### Overview of the Collection

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<th>Repository:</th>
<th>The HistoryMakers® 1900 S. Michigan Avenue Chicago, Illinois 60616 <a href="mailto:info@thehistorymakers.com">info@thehistorymakers.com</a> <a href="http://www.thehistorymakers.com">www.thehistorymakers.com</a></th>
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<tr>
<td>Creator:</td>
<td>Legand Burge</td>
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<tr>
<td>Title:</td>
<td>The HistoryMakers® Video Oral History Interview with Legand Burge,</td>
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<td>Dates:</td>
<td>April 11, 2011</td>
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<td>Bulk Dates:</td>
<td>2011</td>
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<td>Physical Description:</td>
<td>20 Betacam SP videocassettes (3:57:21).</td>
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<td>Abstract:</td>
<td>Electrical engineer and academic administrator Legand Burge (1949 - ) became the Dean of the College of Engineering, Architecture, and Physical Sciences at Tuskegee University in 1999, after a thirty-year career in the United States Air Force. Burge was interviewed by The HistoryMakers® on April 11, 2011, in Tuskegee, Alabama. This collection is comprised of the original video footage of the interview.</td>
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<td>Identification:</td>
<td>A2011_016</td>
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<td>Language:</td>
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### Biographical Note by The HistoryMakers®

Engineer and academic administrator Legand Burge, Jr. was born on August 3, 1949 in Oklahoma City, Oklahoma. His parents, Bobbie and Legand Burge, Sr., had a profound impact on their children’s lives. Burge’s father, an electronics radar technician by background, served in the U.S. Navy during World War II and rose to the rank of master sergeant in the U.S. Air Force after the war, and continued to work with radar technology for the Federal Aviation Administration. Burge excelled in math and science during elementary school, and upon graduating from Oklahoma City Douglass High School in 1965, he was offered a scholarship to study at Oklahoma State University, where he earned his B.S. degree in electrical engineering in 1971. During college, Burge held internships with Oklahoma Gas and Electric. He considered establishing a career there, but through his acceptance to the Air Force Institute of Technology, he earned his M.S. degree in 1973. He was then assigned to work at the Sunnyvale Air Force Base in California with the National Reconnaissance Office. After four years of service, Burge returned to Oklahoma State University to study under Dr. Rao Yarlagadda, earning his Ph.D. degree in electrical engineering in 1979.

Burge’s career has focused on information theory, coding theory, digital signal processing, and communications—areas of research that had become very popular during the 1970s and 1980s with the rise of both commercial technology and the military needs of the Cold War. Burge taught at the Air Force Academy before being selected to serve in the Intermediate Service School at the Air Command and Staff College. Shortly after, he was invited to work at the Pentagon under General Colin Powell’s supervision. Burge was assigned to the research and development group of the air staff’s International Program. In 1987, Burge became a lead researcher at the National Security Agency and later returned to the Pentagon, working as a cost estimator for the defense secretary. Burge retired from the military in 1999 after having served as vice commander of the entire Air Force ROTC program and the dean of the Acquisition Management School at the Defense Systems Management
College. He was subsequently named a professor of electrical engineering and Dean of the College of Engineering, Architecture, and Physical Sciences at Tuskegee University.

Burge has been recognized for his administrative and research capabilities throughout his career. He was elected to the American Society of Engineering Education Executive Board in 2005. He has also worked with his son, Legand Burge, III to operate LL Burge & Associates, a consulting firm that addresses information technology needs.


Legand Burge, Jr. was interviewed by The HistoryMakers on April 11, 2011.

Scope and Content

This life oral history interview with Legand Burge was conducted by Larry Crowe on April 11, 2011, in Tuskegee, Alabama, and was recorded on 20 Betacam SP videocassettes. Electrical engineer and academic administrator Legand Burge (1949 - ) became the Dean of the College of Engineering, Architecture, and Physical Sciences at Tuskegee University in 1999, after a thirty-year career in the United States Air Force.

Restrictions

Restrictions on Access

Restrictions may be applied on a case-by-case basis at the discretion of The HistoryMakers®.

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Related Material

Information about the administrative functions involved in scheduling, researching, and producing the interview, as well as correspondence with the interview subject is stored electronically both on The HistoryMakers® server and in two databases maintained by The HistoryMakers®, though this information is not included in this finding aid.

Controlled Access Terms

This interview collection is indexed under the following controlled access subject terms.

Persons:

Burge, Legand

Crowe, Larry (Interviewer)
Hickey, Matthew (Videographer)

Subjects:

African Americans--Interviews
Legand Burge--Interviews

African American engineers--Interviews

African American college administrators--Interviews

Organizations:

HistoryMakers (Video oral history collection)

The HistoryMakers® African American Video Oral History Collection

United States Air Force

Tuskegee University

HistoryMakers® Category:

ScienceMakers

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Administrative Information

Custodial History

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Preferred Citation


Processing Information

This interview collection was processed and encoded on 8/15/2011 by The HistoryMakers® staff. The finding aid was created adhering to the following standards: DACS, AACR2, and the Oral History Cataloging Manual (Matters 1995).
Other Finding Aid

A Microsoft Access contact database and a FileMaker Pro tracking database, both maintained by The HistoryMakers®, keep track of the administrative functions involved in scheduling, researching, and producing the interview.

Detailed Description of the Collection

Series I: Original Interview Footage, April 11, 2011

Video Oral History Interview with Legand Burge, Section A2011_016_001_001, TRT: 1:31:30
2011/04/11

Legand L. Burge, Jr., slates his interview and shares his favorites. He then discusses his family history. His mother, Bobbie Jean Bates, was born in Oklahoma City, Oklahoma, in 1929. Burge recalls that his ancestors on his mother’s side wrote the song, “Swing Low, Sweet Chariot.” He also discusses his Chickasaw heritage on his mother's side. Bates’ father, Clell Bates, is described as a man who enforced discipline in the household, so as soon as Bates graduated from Douglas High School, she left home. Burge’s father, Legand L. Burge, Sr., was born in 1911 in Rome, Georgia. His family left Georgia, although they had a successful business, due to the threatening white population. The family settled in Luther, Oklahoma, where Burge’s paternal grandfather bought land during the 1889 land rush. Burge discusses his aunt, Los Angeles Burge Joseph, who became a prominent educator in Oklahoma City, Oklahoma, during the 1950s and 1960s.

African American families--Oklahoma--Oklahoma City
Oklahoma City (Okla.)
Spirituals (Songs)--History
Swing low, sweet chariot

Video Oral History Interview with Legand Burge, Section A2011_016_001_002, TRT: 2:32:07
2011/04/11

Legand Burge continues to discuss the background of his father and his mother. Legand Burge, Sr., served in the United States military during World War II, as a radar technician. He left the military because he was told that he would not receive any future promotions, presumably because of his skin color. Burge discusses what happened to his grandfather’s land in Oklahoma. The land was split between Burge’s father, aunt, and uncles. Over time, Burge’s brother, Kim Lamar, acquired most of the land. Burge believes his parents met while his mother, Bobbie Bates, was working as a cook at a diner named Beverly’s Chicken-n-the-Ruff. Burge Sr. and Bates married and bought a house in Oklahoma City. Legand Burge, Jr. was born in 1949. His parents soon divorced, but both were invested in their children’s upbringing and education.

African American families--Oklahoma
African Americans--Land tenure
African American parents--Oklahoma

Video Oral History Interview with Legand Burge, Section A2011_016_001_003, TRT: 3:32:43
2011/04/11

Legand Burge talks about his high school years at Frederick Douglass High
School in Oklahoma City, Oklahoma. His class was tracked within the network of black schools, and many of his classmates found success later in life. Douglas was strong in both the academic and fine arts programs, and he played the piano at Providence Nazarene Church, where his mother worshiped. Burge's paternal side was musically talented, and Burge considered a career as a musician, studying some music at Oklahoma State University. A high school teacher, however, encouraged him to study electrical engineering because there was no money in music. Burge graduated from high school in 1967 and went on to earn his B.S., M.S., and Ph.D. degrees in electrical engineering from Oklahoma State University.

Legand Burge's parents divorced in 1957, but he explains that it did not have too much of a negative effect on him. Legand Burge, Sr., remarried Clara Luper, a leader in the Civil Rights Movement in Oklahoma City, Oklahoma in 1963, but they were only together for about one year. Burge lists his high school mentors. He was a good student and also a member of the student council, swim team, and band. Burge talks about some of the trends in black music and mentions his favorite musicians: the Supremes, the Temptations, and the Four Tops. Joe Edwards of the Providence Nazarene Church mentored Burge in choir management. Burge began his studies at Oklahoma State University in 1967 with varying experiences. For example, he experienced racism from an English teacher, but also received support from Dr. Rao Yarlaggada, who would later become his graduate advisor.

Legand Burge details his experience at the time of the death of Rev. Dr. Martin Luther King, Jr. During college, Burge pledged the fraternity Kappa Alpha Psi through Wichita State and Kansas State Universities and became the first president of the Zeta Theta Chapter at Oklahoma State University. He earned his B.S. degree in 1971 and went on to work as a satellite officer at the Sunnyvale Air Force Station in California as part of the Air Force ROTC program. During that assignment he met George H.W. Bush, who directed the CIA at the time. The Air Force offered Burge the opportunity to return to Oklahoma State University to earn his M.S. and Ph.D. degrees in electrical engineering in 1973 and 1979, respectively. While pursuing his Ph.D., his personal life suffered, and he divorced his wife Gwenetta in 1977.
Legand Burge lists some of the speakers that visited Oklahoma State University and Langston University during his college years, including Nikki Giovanni and Dick Gregory. Burge conducted his dissertation work under advisor, Dr. Rao Yarlagadda in signal processing, and he had the opportunity to hear James Cooley and John Tukey talk about their research work in 1977. Burge's graduate thesis was entitled, "The Efficient Coding of the Prediction Residual." After earning his Ph.D. in 1979, Burge was selected to attend the Air Force Academy, where he joined the Command and Staff College in 1984. He was sent to work at the Pentagon as a cost analyst under General Colin Powell. Burge coordinated the Research and Development Organization for NATO from 1985 to 1988.

ENGINEERING--electrical
NATO
United States Air Force Academy
United States--Pentagon
Education, Higher
Oklahoma State University. Graduate College

Legand Burge was offered a position at Tuskegee University as dean of the College of Engineering, Architecture, and Physical Sciences after retiring from the military in 1999. Burge nearly quit Tuskegee after his first year due to the heavy workload, but he decided to stay when one student demonstrated his appreciation of Burge. Later, he and his children began the consulting company, L.L. Burge and Associates, and in the interview, Burge goes on to share the success of his children, LeAnn, Legand, Lamuelle, and Lewis. Burge discusses things he would still like to accomplish, including sharing his documented rules for church musicians and his knowledge of how to be an effective university dean. He concludes the interview by talking about his legacy, his hopes for the future of Tuskegee University, and how he wants to be remembered.

Tuskegee University--College of Engineering, Architecture, and Physical Sciences.
Business entrepreneurs
African American families
Education, Higher--United States--Leadership

Legand Burge discusses how he ended up at Tuskegee University as dean of the College of Engineering, Architecture, and Physical Sciences. He then talks about the educational philosophy of the school. He remembers that at the end of his first year, he wanted to quit, but after his secretary convinced him to stay for graduation and seeing his students graduate, he decided to stay. Burge and his children began the consulting company, L.L. Burge and Associates. Burge shares the success of his children, LeAnn Burge, Legand Buge, Lamuelle Burge, and Lewis Burge. Burge would like to share his rules for church
Well, you, I think you’re partially correct about the splintering and the ways things were segmented. They, there’s—you do need the intellectual piece. I think without understanding the philosophy, you know, the Plato and all that, and I, now, believe me. I’ve done all that business with the humanities. I didn’t really see a whole lot of need (laughter) when I was doing engineering and they say, you gotta do this liberal arts curriculum. And I said, why do I need to study humanities? I mean ‘The Iliad’ and all this business here, it has a very good place of understanding why we think and how we think and what that’s all about. Booker T. Washington was a practical person. You gotta understand the times. You’re out of slavery. You’re gonna start a school, and these folk are basically ignorant. As I said, we’re at Tuskegee, and the monument that was presented here takes the head, the hand and the heart and puts it together because you’ve got to connect with your thinking (laughter). You gotta connect, you know, with your soul. You gotta do your mind, all right. You gotta do the whole business of what this is all about or you as a whole person. And you gotta be able to deliver. Now, you have to understand that at the time, the recognition that blacks could do anything was a real—it just was not on the page. So he had to say, where could my people deliver? Well, you can deliver in industries. We can deliver where we’re working in the fields, okay. We can deliver where we can help in businesses, all right. That was kind of the philosophy—

Now, one of the things I didn’t tell you, I didn’t say, and only because I just overlooked it. The minister, Joe Edwards, that I was connected with with Providence [Nazarene Church], he used to sing with the Wings Over Jordan choir and he had a very disciplined thing about music because remember the Wings Over Jordan was an a’cappella group, black group, group of men, all right. And the sung all over the world. And he talked about the guy that gave the pitch for the choir, that you had to stay in your pitch. That’s the reason why Fisk Jubilee singers today, the golden voices are so impressive to me, they bring back that old European singing. They still sing the same way even today with their anthems and the spirituals and the way Dawson taught ‘em and what have you. Well, the Wings Over Jordan choir did that whole thing too. And that was the, one of the things he did, he actually mentored me into how you get a choir to do stuff. And over the years, I mean I’ve done, as I said in the military, I mean I played for choirs from California all the way to Washington, D.C. I mean we’ve done the whole bunch, we’ve been minister of music and all that kind of thing. So it’s been quite a, quite an interesting spin there, all right.
Oklahoma State did, they made all the engineers do this whole big arts and science curriculum. I mean it was literally, English, humanities, you do the civics, government, I mean you had to have all of this stuff. And I said, and I was coming home to school one day, talking back to the professors, the teachers (laughter), and I said, I’m not taking any engineering stuff. I’m just taking this, these English things and all that. And I said, and they think it’s gonna make you develop. So actually, in hindsight, it’s probably the best thing that happened. I (laughter), because I found out when I went to the Air Force that it wasn’t all about technical. You need to be able to write, put your name on stuff so that when it went out, you were the author and that made a big, it makes a big difference.

Yeah, I had a student come in. He has a TI-93. I think it’s the best thing that’s out. It’s got memory. It connects to the Internet. It has a little bitty screen on it and it actually can graph whatever it is. And it also has a connection to the Library of Congress and what have you. And he says, no, Dean, I’m gonna have to learn how to use this thing because all the classes are on here. I mean literally, his math, his English, his science, all of the physics and everything is all on this calculator. It’s about this size here, just unbelievably. I said, you’ve got to be kidding me. He says, yeah, I really don’t have to go to class. I just, it’s all right here (laughter). So, yeah, we’ve really gone way beyond slide rules now (laughter). So it’s a whole nother world. But I learned how to do all that when I went to college, and it really made you a better person. The best thing, the best decision I ever made going to Oklahoma State.

Well, my first assignment I was assigned as a satellite officer out at Sunnyvale Air Force Station [Santa Clara County, California] as part of the Space and Missile Systems Division which is part of the Secretary of the Air Force. I was special projects. Special Projects folks were the ones that flew the satellites. We did the development, the creation of hardware, the design of hardware, the whole writing of the software, handling all of the various targets, making
decisions on databases for the hardware, making sure that the hardware is well taken care of, the health and payload. And then shipping the collection items to the Pentagon. This was a very big, this is a very big system. It involves rockets. It involves, you know, at that time it was McDonald-Douglas, you know, which is now turning to other things. It involves working with the contractors, you know, Hughes, the TRW [Inc.], the Aerospace Corporation folks, all that. It involves the global weather central, people out in Omaha [Nebraska], which handles all of the weather all over the world. It involves the camera systems, the Kodak was the vendor. It involves all of those people in the Pentagon who do the political side. In other words, underneath the President, there’s a group of people now that refers to themselves as the Intelligence Community, involves all of them people. Well, I get to meet, I got to meet all them folk (laughter) within the first year.

Video Oral History Interview with Legand Burge, Section
A2011_016_Burge_Legand_06_MED_WEBCLIP007, TRT: 0:01:16 2011/08/11

What does determine, I mean how a machine, I mean a device determines when a new word is coming? Maybe I’m asking too big a question. I don’t know. What, so you wanna know when a new word has been--okay, remember now, what you hear, hear, H-E-A-R, there is a phonetic and a vowel that’s occurring there, all right. So the machine has to determine when the phonetic starts and when the phonetic stops. So there’s actually a little breakthrough there, although we don’t really determine, we can’t really determine that. There’s some space there that gives the new phonetic everything from fricatives to explosives to vowels, all have start and stop points. And so that’s what our computer system was all about, was to determine where those start and stop points were and how we could, you know, interpret what they are, all right.

Video Oral History Interview with Legand Burge, Section
A2011_016_Burge_Legand_06_MED_WEBCLIP008, TRT: 0:01:22 2011/08/11

Okay, so did you have to sort of measure the tones or--? Well, we had examples of prior demographic speech, and we then digitized that and put it into sonograms and put it into what we called replications so you could then overlay. So what happens when you do a voice recognition, I have various loci of different vowels, A, E, I, O, U, and I have you saying “A”, me saying “A”, the guy over there saying “A”, and I have a whole now community that’s saying “A”, all right. And now I have a whole loci of ‘em. I have a whole spectrum of ‘em, all right. And now I can say, well, when I hit this particular quadrant, then I know that that’s “A” because it has the frequency domain, all right. And it has the various formats that you can determine from all of that, all right. So that’s what is really happening. It’s a lot of processing power that your brain does for you, all right.

Video Oral History Interview with Legand Burge, Section
A2011_016_Burge_Legand_06_MED_WEBCLIP009, TRT: 0:01:41 2011/08/11

Okay, so, now what was General Colin Powell like to work for? I think he is a guy, a man of integrity, and one of the things I would say too is that, I understood him because I understood my mother. You gotta understand that this home training thing transcended the whole business there. He says, my meetings start at, let’s just say 8:00 o’clock, you had to stand up. Five after 8:00, he walks in the room. He deliberately never came in on, let’s just say, on time. But he walks in the room, and no one walks in after that. That was the way he did business. I understood that, and even today, I talk to people about showing up on time. If you’re not ten minutes early, you’re really late. So I get that whole business of integrity and promptness, and, but I would say tenacity,
follow through, yeah. Okay. Now, recognize that as a colonel and a four-star general, there’s a whole lot of difference there, all right (laughter). Okay, I’m just a staff person (laughter). Yeah, but you did appreciate his approach. Yeah, you appreciate all of that, and you appreciate leadership from, particularly folks who are consistent and focused and have a vision. See, that’s what you get from most of the leaders.

Video Oral History Interview with Legand Burge, Section
A2011_016_Burge_Legand_06_MED_WEBCLIP010, TRT: 0:01:26 2011/08/11

So it really makes a big, big, big, big difference there. So we were doing a lot of breakthrough things in the area of speech, speech signal processing. Again, voice recognition and speech generation synthesis; biometrics became a big deal. In other words, that was looking at fingerprints, things, research related to your eyes, facial recognition, the whole idea of pattern recognition and the whole business there. So we were, there were a lot of breakthrough things that were really moving for which since I left the agency, I mean I have seen some of this actually come about. But you gotta understand the agency’s, you know, its mission is signals, you know. So it’s quite, quite significant there. So we have to recognize that. But, yeah, it was probably the best assignment, job you could have for an electrical engineer. And I’m talking from lasers to chips to solid state to signals or whatever, I mean it was really, I mean you just went to work with energy and you couldn’t tell anybody about it (laughter).

Video Oral History Interview with Legand Burge, Section
A2011_016_Burge_Legand_06_MED_WEBCLIP011, TRT: 0:02:12 2011/08/11

Okay, so all right. What do you think, and I’m just, this is just as a layman sitting here asking somebody who’s involved in this, what was the most, I guess, remarkable device created or system created, you know, in terms of National Security that you witnessed when you were with the NSA? Integrated circuits. You know what those are? Wait, explain (laughter), Oh. Well, the whole idea of being able to move from vacuum tubes, now, you gotta understand, remember I talked about vacuum tubes which I studied in the ‘60s [1960s] to a device that would be smaller than the nano particles of your hair, that would now become a decision maker. And it would be like a flip flop. We referred to ‘em as flip flops, the computing memory. That was what the tubes were. To see those devices now created and be a part of that creation of those systems now was quite the breakthrough. And even now you have the capability of having the kind of computer that I did my work on could literally be put in my pocket, all right, now, where I was in a whole room of devices that were hot and heated and running and all that, now, I’ve got a chip, as we refer to it, which has a, the ability to make decisions which comes from the computing processing power. And now I can transfer that information and collect information and make new decisions on that. That’s really, I would think, the biggest breakthrough that we’ve seen over the last, since I started in the ‘70s [1970s], yeah.

Video Oral History Interview with Legand Burge, Section
A2011_016_Burge_Legand_06_MED_WEBCLIP012, TRT: 0:02:09 2011/08/11

As a matter of fact, I’ll share this story, since you’re talking about it. I actually was going to quit at the end of the first year because I said this is just too much work for me to do. I just don’t think I can do this. The secretary at the time was a lady named Elita Silverson (ph.). She has died, and she died about, it’s been about six years ago now, maybe seven. But she says, stay until graduation. And let’s, and then let’s talk. Graduation is always on Mother’s Day here, all right. What they do here, the week prior to graduation is a lot of standard, traditional
events. They do the career. Industry people come in, and they recognize all of these folks who have done internships over the last year or so. The companies will come in. The teachers will do their ceremony. The nurses will do their ceremony. They have the ROTC commissioning, I mean just a number of things. And then they do a rehearsal, graduation rehearsal for every student. Every student’s name is called, no matter, I mean it’s five, six hundred kids. Every student’s name is called. All right, well, as they’re walking across the stage, I didn’t know the dean shook everyone’s hand, but everybody that’s in my college, I get to shake their hand. And as that whole thing was happening, during rehearsal, one kid came up. He says, "I am really glad that you’re here. You have made such a difference in the way I look at things." One kid did that. We’ll graduate, I’ll graduate hundred, hundred fifty students, okay. Well, that shook me, and I thought about it over the next day or so. And I’m still here.