E. Beck Interview, College of Engineering and Computer Sciences, Wright State University

Alyce Earl Jenkins

*Wright State University - Main Campus*

Clark E. Beck

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# **Profiles of African-Americans That Helped Shape Wright State University**

## **Interview with Dr. Clark E. Beck**

*Date of Interview: August 9, 1991*

*Interviewer: Alyce Earl Jenkins, College of Education and Human Services*

*Interviewee: Clark E. Beck, College of Engineering and Computer Sciences*

Alyce Earl Jenkins: This morning my guest is Clark E. Beck, Assistant Dean for the College of Engineering and Computer Science. Clark, I'd like to talk with you today primarily about the Wright STEP Program. But we'll also get a little bit of information about your professional life. Thank you for joining me today.

Clark Beck: Thank you for having me.

AJ: Clark, I hear that the Wright STEP Program has received all kinds of acclaim. Tell me about the program and some of the recognition that it has received. First what is the Wright STEP Program?

CB: Okay, the Wright STEP Program is—Wright STEP, incidentally, is an acronym for Wright State Engineering Pre-College Program—and it's a program for seventh, eighth, ninth, and tenth-grade students in the Dayton Public School system, which prepares them so that when they graduate from high school they'll both be academically prepared and sufficiently motivated, we hope, to enter into a math or science-based four-year college curriculum and graduate from it. And we're talking about math or science-based curriculum like engineering, physics, chemistry, and things of that nature.

AJ: Now you say that you want to motivate them to enter into a four-year science-based program, so, in addition to having them participate in those classes, what else is done to facilitate their attending college as a result of them being part of that program?

CB: Yeah, we do several things to first make them aware of all the careers and doors that they can go through if they have an engineering or a math or science-based degree. We let them talk to role models and let role models talk to them four mornings a week. The day begins with a role model speaker: someone who has been successful or is successful in engineering or some math or science-based career and tells them just

how they got there, what they had to do in high school and college to get there, so that the students realize they can get there if they want to.

We take them on field trips, one a week, to an engineering or a science-based type industry or a laboratory at Wright Patterson Air Force Base so they see what engineers do, and hopefully that'll encourage them. We let them talk to engineers. It's difficult, you know, to want to be like somebody if you don't know that somebody. So if you don't know engineers, you can't aspire to be an engineer or a scientist. We also expose them to many other things to show them the benefits of being an engineer or a scientist.

AJ: Do they receive any kinds of scholarships to attend Wright State as a part of participating in that program?

CB: They can do that. Each student that successfully completes the five-week summer session is entitled to a one-year tuition scholarship at Wright State University when they graduate from high school.

AJ: That's very good...

CB: So it's possible for students who are in the program more than one year to receive more than one scholarship.

AJ: That's great!

CB: Last July at the graduation ceremonies, which was the fourth one, there were nine students who received their fourth one-year scholarship--

AJ: That's very great.

CB: --who have it eligible to them if they apply for it, I should say.

AJ: So that'll be for tuition and books or just tuition?

CB: Right now we say "tuition scholarship." It may expand later if we get more money to support it, but right now we're saying "tuition only."

AJ: That's great, that's great. How did the program come into being?

CB: Okay, the program came into being...I came to Wright State of course in August of '87. However, Dr. Hathaway had me working off the payroll a month earlier when he asked me to go University of Texas at San Antonio, where a program like Wright STEP had been in operation for five or six years. And I went to San Antonio and saw the program, talked to Dr. Berriozabal who had that program going, where the target group was mainly Hispanics. And came back to Wright State, and between August of '87 and

June of '88 we got the program together and had our first class of forty seventh-grade students in June of 1988.

AJ: That's great. Now I would imagine moving so fast with that program that you probably had some challenges planning and implementing that program and recruiting the students and all of that, the participants and all. What were some of the challenges that you may have encountered from faculty and community people.

CB: Well, there were quite a few challenges. Many times when you offer something that sounds as good as Wright STEP sounded, people are suspicious that it can't be that good, there's got to be a catch to it. But fortunately, Dr. Hathaway told me that he would totally fund the program for the first two years and he was aware of what the program was, so he didn't have to be sold on the program, so to speak. We made some contacts: fortunately I had spent thirty-three years at Wright Patterson Air Force Base which has a large number of engineers and scientists working, and I had retired from there with friendly—it was a friendly separation. So it was not too difficult to obtain General Lowe's [sp?], then the commanding general, permission to actually mention the program to employees and see if they wanted to volunteer to become involved. And quite a few did. We started out with only forty students in one grade, the seventh grade, so it didn't require as many volunteers or teachers or classes as we need today with four grades and one hundred sixty students. The Dayton Public School system was behind the program, of course, and it was not too difficult to find a few teachers from that system who were willing to work during the summer, for pay, to teach the courses.

AJ: What about the Wright State faculty? Were they involved at all? Are they involved?

CB: There are some faculty at Wright State who are involved. One teacher from the College of Math and Science is the only one from the University that's involved. We're teaching students from the seventh, eighth, ninth, and tenth grade, which is below the college level which takes a special kind of teaching experience, and we're also targeting and teaching students from a special environment or background, which means it takes a special type of teacher. The premise of the Wright STEP Program is that it is being delivered or taught differently than they receive educationally in the school system, so that each individual student gets a different sort of individual style of teaching, if you will. The idea would be to have one teacher for each student so we would have a direct mentoring program. We don't do that but we approach that.

AJ: Earlier you mentioned that Dr. Hathaway funded the program for the first two years. What has been the source of funding since 1989?

CB: Okay, the agreement in Dr. Hathaway's first offer was to fund it totally for the first two years and I was supposed to find money after that. However, that didn't work to well because, as you recall during that period, funding was being sought for the Nutter

Center and funding was being sought for the new engineering building. So it was not good or permitted that I should go out and talk to industry about supporting the Wright STEP Program because the university would like to get a larger gift for those other two things. So actually Wright State has funded the program not only those first two years, they've funded it considerably during the second two years. But General Motors is the largest industry contributor at this point in time. They gave a \$200,000 pledge: \$50,000 for each of four years, and we still have two of those years to come and I hope that General Motors stays profitable enough to fulfill that obligation. And I have been successful in getting a couple of grants from the Department of Energy and the latest one from the Ohio Board of Regents, the Eisenhower Program. But still, Wright State University is funding part of the program.

AJ: I see.

CB: We are getting from the Dayton Public School system free transportation for the students to and from the campus, which helps. And also the Dayton Public School system's now offering two or three teachers in the summer to teach programs. So it's a community involvement with many sources of funding, and we hope that now that the engineering building is funded and the Nutter Center is working that we can approach industry about additional funding in the near future.

AJ: I see. Tell me about some of the awards and recognition that this program has received.

CB: Well, if I talk about awards I guess I should start with what would be considered by most to be the biggest one and that is recognition by President Bush as the three hundred eighty-fourth daily point of light in his Thousand Daily Points of Light Program. That happened on the twentieth of February, 1991...ironically during National Engineers Week. So that was an honor. I guess that's the only real honor it's received. Several people involved with the program have been given some honors because of the involvement. The volunteers from Wright Patterson Air Force Base have got some awards. I have had several organizations give me plaques or something because of the program. All of those things which should go to the teachers involved with the program really, not me. They're the ones that make it work.

AJ: And wasn't the program written up in a couple of the professional magazines and journals?

CB: Well, I have written some articles about the program, yes. I was invited to come to Washington last year, last September. The Engineering Manpower Commission, the American Society for Engineering Education had a conference on the engineers' shortage or surplus and I was asked to participate in that program, which was very well received. And I've gone to several other places to make presentations. In Ohio, the

American Society of Engineering Education had a state conference in Akron a few years ago and I made a presentation, which fortunately won second prize, so I got \$100 for that to cover my expenses.

AJ: That's great! What do you see in the future for the program? What would you like to see happen to it?

CB: Oh boy...you know Santa Claus? The program right now covers four grades: seventh, eighth, ninth, and tenth. Ideally, if we want to make young people be interested in and excel in mathematics and science and be willing to take courses or curricula which are considered "difficult" by most people, as math and science courses are, we should really start younger. The ideal situation would be to start in about the third grade, or revamp the educational system as it is now so that what could better encourage them to go into math and science be taught at that time. And if we could go through the twelfth grade. But space limitations, monetary limitations, make some block as much as we can handle. So considering all the limitations and the lack of what we need, I think that the four grades and the status and the stature we now have selected is the best one.

AJ: I see.

CB: The seventh grade is not too late. Many students can still be brought back to like math or science, and of course if they get a two-year, up through the tenth grade and high school, start taking the right courses with the right attitude towards math and science and a desire to go to college, we figure that in eleventh and twelfth grade they will do the right thing. So when they graduate from high school with the carrot, if you will, of tuition scholarships waiting for them that they will do the right thing. With the limitations we have, I think that the makeup of the program, as it is, is best.

AJ: Do you foresee having any special kind of mentoring program for the students who receive the four-year scholarship and then enroll here, in a special mentoring...just for them?

CB: Maybe I should explain: Wright STEP is just one of several things that I hope will happen, that we've talked about happening. Wright STEP of course is the first program, which starts with students in the seventh grade, and you know when you go to college, Alice, what people look at is your high school transcript. So by getting the students in the seventh grade to have got two years to change their attitude about math and science and education and so forth. So hopefully we will change their attitude about it so when they get to the ninth grade, start high school, they will do the right thing and take the right courses. And to get the scholarship they must take the college preparatory course in high school and graduate with a B average.

Now starting this summer since last summer was the first time we had tenth graders in the Wright STEP Program, which means this year they're not eligible to come back to Wright STEP. We are going to start Horizons in Engineering. And hopefully many of the Wright STEP students will apply and get that. So that will take care of them between eleventh and the twelfth grade, the junior and senior year. Now what I hope will start in 1993—will be when Wright STEP students will first graduate from high school—we'll have a bridge program in the summer, which would be about a six-week program, possibly, for students who have been in the Wright STEP Program or the Horizons program and are entitled to the scholarships, who have applied to and been accepted by Wright State University and are going to come in the fall, will come and have about six weeks of what we call a bridge program because going to college as a freshman is not going to grade thirteen, as too many high school students feel it is or have been led to believe it is. It's a great transition. So we will have the bridge program, and hopefully then, starting that same year, when those students enroll as freshmen in 1993, we will have something which might be called "The Freshman Year," if you will. But it will be a special-type program for those students where they will get some special training and things they need to really make it through four years of college successfully.

AJ: Sounds good. Listen, tell me about some of your other responsibilities as Assistant Dean for the College of Engineering and Computer Science.

CB: Of course in the office over there, we do what has to be done to promote the College of Engineering, to promote engineering as a profession, and do other things. Some of the things that I do, obviously, are to recruit as many students as I can, so if I see students who are interested in engineering, I talk to them. So I make quite a few presentations to other-than-high-school groups. Tomorrow I'll be talking to a group of eight to fifteen-year-old students who are involved in the Masonic Lodge Program about engineering—about education in general, but I'm going to of course stress engineering. But I talk to high school career days, I attend science fairs, pushing Wright STEP and engineering and education. I participate in career days at high schools. Of course present papers, nationally and internationally, that lets people know that the "WSU" does not stand for "Wayne State University" or "Washington State University," but it stands for "Wright State University," which many people don't realize exists today but they will because we're going that way. We do whatever needs to be done. I talk to students if I can find them, and counsel them if they need some help, whatever we can do to increase the comfort level, I guess should say, and also the academic performance of our students.

AJ: Very good. You mentioned earlier that you retired from Wright Patterson Air Force Base after thirty-three years. What were some of your accomplishments there? I mean, your professional life, obviously, didn't just start with Wright State. Thirty-three years at Wright Patt. What were some of the things that you did?

CB: Well, you're right it didn't begin at Wright State; matter of fact I thought it had ended before I got to Wright State, but I got an offer I couldn't refuse and I had a desire for education. I started in education, Alice, two years after I got my college degree and began working at Wright State. I taught for all those years part-time at Central State and Sinclair until I finally retired and came full-time here. I recall when I came to Wright-Patterson on sort-of a fluke because the University of Cincinnati could not find another employer who would accept me as a co-op student. This was a long time ago and things were different than they are now. So I ended up at Wright-Patterson Air Force Base as my last—the only—choice for a co-op job, and co-op is required to graduate from UC, so if I had not been able to find a satisfactory co-op job I would not have been able to graduate.

AJ: So they didn't, the person didn't accept you because you were black as a co-op student?

CB: Oh yes, they didn't wish that...of course I had the same problem when I graduated with a degree; I went back to my hometown to see to get a job, and I was told by the manager of that installation, who had been a classmate of mine in high school, that he really couldn't hire me because it would cost too much problems in the plant, and he was probably right, it would've caused problems. But anyway, that's—

AJ: It worked out well for you, you went to Wright-Patt and...

CB: Yes. You know, through life you find out that someone's looking out for you because things happen for the best even though it may seem like they're unfair or they're not good. Then also I found out that you can't sit back always and wait for things to happen; sometimes you have to go out and make your luck, if you will. But I was very fortunate at Wright-Patterson after I did come back. I decided to stay for at least five years before I went to industry because they gave me that co-op job. Well, things got so good that I stayed on and it was thirty-three years later when I left. Some of my best...the most satisfying technical accomplishments I've had came as a result of something which was not intended to be that good.

One of my first assignments, about a year and a half after I came to Wright-Patterson as a full-time employee, was testing some experimental box beams, we called them, which had been built, and we were looking at materials and designs and so forth to be used in space. Well this was a little before the space program became popular and none of the engineers in the group wanted to test them. I was in a static test facility where we tested any structural component up to and including the entire airplane, which we test. So this new, young engineer was given a task to test these, to design the test jig, which had a million and a half-inch pounds of torque on it. I designed the heating system because there would be tests at an elevated temperature and to see just how strong they were

and which one performed the best in the various conditions. And no one wanted that job so I was given it. It happened that about four years later when the space and reentry became important, I was the only person in the laboratory that knew anything about that, so that's how I got around to conducting tests in the late-1960s, I guess it was, which were on a vehicle we called the "Dyna-Soar" at that time, "Dyna-Soar" with S-O-A-R being the last words, which today you see flying as a space shuttle.

AJ: That's great!

CB: So the work I did back then in the late-1960s is now finally being used, so that made me feel good. There were several other things I did which I felt good about. I convinced several students who came from Dayton Public Schools to work in the summertime only on a spaceship program at the Base that they should consider engineering as a career, and there are several young people at Wright-Patterson now who did, in fact, go to engineering schools and get their degrees rather than not getting a degree.

AJ: Did you also do some work on the Stealth Bomber?

CB: On who?

AJ: The Stealth?

CB: Well, some of the things which I did are being used in that, yes.

AJ: Oh, okay.

CB: Matter of fact the technology which was developed later on, I did things other than just elevated temperature. I did tests which...an interesting test about space, I...cooked people. That's what I said. One of the things we had to find out was just how much temperature can a person take and still function. So, in order to find out that, I designed an oven—and that's what it was—in which we put people, volunteers, with thermal couples and other instruments over their body, and I turned the heat up and we...we kept then getting warmer and warmer and warmer and had them do certain operations. And I began feeling kind of bad about that as the program advanced because the people who volunteered for those sort of things are a special kind of person, and I found out these fellows were making side bets on who could stay in the longest at the highest temperature. So rather than say they'd had enough they want to come out, they wouldn't. So I had to take upon another responsibility of not over-cooking any one of those subjects.

AJ: Over-heating...

CB: So it was very—some interesting things happened there.

AJ: I see. Clark, you've really had an interesting life and I think it's remarkable that you've been able to do so many different things. I remember when I first met you, it was at Central State University when you were working part-time there.

CB: Yeah.

AJ: And so you've done a lot of nice things and we appreciate that. If you could do anything over, if you could do something differently, what would you do, here at Wright State?

CB: Well first I should say, you said I've done a lot of nice things, but actually the only reason why I have been able to do those is because somebody—somebodies, several—did nice things for me which made me get here. So you're seeing something not coming from me, you're seeing something that represents many other people's input. About what would I do differently, you know that's always a very dangerous question to ask anyone because we never know what would've happened if things had been different, and if I had done something differently that I might have wanted to do, I might have been worse off and not have been successful as I am now. I don't know quickly off the top of my head if I would have done something differently, I could have done better perhaps if I had known then what I know now about some things. I've learned quite a bit about education since I've been here; I've learned quite a bit about the Dayton Public School System since I've been here and about educators in general. And I'll have to truthfully say that if I had done anything differently I would have done more research on my own, more studying, and spent more time preparing, although I spent much time doing that. But the only way I could've done things better I think would have been to have done more of the same thing.

AJ: Well thanks Clark Beck for coming with us and sharing with us your experiences and talking about the Wright STEP Program and good luck.

CB: Thank you very much, I enjoy talking about the Wright STEP Program because people who are in that program are going to be sitting here—

AJ: That's right.

CB: —fifteen, twenty years from now.

AJ: That's right. Thank you so much.

CB: Thank you.