The Untold Story of the Founding of NSBE

From West Englewood to West Lafayette, to the Western World!!

by George Smith, NSBE Co-Founder

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Acknowledgements: My Fellow Founders & The NSBE F.A.C.T. Committee

INTRODUCTION

In this book I will focus far more on the magnitude of our achievements than the magnitude of our obstacles. The purpose of this book is to tell interested collegiate and professional members and supporters who, what, when, where, why, and how NSBE was founded. Think to yourself for a moment, can you answer these fundamental questions with any certainty whatsoever? Would you like to know the answers to these questions? Do you know the name of the NSBE Founder who authored the paper titled: “Factors Associated with Attracting and Retaining Black Americans in Engineering at Purdue University?

Do you know the names of the three Founders of the Black Society of Engineers at Purdue University? Do you know who hand-wrote the first Constitution used to guide the Black Society of Engineers at Purdue? Can you name the 7 Founders of the National Society of Black Engineers? Do you know that there is a statue of the NSBE symbol placed prominently on the main Purdue University Campus in West Lafayette, Indiana? Do you know what day should be recognized as Founder's Day? Do you know why we needed a National Society of Black Engineers? Do you know who had the vision to create a student organization for Black Engineers at Purdue? Do you know who coached the student Founders of NSBE? Do you know how we organized ourselves? Do you know what benefits we offered to the first members who followed our lead? Do you know which corporations were the first to offer support to the Purdue Minority Engineering Program (MEP) and the Purdue Society of Black Engineers(SBE) initiatives? Do you know why the corporations were willing to help us? Do you know why the President of Purdue University wanted to help us and believed we could do this? Did you know that a former Vice President of the United States spoke to an audience of 250 of America's Top Executives, Top Engineering Educators, Government Department Leaders, and Civil Rights Leaders to applaud them for agreeing to work together to increase Minority participation in the engineering profession? Do you know which engineering colleges were represented at the Inaugural NSBE Conference? Do you know how we knew who to invite? Do you know how the NSBE Founders became known by the nickname of "The Chicago Six"? Do you believe that a group of "Cool Like That" Black engineering students from Chicago who were fresh out of their teenage years made all of that happen without help? Please sit for a moment, pause, and ask yourself, how did the NSBE Founders know precisely who to invite to the First NSBE Conference? Do you know that one of the seven Founders of NSBE was also the head of the school of Electrical Engineering at Tuskegee University? Do you know that the Engineering Building on the Alabama A&M University campus in Huntsville, Alabama is named in honor of a NSBE Founder? Do you know his name? Do you know the name of the President of Purdue University who simultaneously served as the Chair of the National Academy of Engineering's Committee On Minorities in Engineering during the pivotal 1974-1975 Academic Year? Do you know the name of the former President of Purdue University who took his young family to witness the MLK led March from Selma Alabama to Montgomery, Alabama in March of 1965?

Listen, the NSBE Story is an epic "Land of the Free and Home of the Brave" saga that I am betting will captivate and fascinate you. It is a story about Black students who entered engineering school during the ramp down of the Vietnam War, near the end of the Civil Rights Movement, before the vast majority of first Black this, and first Black that achievements in Mainstream America. It is also a story about the courageous White Ally

leaders who helped to open the doors of the American engineering profession so that people from minority communities could enter, contribute, and prosper. With that said, I now ask you to consider the significance of the Black women who pioneered their way through engineering school at Purdue University. How brave were they? Do you realize that between the day the NSBE Founders enrolled in the School of Freshman Engineering until the day we graduated with our Bachelor of Science degrees in Engineering, no Black woman had ever graduated from any School of Engineering at Purdue University. What a daunting challenge, especially because Purdue's first Black man to earn a degree in Engineering, David Robert Lewis, did so in 1894. How much inner-confidence did they have?

As part of this opening statement, I want to remind you of a familiar phrase about why history is important … A Spanish-American philosopher, essayist, and poet named George Santayana said this: "Those who do not remember their past are condemned to repeat it." I have chosen to paraphrase it from a different viewpoint, "Those who do not know their history cannot learn from it." One of my goals for authoring this book is to provide a factual baseline for future historians who choose to examine the chain of events and influential people who helped to bring the National Society of Black Engineers to life in 1975. For the past 50 years, NSBE members have contributed their inventive solutions to help power the American economy. As one of only four living Founders of NSBE, I predict that when a research study is conducted on the economic impact of NSBE, Americans and the world will find a positive, quantifiable financial return on the resources invested to help us sustain, maintain, and grow into group so formidable that it can host an annual convention that now hosts over 18,000 attendees.

Going forward, how can NSBE use this historical account of our past? I propose that it should be used as a benchmark for making future strategic decisions and action plans at every level of NSBE.

Here we are 50 years after the founding of NSBE and every year, during NSBE Founders Month, I receive phone calls, text messages, and emails to ask me what day should be recognized as Founder's Day. I also get asked how the Founders crafted the wording of the "NSBE Mission Statement." Many people think the Founders wrote it, we did not. But I can tell you who wrote our first Society of Bleck Engineers (SBE) Constitution. It was hand-written by Arthur J. Bond. This is a NSBE History FACT that I hope is recorded, repeated, remembered, and still celebrated when our NSBE Family reaches our 100th Anniversary and beyond.

The 7 Founders of the National Society of Black Engineers (NSBE) are Purdue Engineers. We have become known as Dr. Bond & The Chicago Six. I dedicate this book to the memory

of Dr. Arthur J. Bond. He was the first engineer I ever met. Dr. Bond was a rare human being. He was born in 1939, a time in American history, before Pop Culture phrases like “Black is Beautiful” and “I’m Black and I’m Proud” and long before the gains of the Civil Rights Movement. This made his prospects for educational and career success in America’s predominantly White society highly unlikely. But his willpower to succeed was much stronger than the obstacles in his way. During my probe of his educational background, I learned some incredible things about his early life that astounded me. I suspect that these findings will astound you too.

WHO WAS DR. ARTHUR J. BOND? A Brillant Student, Pioneer and Leader

One morning, I woke up feeling like I had to see Arthur Bond’s high school yearbook. I contacted his sister, Allison Bond, Purdue Alumnus, BSEE 1978, to ask her. Thank goodness, she knew that he attended Bremen High School in Midlothian, IL. We found the 1957 Bremen High Yearbook by searching online. Thanks Google! Of course, the first thing I looked for was Arthur Bond’s picture. After finding it, I noticed that young Arthur was the only Black face on the page. As I flipped through the rest of his yearbook, I only saw two Black Seniors, five Black first-year students and only one Black young lady. Under his high school photo, I learned that he was a two sport (Track & Football) athlete, a member of the Student Council, Science Club, B-Club, and a four-year Arrow (I assume that is an Academic Achievement group. Then as I searched through other pages in the’57 Yearbook, I discovered that young Art Bond also held Senior year leadership positions. He was a member of the Yearbook Advisory Committee and finally, he was shown in a picture of students conducting a Senior Senate meeting. Wow, Big Brother Art was on the case and setting the pace! To put this in its proper perspective, I need you to know that the Little Rock 9 Crisis happened at the beginning of the 1957-1958 academic year. At that time, the tension over school integration was so tight, our United States President, Dwight Eisenhower was compelled to intervene by sending troops to assure the innocent Black students made it safely, to and from the school, daily, imagine that! Young Arthur graduated from Bremen High School during the beginning of the Summer that ended with the Little Rock 9 Crisis. Pause for a moment to think about the Status of America during his teenage years, then think about what obstacles he undoubtedly faced, and finally, think about how lucky we are to have been born during our times instead of his.

WHO ARE THE NATIONAL SOCIETY OF BLACK ENGINEERS?

16,000+ members dedicated to “Increasing the number of culturally responsible Black engineers who excel academically, succeed professionally, and positively impact the community.”

WHO ARE THE CHICAGO SIX?

- The “Chicago Six” is a nickname I coined accidentally. I used it to describe my fellow student Founders of the National Society of Black Engineers. It was published in an article I wrote for the Purdue NSBE ECHO Newsletter during the 1988 – 1989 academic year. See it below in the middle of the middle column of the article. I didn’t want to repeat all 6 names the 2nd time I referred to us in the article, apparently everyone else liked the shortcut too.

- Edward Coleman, BS Mechanical Engineering, 1975 (Morgan Park High School)
- Brian Harris, BS Interdisciplinary Engineering, 1975
- Tony Harris, BS Mechanical Engineering, 1975
- Stanley Kirtley, BS Civil Engineering, 1975
- John Logan, BS Civil Engineering, 1975
- George Smith, BS Electrical Engineering, 1976

The Chicago Six are the Purdue engineering students who led the quest to expand the Purdue Society of Black Engineers (SBE) organization from a West Lafayette group into a nationally recognized organization by means of a unifying conference that was held on the main campus of Purdue University, on April 12th, 1975. It was a time in American History when the participation of Black Americans in the engineering profession was only about 1%. At Purdue alone, our numbers grew from 28 students in 1971 to 304 students by 1978. [1]

Five of the Chicago Six are 1971 alumni of Lindblom Technical High School (Now Lindblom Math and Science Academy). It is in the West Englewood neighborhood on the South Side of Chicago just two blocks north of 63rd Street. We traveled safely to and from the school in the late 1960’s and so do our amazing current Lindblom STEM-Track scholars. To put the location in context for you, it is near the neighborhood immediately west of the famed Englewood section of Chicago, which was the site of the Spike Lee movie, Chi-Raq. The dictionary definition of Chi-Raq is a nickname for certain violent areas of Chicago, Illinois. It combines Chicago and Iraq and serves to identify Englewood as a warzone.

THE ENVIRONMENT THAT LEAD TO THE FOUNDING OF THE NSBE

by George Smith, Purdue BSEE
Hewlett Packard, District Manager

The typical college freshman must acclamate to a world of unknowns:

- New Residence
- New Friends
- New Teachers
- New Curriculum
- Increased Competition
- Greater Social Freedom
- Increased Importance of Priority Setting and Time management

In 1971, 25 Black Engineering Freshmen entered Purdue, a 25,000 (Predominantly white) student population. The intensity of the above unknowns were greater and life was complicated by additional unknowns.

- Would the Civil Rights turmoil of the 1960's be repeated in the 1970's?
- How does life on Purdue's campus differ from life in the Black Community?
- What is the attitude of faculty and students toward African Americans?
- How do African Americans interface with Euro-Americans?
- Why haven't I met a practicing Black Engineer?

Although we did not have the answers to these awesome questions, six of us Freshmen were a tight knit bunch from Chicago, and in my opinion this was an ideal support group for the challenges ahead. To help you understand the depth of our friendship, five of the Chicago six were schoolmates in high school and some attended elementary school together. We functioned like relatives then and now. In high school, we were core members of J.E.T.S. (Junior Engineering Technical Society), and the Brotherhood Social Club. Through these two groups we gained experience in organizing ourselves to accomplish common goals.

The administration at Purdue had the insight to establish a tutorial program and the upperclassmen shared course files. Our first semester grades were in the solid "B" range, we had proven that we could handle the academics, but we also knew that we had embarked upon the greatest endurance test of our young lives. At this point we had learned that there was no substitute for hard work. In 1971, the upperclassmen founded the SBE, Society of Black Engineers, to improve Black participation, coping mechanisms, degree fulfillment, and Engineering summer employment opportunity awareness.

In our Junior year, the Chicago six held the elected offices in the SBE. As upperclassmen our high school recruitment drives began to pay off. We recruited at our home high school (Lindblom), hosted visiting High School counselors and student outreach programs and published a Purdue University/Schools of Engineering information brochure that was targeted for a black h igh school audience. African American Engineering enrollment doubled each year. Summer and permanent employment prospects were the greatest incentives of our membership. We invited corporate representatives and alumni to speak about opportunities to our membership, and as our organization continued to thrive we kicked off a Magazine Committee, a Tutorial Committee, a Resume Committee, a Special Projects Committee, and we hosted an Equal Opportunity Luncheon and Corporate Banquet.

Although enormously successful, our SBE activities were quite time consuming and engineering school continued to become more complex. Enhanced priority setting, organizational skills, and overall time management skills were mandatory. We met the challenge and we were pleased that our self-help concepts had become a way of life on campus. In the fall fo 1974, we announced our dream of forming a National Society of Black Engineering students across the nation.

We had the support of the Purdue University Faculty and Administrators in our quest, the Logistics (eg. Meals, Hotel, Enterainment, Meeting locations, ect.) were no trival task but our previous activities had prepared us for the challenge. No less than eighty schools were in attendance, we split into five groups. At our 1st Conference, held at Purdue University, we shared ideas regarding the following topics:

1. Selection of official name
2. Goals for the NSBE
3. Organizational Structure: Executive Board, Regional Representatives, etc.
4. 1st year projects
5. Set date and location for 2nd Conference

By unaimous opinion, the NSBE founders are proud of the organization's progress and are confident that the past accomplishments prove that we can also determine tomorrow's destiny. In the fifteen years since the NSBE founding, each of the key players has marched toward success in their various fields. Regretfully John Logan died in an Amoco Refinery explosion, his contributions to the NSBE have been recognized through a memorial endowment scholarship fund at Purdue.

THE GOOD NEWS ABOUT THE CHICAGO PUBLIC SCHOOL SYSTEM

Lindblom, likely the first majority Black selective enrollment high school has a phenomenal history of academic success, and it is without a doubt, an example of the best of the Chicago Public School System.

In 2024, Lindblom Math and Science Academy continues to be a highly ranked majority Black high school in the State of Illinois. Therefore, in my book, past and future success stories in the history of NSBE will be tied, forever, to the history of our beloved Lindblom, the Home of the Eagle Mascot.

LINDBLOM IS AN ENGINEERING PREP SCHOOL

Since the first-year Class of 1969, more than 50 years ago, the students accepted to Lindblom have been tested and selected from the most academically talented 8th Graders in the city of Chicago. Lindblom gave us a good start, but the engineering brain game we had to learn to play was not simply about academic talent. Everyone at the Division 1 college level has talent. The curriculum is designed to stretch the brains of talented students to their maximum capacity. We had to step up … way up … to the academic challenge of the Schools of Engineering at Purdue University. We had to squash weekday socializing, set priorities, and manage our time accordingly. Success in engineering school at Purdue was more about self-discipline, self-motivation, heart, and willpower. Most of all, we had the courage to defy the common so-called mainstream belief that Black students could not compete and succeed in the field of engineering.

Our Chicago Six crew succeeded because we were characters with character and we had, not just one-for-all, but ALL-for-ALL attitudes. We did not look, talk, or walk like America's 1971 view of engineers. We dressed like an R&B singing group and we talked more like kids from the South Side of Chicago than like West Lafayette, Indiana. We were proud Brothers from the Hood. Like most teenagers, we admired cool music, cool clothes, and cool ladies. We were sporty, we were intramural sportsmen, (especially basketball), and we had no shame in our game! The truth is we were bold and brash with more confidence than we deserved. Yet, our overconfidence was our secret sauce. Without it, the Chicago-Six may have been easily knocked off our high horses. Together, we quickly recognized that engineering is a team sport, and we were a team with unyielding willpower to win every game we played.

LINDBLOM: THE EAGLES NEST

Lindblom has a long reputation for being one of Chicago's elite college prep high schools. I knew I had to bring my "A" game to compete. I also knew I wanted to be an engineer before I walked between the huge Supreme Court style pillars at Lindblom's entrance. But I never

imagined that I would meet my engineering college roommates on the first day of my first year. We found ourselves in the same classrooms, in the same gym class, on the track team, and on the scholastic honor roll. Unknowingly, I had already begun developing lifelong friendships with my fellow NSBE Founders before the second week of high school. Wow, who knew? We were an ambitious, aware, competitive, and involved group. By the time we were high school seniors we held leadership positions in several extracurricular activities including the Scholastic Honor Society, the Class Yearbook Staff, Student Government, and the Junior Engineering Technical Society (JETS). No, we did not have Calculus and Advanced Placement Science classes, but we left Lindblom with confidence. Some might say too much confidence, nevertheless, based on our college and career success, history has proven that we also had the right stuff.

THE LINDBLOM INFLUENCE

My first engineering student role model was Eric Harris, a Lindblom Senior, basketball star and straight A student. During the first school-wide assembly of our first-year, Eric announced that he would major in Electrical Engineering at Purdue. I wanted to "Be like Eric," so on that same day, I declared that I would attend Purdue to study Electrical Engineering too. The 1971 Lindblom Class Yearbook displays a photo of thirty-six members of the J.E.T.S. (Junior Engineering Technical Society). Four of the Chicago Six are in the iconic JETS Club photo. Many students from Lindblom's Class of 1971 aspired to become engineers and many actually did enroll in engineering colleges and earn engineering degrees. A sample of the engineering colleges my high school classmates attended are Bradley University, Cornell University, Illinois Institute of Technology, University of Michigan, University of Missouri-Rolla, Northwestern University, Wichita State University, and of course, the Fatherland of NSBE, Purdue University. During college vacation breaks, many Lindblom '71 alums returned to Chicago. We saw one another while we were out and about in the Big City. When we shared stories about our college experiences it became obvious that we were all dealing with similar social adjustment challenges. We talked about our thriving Society of Black Engineers at Purdue and one Lindblom friend, in particular, Michael Joshua, a Mechanical Engineering major at the University of Missouri-Rolla, said; "Man, I wish we had something like that at my school!" It became quite clear that the need for a self-help group for Black engineering students was real, and it was nationwide. Mike Joshua, another soaring Lindblom Eagle, gave the Chicago Six the idea to go national!

PURDUE SBE: THE EAGLES HATCH

The Purdue SBE was founded in 1971 by concerned upper class students, led by Edward Barnette, Robert Milton, Fred Cooper, Joe Abrams, and an electrical engineering PhD candidate, Arthur Bond. In their own way, each had survived and thrived while beating the formidable odds against them. The SBE was their response to the horrid 80% dropout or flunk out rate for Black Freshman Engineering students of the late 1960's. Edward Barnette, the Founding President of the Purdue SBE said: "We have a responsibility to the underclassmen." The Chicago Six were among the Black first-year engineering students in the Fall Semester of 1971, so we were the first to enjoy the supportive benefits of the Society of Black Engineers. Voila!! Not only did 80% of our 1971 first-year class return for our sophomore year, and as a sign of good things to come the Chicago Six all had "B" Grade Point Averages!! We were among the first to reap the benefits from Purdue's Black Cultural Center, Dr. Bond's Minority Engineering Program, and Ed Barnette's Black Society of Engineers.

Dr. ARTHUR J. BOND

Our Black Engineering Role Model, Arthur Bond, PhD Candidate, was an Assistant Professor of Electrical Engineering. Big Brother Arthur accepted Ed Barnette's request for help by agreeing to serve as our SBE Faculty Advisor and he wrote our SBE Constitution to guide us. Bond also developed Purdue's Minority Engineering Program from scratch.[2] In 1974, Arthur Bond became the 12th Black American in US history to earn a PhD in Electrical Engineering, and the 42nd to earn a PhD in any Engineering Discipline. His paper, "Attracting & Retaining Black-Americans in Engineering"[3], published by the American Society of Engineering Educators (ASEE) in 1977, had profound influence on defining the best practices of Minority Engineering Programs being developed at other colleges across the USA.[1] In 1994, I interviewed the legendary Dr. Bond. I titled the subsequent article, "It All Began with Art![4]. Here is an excerpt from the interview:

Smith: "What initial projects of the SBE at Purdue proved the great potential of your students?"

Dr. Bond: "More and more of the Black students began to demonstrate that they could compete in the classroom on an equivalent basis with their White peers. They showed initiative by setting goals and attaining them. They planned scholarship dinners, developed resume books, and organized technical project teams."

Smith: "Describe the SBE team spirit during the formative years."

Dr. Bond: “The comradery was unlike anything I had ever seen. Everyone had a common goal … to get to the finish line together! It was incredibly unique. Where you came from did not matter.”

NSBE: THE EAGLES FLY

During college, my professional development was accelerated because of the role I played as part of the Society of Black Engineers Executive Committee. Prior to forming our national organization, we built a thriving SBE at Purdue. The mission critical committees that enabled us to launch the SBE into the NSBE were:

- Special Projects & Events - Committee Chair, Brian Harris,
- Publications & Newsletters - Committee Chair, George Smith
- Tutorial Assistance - Committee Chair, Edward Coleman
- Resume Book / Placement Brochure - Committee Chair, Kevin Mason
- Publicity Development - Committee Chair, Allison Bond
- Membership Development - Committee Chair, Melvin Dorsey

Whenever anyone asks me, how we did it? My short answer is “We did it by Committee!” “Together, everyone achieves more!”

From the beginning, our goal was to increase the graduation rate of our members and to increase the number of incoming Black engineering first-year students at Purdue. We accomplished our goals with equal doses of self-help, tutorial assistance, Purdue support, and great corporate sponsors. Students were eager to come to meetings because John Logan, our Vice President always invited a guest speaker from a corporation. Each year, the immediate payoff for our members was a summer job with one of our corporate sponsors. My key responsibility was Chair of the SBE Publications Committee. I became the creator of our marketing image. I am immensely proud of the SBE symbol I designed and equally proud to have been the first Editor-in-Chief for the committee that produced our iconic historical documents; the SBE Recruiting Brochure, and the first of the SBE Cornerstone News Magazine Series. Our elected Officers were Anthony Harris, President, John Logan, Vice President, and Brian Harris, Treasurer. I served as the Acting Secretary in 1974 and Stan Kirtley served as the Secretary in 1975. Stan Kirtley, “Our Best Networker,” united us with Ed Barnette. Ed Barnette was the high-profile leader of the Purdue Chapter of the Kappa Alpha Psi fraternity. This was key because BIG ED had the “BIG IDEA” to form our Society. Our 6th Founder, Edward Coleman, a Morgan Park High School scholar, was the Chair of our Tutorial Assistance Committee. Ed committed 4 hours every week for "come one, come all" tutoring sessions with undergraduates. In this role, Ed executed the most crucial element of the NSBE Mission ("TO EXCEL ACADEMICALLY"). For this reason, I think

of Founder Edward Coleman as the first Academic Excellence Chair in SBE/NSBE History. All NSBE's Chicago Six Founders were my CPS classmates in high school or middle school, and by the time we founded NSBE, I had been best friends with them all, for no less than 8 years. I feel compelled to note that many unsung Purdue members also worked selflessly for our "Society." Team SBE orchestrated two major events before convening the First National SBE Conference. In retrospect, it is clear to me that these events; **The Equal Opportunity Luncheon** & **The First Annual Banquet** served as dress rehearsals for the 1st NSBE Conference.

EQUAL OPPORTUNITY LUNCHEON

Our first major event held on October 24th, 1974, was the Equal Opportunity Luncheon for Indiana High School Counselors. We co-hosted it with the Society of Women Engineers (SWE). Our guest speakers were the Program Coordinators of both SWE and SBE. This event familiarized high school counselors with our brief albeit successful history established at Purdue by both student groups. The counselors left the event believing that if they recommended the Purdue Schools of Engineering to their students, they would come into an extremely supportive learning environment.

FIRST ANNUAL CORPORATE BANQUET

Our second major event held on February 11th, 1975, was the Inaugural SBE Annual Corporate Banquet. The Banquet was sponsored by the corporations recruited by our SBE Advisor, Dr. Arthur Bond. At this event, we introduced the Purdue Society of Black

Engineers to Corporate America. It was our first opportunity to thank our sponsors. Anthony Harris, our dynamic SBE President, skillfully delivered the opening remarks. The President of Purdue University, Dr. Arthur Hansen, gave an encouraging speech that showed his belief in our Society and his pride in our academic progress. John Logan, SBE VP, Editor of 2nd Cornerstone, and "Our Best Hands-On Engineer", delivered an engaging "History of the SBE" speech to our enthusiastic audience. In his Banquet summary, our Event Project Chair, Brian Harris, noted that many of our members experienced their first "informal interviews" at the Banquet. To that I will add that those informal interviews led to formal job offers. The First Annual Banquet demonstrated yet another tangible benefit for our members, JOBS! The fact that we called it a First Annual Banquet is a sign of our confidence that we were starting something that would withstand the test of time.

FIRST NATIONAL CONFERENCE

The Chicago Six were roommates during our entire college experience. This gave us the opportunity to brainstorm, make plans, and to discuss our progress daily. After we mutually agreed on our plans, we equitably divided the resulting action items between us. Everyone was dependable. We never dropped the ball on a commitment to the team, never!

Anthony Harris and Edward Coleman, both officers of the American Society of Mechanical Engineers (ASME), discussed using the ASME organizational format as a template for our national society. Our Executive Committee was also coached by Dr. Saundra "Saunie" Taylor (Dr. Arthur Bond's Assistant), on the Purdue process for hosting a Conference. It worked because we worked together as a team.

Dr. Bond guided me to get the list of Thomas Fletcher's minority and majority contacts at other engineering colleges. Mr. Fletcher was a Black administrator working in the Purdue Career Placement Office. In those days we did not have email or a fax machine. We had the postal service and couriers. I personally walked from one side of the campus and back, to get the contact list, and to turn the list over to Dr. Bond. Brian Harris and Saunie Taylor did the rest.

Brian Harris, SBE Treasurer and Special Projects Chair, diligently planned and executed the logistics for all of our SBE/NSBE events. Mrs. Saunie Taylor administered the actions that required Purdue University authorization. Saunie oversaw Residence Hall Reservations, Conference Rooms, Menu Reservations, Program Printing Services, and Invoice Payment. So you see; this is why I now, think of Dr. Saunie Taylor, as "Sister Founder". Brian Harris personally wrote the letter proposing our 1st National Conference. That letter included a list of proposed topics for our meeting. He had to read the responses and craft an agenda that took into consideration the ideas from other campuses. This was an iterative process. It did not happen in one fell superhero swoop! Brian had to roll up his sleeves and execute three waves of responses and replies before we had a final agenda and a final date. Brian Harris had to open a slew of response letters, write replies, address envelopes, stuff letters, and walk the letters back to Dr. Bond's office for mailing. That is why I call Brian Harris, the 1st SBE Conference Planning Committee Chair and "The Hardest Working NSBE Founder".

On April 12th, 1975, Anthony Harris, our Purdue SBE President, showed remarkable poise as he opened the conference by covering our objectives and the schedule for the day. He performed his "Master of Ceremonies" role perfectly. I think of "Tony" as our "Meet the Press" Guy. Three of the Chicago Six and three of our future Purdue Chapter leaders led the Regional Breakout Group discussions. During the 1st Regional Meetings, we decided on our

mission, objectives, goals, and our NSBE name. In that first round of Region Meetings, 134 students from 28 Colleges of Engineering, came to a unanimous voting decision to form the National Society of Black Engineers!

NSBE NOW

NSBE is a testimony to what young people can accomplish when they have a supportive village. We have grown to over 500 NSBE Chapters, 18,000 Annual Conference/Job Fair Attendees, over 20,000 members, and 6,000 graduates per year. Yet with all the progress we have made, it's clear that we still have a long way to go because Black Americans are still grossly underrepresented in the engineering profession, and we still have far too many educationally disadvantaged Black students in America. Therefore, our mission to "Increase the number of culturally responsible Black Engineers who excel academically, succeed professionally, and positively impact the community" … continues. Thank you for reading this to improve your understanding of the chain of events that brought the National Society of Black Engineers from West Englewood to West Lafayette to West Africa, and to the Western World!

WHY DID IT HAPPEN AT PURDUE UNIVERSITY?

Our pivotal factors included Allies within the Purdue Administration and Faculty:

- Arthur G. Hansen Chaired the National Committee On Minorities in Engineering.
- Arthur Bond co-led the 1st Committee On Minorities in Engineering MEP Workshop.
- Purdue had a proven process for hosting conferences.

I think it is important for whoever reads this to know that in the mid 1970's Purdue University was a key midwestern location for hosting academic conferences. The 1974-75 FACTS About Purdue Pamphlet clearly states that "Purdue annually hosts 400 conferences attended by 78,000 people." This will help answer the question: Why did it happen at Purdue? During the rest of this book, I will introduce you to an abundance of people and programs that made the NSBE you know today possible.

APPENDIX

Articles about Success at Lindblom Math and Science Academy:
https://chicago.suntimes.com/2017/5/12/18333032/cps-success-story-lindblom-students-heading-to-harvard-stanford-mit
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CHAPTER ONE. THE PURDUE UNIVERSITY SBE STUDENT STORY

Purdue University has a wonderful history of producing graduates who go on to make great contributions to the advancement of our national and global society. One of the significant contributions Purdue's Black Engineering undergraduates and their faculty support squad made is the National Society of Black Engineers (NSBE). In short, Purdue University is the birthplace of NSBE. In this book, I intend to make the case that Dr. Arthur J. Bond, The Architect of NSBE, had the greatest positive impact on the advancement of Black Engineers certainly at Purdue and he is on the roster of all-time pioneer contributors to the national effort to increase the number of Black engineers as well. It needs to be perfectly clear that the Chicago Six, a nickname I accidentally coined, are a by-product of Arthur Bond Legacy. Dr. Bond is not a by-product of ours. Dr. Bond's influence spread across the State of Indiana, across the United States of America and through the work of NSBE, his influence is still felt around the world almost 70 years since 1957, the year Dr. Bond began his personal engineering journey. In Chapter One, I will first address his influence on Black engineering students at Purdue. In subsequent Chapters, I will cover his influence on American corporations, American Colleges, and the nationwide movement to expand the participation of minorities in the engineering profession.

First, I want to clearly establish that this is not just a George Smith Memory Lane Story, and it is not simply a Chicago Six Story. I will share the stories of how Arthur Bond's labor impacted the growth of Purdue University's Black Engineering student population from 28 students in 1971 to 304 students in 1978. The following letter of recommendation for Arthur J. Bond, written on January 11th, 1994, by the highly respected Head of Purdue's School of Electrical Engineering, and eventual Dean of Purdue Engineering, Richard Schwartz, will provide insight into Dr. Bond's work ethic, talent, and achievements. Then, I will share the testimonies of 10 Black Engineering students who benefitted from his presence as an extraordinary role model, coach, mentor, and engineering teacher.

For transparency, I need to confess that for nearly 20 years after the Purdue Society of Black Engineers hosted the Inaugural NSBE01 Convention, I thought we students pulled off an amazing feat largely due to our own initiative and ambition. Just imagine six young rascals shaking each other's hands and patting each other on the back like a basketball team that had won an NCAA Championship back in 1975. While our efforts were indeed a critical component of the formula for success, I was totally unaware of how our allies paved the road beneath our footsteps and accelerated our travel toward the founding a national organization that would endure beyond our lifetimes. So, what single event and letter of recommendation changed my perspective? It was a letter from the then Head of

the School of Electrical Engineering, Professor Richard Schwartz. Now I hope you are asking yourself; How did George Smith get a copy of the letter?

The Answer: Dr. Bond asked me to help him prepare a package to nominate him for two prestigious engineering educator awards. So he sent me a copy of his resume, and instructions for securing letters of recommendation from his former college faculty employers, Purdue University, where he built an effective MEP Model and Tuskegee University where he had served as the Head of the College of Electrical Engineering.

As I look back on that day, I recognize that Dr. Bond's request may have been the greatest honor of my life. The influence of this man on my life, was second only to my beloved Father, the man for whom I was named! Out of all his former students over the first 22 years of his career, Big Brother Arthur Bond asked me, one of his first engineering students, to help him. All I will say about that, is … he was awarded the recognition he richly deserved, and he picked the right guy to pull together his nomination package! The 1994 Reginald H. Jones Award included a $10,000 check!!

I am including a copy of Professor Schwartz letter of recommendation and the award announcement letter in the next few pages of this book because it will help to frame the rest of this American success story about how Arthur J. Bond, "The Great Enabler", led so many Black engineers to victory.

PURDUE UNIVERSITY

SCHOOL OF
ELECTRICAL ENGINEERING

RICHARD J. SCHWARTZ
HEAD

January 11, 1994

To Whom It May Concern:

I have been asked by George Smith to submit a letter of recommendation for Dr. Arthur J. Bond, who has been nominated for the ASEE Vincent Bendix Minorities in Engineering Award. I have known Dr. Bond throughout his career here at Purdue, where he was first a graduate student and then a member of the faculty. He left the faculty here at Purdue in 1979, but I have been in intermittent contact with him since that time. It is with great pleasure that I write this letter of recommendation in recognition of Art Bond's contributions to minorities in engineering. Recognition for his efforts is long overdue, and I hope that this situation will be rectified through his receipt of this award.

Dr. Bond's contributions to the recruitment and retention of minority students in engineering began while he was still a graduate student. In 1969, he was appointed as the first Coordinator for the Program for Disadvantaged Students in the Department of Freshman Engineering here at Purdue. At that time, he had just completed work on his Master's degree and was beginning work on his PhD. In his capacity as coordinator, he initiated the development of a recruitment and retention program. In addition, he successfully sought support for the program from the industrial community. As a part of his recruitment efforts, Art traveled throughout the state and visited high schools and even junior high schools to encourage minority students to pursue studies in engineering. As part of his retention efforts, Art - along with others in Freshman Engineering, initiated the Counselor/Tutorial Program, which provided daily tutoring in technical courses for freshmen and academic and non-academic counseling to assist minority students in the transition from their previous environment to the Purdue environment. While the program was open to all educationally-disadvantaged students, the major participants were black students. The tutorial program was highly successful in bringing students with deficient backgrounds up to the academic standards required by the various Schools of Engineering. One impact of Dr. Bond's work may be seen by examining the enrollment statistics for minorities in engineering at Purdue. In 1971, there were 28; by 1977, this had grown to 268; and in 1978, it reached 304. As part of the recruitment program, minority sophomores and juniors in the upper five percent of their class were invited to campus for talks, lab demonstrations and tours. Approximately 200 students per year were involved in this program.

In his retention efforts, Dr. Bond noticed a need for peer support, and his response was to organize the first chapter of the Society of Black Engineers. He and a colleague drafted the constitution, based on that of the Society of Women Engineers. Since the first chapter's founding in 1971, the Society of Black Engineers has, of course, grown to a national society and forms a cornerstone of support for black engineering students.

Electrical Engineering Building
West Lafayette, IN 47907-1285

Phone: (317) 494-3539
Fax: (317) 494-6440

The foundation laid by Dr. Bond for recruitment, retention, and support of minority engineering students has since been built upon and expanded by many others at Purdue, and it now represents one of the more successful programs in the country.

Until now, I have concentrated on the institutional aspects of Dr. Bond's contributions. Equally important, but much more difficult to document, are the contributions he made to individual students through his willingness to help, his availability at all hours of the day and night, and his encouragement. One of these students is George Smith, the person who is nominating Dr. Bond for this award. George, along with many other students, has told me that if it were not for Art Bond, he would not be an engineer at this time.

As I opened our files to refresh my memory on the dates of Dr. Bond's activities here, I came upon a number of letters which had been written to various officials from outside and which document the national impact of Art's contributions. I don't believe that I will be violating any confidentiality by quoting from a few of these (please note that I am using the position and affiliation shown on the letters when they were written).

Melvin Thompson, Executive Director, Committee on Minorities in Engineering, National Research Council, Washington, D.C., in a letter dated October 19, 1978, wrote:

> "Art has been intimately involved with various activities of the Committee on Minorities in Engineering (CME) and has made substantive contributions. As the CME's programs have evolved we have depended on the input of knowledgeable and sensitive engineering educators. Art has served us well in that regard in helping to identify key issues and problem areas related to the experiences of minority engineering students and successful approaches for addressing those problems. Art's leadership and enthusiastic support in the early developmental stages of the national minority engineering effort have significantly contributed to its growth and success."

Roy B. Cowin, Guidance Director, Engineers' Council for Professional Development (ECPD), New York, NY, in a letter dated October 25, 1978, said:

> "For three years Dr. Bond served as Director of ECPD's MITE program held at Purdue."
>
> "Dr. Bond took an active part in ECPD's post-MITE directors meetings, reporting on his successful innovations made at Purdue. His leadership and persuasive manner lead to the adoption of his ideas at some of our presently most successful MITE programs such as Georgia Tech, North Carolina State, University of California at Irvine, and Rochester Institute of Technology -- just to name a few."
>
> "Dr. Bond did not limit his activities to summer programs, but he worked diligently and successfully on Purdue's total Minorities In Engineering programs. Hence, he not only took an active role in many regional and national MIE seminars, but he was aften [sic] cast in the role of moderator, panelist, and lecturer."

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Dr. Richard T. Mullins, Executive Director, Minority Engineering Education Effort, Inc., New York, NY, in a letter dated October 20, 1978, wrote:

> "Recognizing Dr. Bond's significant contribution to the development of a national effort to increase the flow of minorities to careers in engineering and science, he is most deserving of the academic community's affirmation of a 'job well done'."
>
> "Over the past four years I have worked closely with Dr. Bond in developing aspects of the national program. He was most unique in his ability to share his programmatic experience gained at Purdue with the freshman engineering program and minority efforts. Thus, there are in place a number of programs, nationwide, which can be attributed to Dr. Bond's vision and penchant for hard work."

LaVoy Spooner, Assistant Director, Committee on Minorities in Engineering, National Research Council, Washington, D.C., in a letter dated October 20, 1978, said:

> "Through his work with the minority students at Purdue and his participation in the development of the national program for minorities in engineering education, Dr. Bond has made a major contribution to engineering education. His dedication and active participation have been vitally important in bringing concern for the education of minorities in engineering to the prominence that has resulted in major gains nationally in the enrollment of minority students in engineering."

I hope that the above remarks convey to the committee the dedication, insight and service which Dr. Arthur Bond has brought to the cause of minority engineering education. He certainly deserves recognition for his pioneering efforts in this regard.

Sincerely,

Richard J. Schwartz
Professor and Head

RJS:pd

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West Lafayette, IN 47907-1285

Phone: (317) 494-3539
Fax: (317) 494-6440

KEY TAKAWAYS from Professor Richard Schwartz Letter of Recommendation:

Contributions to the Purdue expansion of Black engineers:

- Art Bond conceived and launched Purdue's Minority Engineering Program (MEP)
- In 1969 Art Bond was named the first Coordinator/Director of the Purdue MEP
- At the time MEP was called Programs for Disadvantaged Students in Engineering
- In 1971 Art developed and initiated Purdue's Counselor Tutorial Program
- Bond drafted the Constitution for Purdue's Black Society of Engineers
- Art successfully recruited finanical support from the industrial community
- Art Bond visited Indiana schools to recruit top students for Purdue campus tours
- Purdue's Black engineering enrollment grew from 28 to 304 under his watch

Contributions to national expansion found in letters of gratitude dated October 1978:

- Mel Thompson, Exec. Dir., Committee On Minorities in Engineering, National Research Council, said this: "Art's leadership and enthusiastic support in the early developmental stages have significantly contributed to its growth and success."
- Roy Cowin, Guidance Dir., Engineering Council for Professional Development said this: "For three years, Dr. Bond served as Director of ECPD's MITE Program held at Purdue." His innovative ideas were adopted at "successful MITE Programs at Georgia Tech, North Carolina State, University of California at Irvine, and Rochester Institute of Technology."
- Dr. Richard Mullins, Exec. Dir., Minority Engineering Education Effort, Inc., "there are a number of programs, nationwide, which can be attributed to Dr. Bond's vision."

These takeaways are examples of the "old school" lessons for MEP Directors. These benchmarks should be at the top of every MEP effectiveness assessment checklist.

Professor Schwartz, who by the way, later rose to the prestigious position of Dean of Engineering at Purdue University, also reveiwed Dr. Bond's file and found numerous letters of appreciation from the leaders of several pioneer organizations involved in America's first national effort to increase participation of minorities in engineering. This is primary evidence of Art Bond's impact beyond Purdue University to help establish a national network of coordinated Minority Engineering Programs. In particular, the Minority Introduction To Engineering (MITE) Program which is still a prominent component of Minority Engineering Programs across the USA today.

National Action Council
for Minorities in
Engineering, Inc.

3 West 35th Street
New York, New York 10001
212/279-2626

NACME

Post-It™ brand fax transmittal memo 7671	# of pages ▸ 2
To GEORGE SMITH	From [illegible] BOND
Co.	Co.
Dept.	Phone # (205) 851-5580
Fax # (708) 416-7054	Fax # (205) 851-5580

April 21, 1994

Dr. Arthur J. Bond
Dean, School of Engineering
and Technology
Alabama A&M University
Normal, AL 35762

Dear Dr. Bond:

It gives me great pleasure to inform you that you have been selected by a committee of previous recipients as the 1994 Reginald H. Jones Distinguished Service Award winner.

As you know, the Reginald H. Jones Award is the highest honor conferred in minority engineering education. It is presented annually at the NACME Forum to the individual whose outstanding contributions most merit nationwide recognition. A list of former recipients is enclosed.

The award is named for Reginald H. Jones, former chairman and CEO of the General Electric Company, whose pioneering leadership helped initiate the minority engineering effort. Endowed by the General Electric Foundation, the award carries a $10,000 prize which is donated in the winner's name to a tax-exempt organization working to increase the number of minority engineers.

This award recognizes your longstanding commitment and wide-ranging contributions to minority engineering education.

The award winner will be announced at the 14th annual Reginald H. Jones Awards presentation. We would appreciate your making acceptance remarks (approximately 10 minutes) following the presentation.

Date:	Friday, June 3, 1994
Time:	12:30 p.m. - 2:00 p.m.
Location:	The Westin St. Francis Hotel San Francisco, California

NACME staff will arrange travel and hotel accommodations for you and a guest. A travel request form is also enclosed, along with a Forum Announcement.

Again, I extend warmest congratulations and look forward to greeting you at the Forum.

Sincerely,

George Campbell Jr., Ph.D.
President

Enclosures

PS - Your hotel arrangements include two nights stay at the hotel.

THE BOND IMPACT

These Three Pillars Represent the Foundation of Dr. Arthur J. Bond's Legacy:

- The Purdue University Minority Engineering Program he developed & implemented.
- The National Minority Engineering Program he helped develop are his legacy.
- The Black Engineering students he helped culturally, academically, & professionally from Purdue University, Tuskegee University, & AL A&M University.

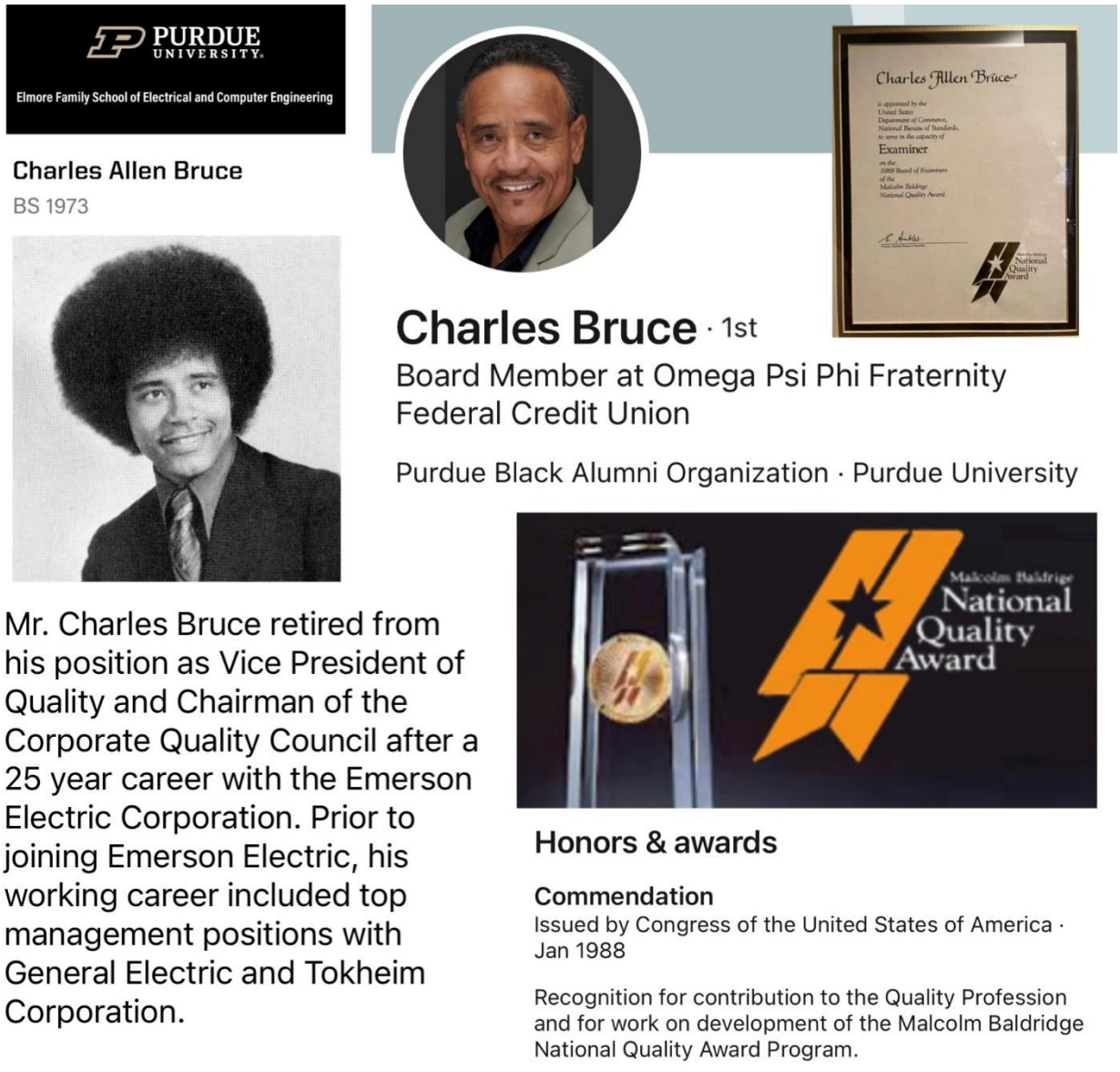
Now let's check-in on where we are relative to the commitment I made for this chapter. In addition to sharing the evidence of Dr. Bond's contribution to the Purdue Schools of Engineering, and his contributions to the national minority engineering expansion effort, I also promised to share the voices of a sample of students and colleagues. I think it is vitally important for you to know how he impacted the lives and careers of his Black engineering students. Many of whom were 18-year-olds, and fresh out of high school when Dr. Bond's impact on their lives began. This is important because we so often talk about demographic population trends that it can easily become difficult to remember that we're really talking about a collection of individual people. The real story of Dr. Bond's impact lies in the hearts, minds, and voices of the students who benefited from his counsel. In the summer of 2022, I contacted as many of my electrical engineering classmates that I could find to ask them one simple question: Tell me your memories of how Big Brother Art Bond affected your career and your life. Why did I focus on my EE classmates? For one thing, I already had contact information for a fair share of them because we did a decent job of keeping in touch after we graduated from Purdue with our engineering degrees. I learned about some remarkable success stories, and family history stories. You see many of them had raised families, seen their kids through college, marriages, and are now enjoying grandchildren and retired life. Each story is compelling, and I thought, the pioneer corporate supporters of NSBE need to know about how the returns on their investments. I call this segment of the story, The Bond Impact. These are personal testimonials about the Impact of Dr. Arthur J. Bond on the lives of his students. Get some popcorn. I hope you enjoy these stories as much as I do.

In honor of the July 4th Birthday of NSBE Founder Dr. Arthur J. Bond, on July 5th, 2022, I began publishing the first of 10 Tribute Letters to Arthur Bond. Each letter was written by a Black Engineer who benefited from the mentorship of Dr. Bond while pursuing an engineering degree from Purdue University during the 1970's.

George Smith, "The Bond Impact" Project Director/Editor
Purdue University, BS Electrical Engineering 1976
GM, GE, Hewlett-Packard District Manager, Retired
NSBE Co-Founder, 1st SBE Publications Chair, SBE Logo Designer, & Chicago Six nickname creator.

The Bond Impact, 1st Edition

1. Tribute by Charles A. Bruce, B.S. Electrical Engineering 1973



Dr. Arthur J. Bond Gave Me Two Big Surprises

Having come to Purdue in 1968 from a small, predominately white town in Southern Illinois, I had no expectation of ever seeing a Black instructor at Purdue. From

kindergarten through the 12th Grade, I had a total of three Black teachers so; the overwhelming “Lack of Black” at Purdue was a status quo environment for me.

Fortunately, for this Freshman Engineering student, there was a group of upper-class/graduate students who frequently stopped in at the Sweet Shop (this was before there was a thing called The Black Cultural Center). Those fellows were willing to share their wisdom and help us get through that flunk-out first semester of Chemistry, Physics and Calculus. One of the premier members of that Help-A-Brother crew was a very energetic, stocky, dark-skinned guy who was introduced to me as “Art Bond”.

Art was always pleasant and patient....and smart! He wouldn’t do your work, but he would point you in a direction that would get you to a solution to the problem you were trying to solve. Well, one day, a couple of years later, I walked into my EE 301 Class and took a seat near the door. I heard a small commotion near the door, and I looked up to see Art Bond walking into the room. This made no sense to me because I was sure that he must have taken this class years before. Well, imagine my surprise when he walked to the front of the room, set his briefcase on the desk and wrote his name on the blackboard. I said, out loud, “Damn Art....you my Teacher?”
Well, no need to comment here on how I struggled in that class and that my only salvation was the extra time that Art Bond spent with me in and out of that classroom. There is a Magna Cum Laude and a Summa Cum Laude....I was more of a Thank You Lawdy (“Lord” for those unfamiliar with urban vernacular, LOL!) student.

I lost track of Art because of being a Co-Op Student, so I didn’t see much of him after that semester and not at all after I graduated in 1973. Now, let’s fast forward to around 1996. I caravanned down to Jackson, Tennessee to attend my Mother’s Family Reunion. This was the first time in my life that I had connected with that side of my family. There were probably 200 people in attendance representing all the local branches of my Mother’s Family Tree.

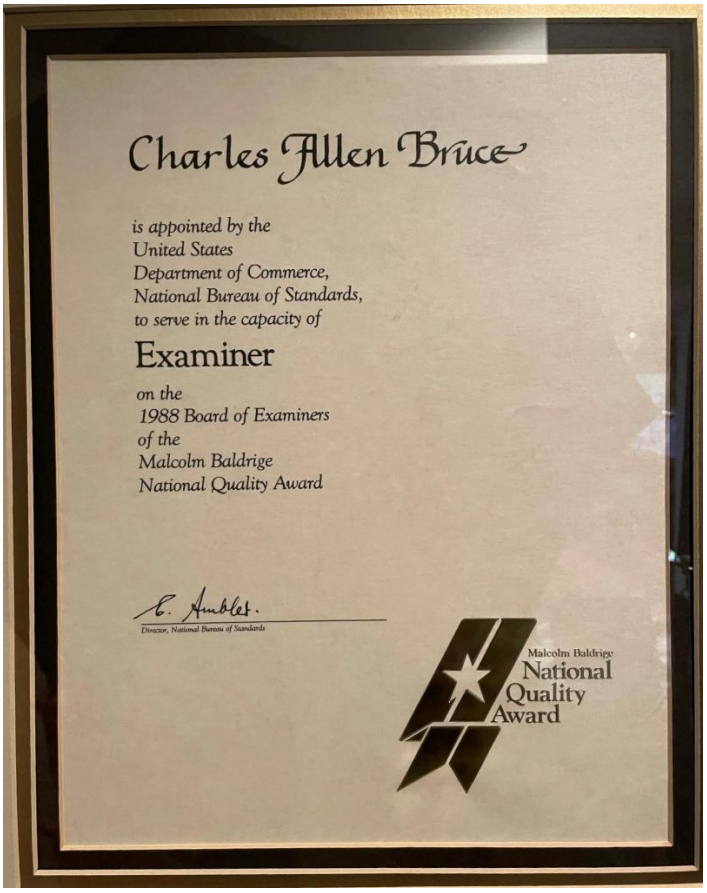
After the big Sunday Brunch, the Family Photo and those last big “So Nice to Meet You” hugs, one of my Mother’s cousins asked me if I had gone to Purdue. I said yes, of course, and he said, well guess what, one of our cousins just got here and he said he used to teach at Purdue.

I was escorted to the hotel lobby to meet this Professor Cousin and as I turned the corner, I practically bumped into this energetic, stocky, dark-skinned guy. My mouth popped open and all I could say was “Damn Art....you my Cousin?”

I had never made any connection between my Mother’s Tennessee Bond Family roots, to this guy, Arthur J. Bond. For sure, without him, I might still have graduated from Purdue with my BSEE, but I wouldn’t have bet much money on it!!

Long live the memory of Dr. Arthur J. Bond!!
Charles A. Bruce
Purdue B.S. Electrical Engineering 1973

Corp. VP Quality, Emerson Electric Co. (Retired),
Member of the Malcolm Baldridge National Quality Award Development Committee,
Grand Officer - Omega Psi Phi Fraternity, Inc. (2006-2008),
Board Member - Purdue Black Alumni Organization
https://www.facebook.com/PBAOPURDUE/videos/613925195680974/



Editor's Note:

The National Quality Award was established in 1988 as a key strategy to incentivize American manufactures to become more competitive. Improved quality of manufactured goods was a big factor in putting the U.S. economy back on track. The first team of Quality Examiners was a select group of our nation's Top Quality Management Executives. Charlie Bruce's selection to the Board of Examiners of the Malcolm Baldridge Award speaks extremely well about his successful engineering career.

Charlie Bruce began his engineering education at Purdue in 1968, just 3 years before I began mine. So he was one of the few Black upper-class super heroes who led by his actions, earned his engineering degree, and moved forward into what became a stellar professional career. I didn't know when I accepted my job offer from General Electric, that Charlie had launched his career there too. He led the way at Purdue, he led the way at General Electric, and he was the 1st to respond to my request for Tribute Letters

to the memory of Dr. Arthur Bond. I feel like I owe Charlie Bruce 3 thank you notes. Mr. Bruce's tribute to Art Bond shows how much he appreciates one of the shoulders he stands on. With this Editor's Note, I'm letting everyone know that one of the shoulders I stand on belongs to the man with 3 first names, Mr. Charles Allen Bruce.

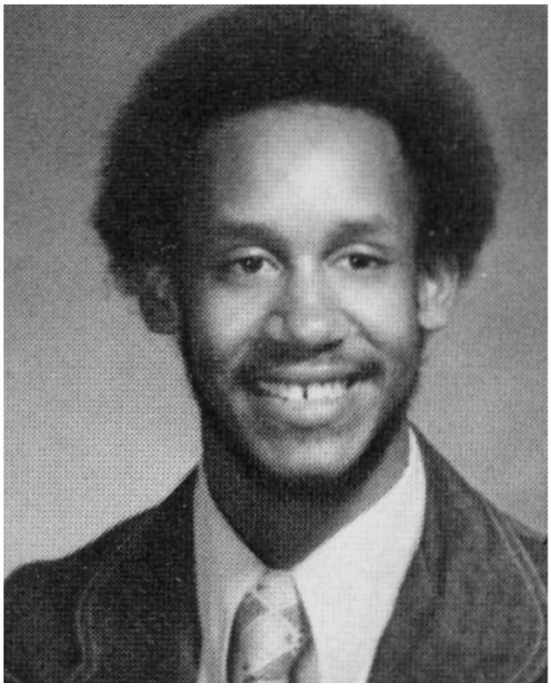
The Bond Impact, 2nd Edition

2. Tribute by Ken (Breeze) Billups, BSEE 1976

Ken Billups, Jr.
BS Electrical Engr
Purdue Univ, 1976

20 yrs Aerospace Engr
Plus
20 yrs Math Teacher

Received 2017 Award
for STEM Excellence
from the Univ of So Cal



I want to commend George Smith, co-founder of the National Society of Black Engineers (NSBE) and fellow Electrical Engineering (EE) warrior for his incredible mission of highlighting the accomplishments of fellow Black engineers nationwide, and his undying role inspiring the next generation of Black engineers. George, you are a blessing to us all.

I'm so proud to be a part of this group of Purdue University brothers and sisters from the 1970s, who annually strolled the hallways of the EE Building and trudged in and out of EE 129 lecture hall. For me, the Black Cultural Center (BCC) was the place to see and be seen, and I took advantage of the comfort it provided with people who looked like me. Across the street from the BCC was the Purdue ROTC Armory. That's where I first met Arthur Bond. It was during Purdue's "Introduction to Engineering Program". It was specifically for minority students. Next Art's early morning math and science tutorial program was the first class of my Purdue College of Freshmen Engineering career.

Art was easily recognizable, not only because he was older, but because he looked like an engineer… a smart engineer… a smart, Black engineer. At the time, he was a graduate student working on his PhD in EE. Yeah, that's what I said, his PhD. in Electrical Engineering, at one of our nation's top ranked engineering schools, our very own Purdue University. I was in awe of Art Bond. He was very approachable, with a jovial personality and a constant smile. I needed Art more than I realized at the time. He became the reassuring big brother I felt I could go to for advice and encouragement. In my critical freshman year, Art helped me learn the intricacies of the almighty slide rule, an instrument my pubic school education hadn't exposed to me. This was big. I absolutely had to learn how to use it to keep up in my classes. Before that personal training I received from Art, let's call it Slide Rule 101, I had been frantically multiplying and dividing on paper and falling behind, while other students used their more efficient slide rules.

Art Bond was our faculty advisor as we began the Society of Black Engineers (SBE) at Purdue. I was a proud member of this group. Our common goal created life long bonds. My Kappa fraternity brother, Ed Barnette, was its brainchild. Big Ed brought the upperclassmen Kappa brothers in Engineering together to help the underclassmen.

One of my favorite fraternity brothers was Stan Kirtley, who would also become a NSBE co-founder along with George Smith and others when they took the organization to the national level in 1975.

None of this would have happened without the guidance, leadership, and presence of Art Bond. Art had the respect of Purdue's Dean of Engineering and the President of the university as well. He was the force behind the mass of Black brothers and sisters and accelerated us into a culture of achievement; a culture where we not only matriculated at Purdue but were determined to graduate with a Bachelor of Science degree in engineering.

My only formal student-instructor experience with Art was that freshman tutorial class, but it got me off to the start I needed. And from that point on, I always felt I could go to Art for a quick confidence boost, and to pick his brain to learn as much as I could about his journey through the world of engineering. In time, I moved to the West Coast and Art moved south to the State of Alabama. But throughout my life, Dr. Arthur J. Bond, has

remained someone for whom I will be eternally grateful, and someone who I will never, ever forget! Thank you for pointing me in the right direction Art.
May you rest in Heaven with my other Angels!!

Ken (Breeze) Billups
Retired Engineer & Educator
EDUCATION:
•Purdue B.S. Electrical Engineering 1976
•National Board-Certified Teacher 2003
•Cal State D.H., Masters Education, 2004
•Member of Kappa Alpha Psi Fraternity

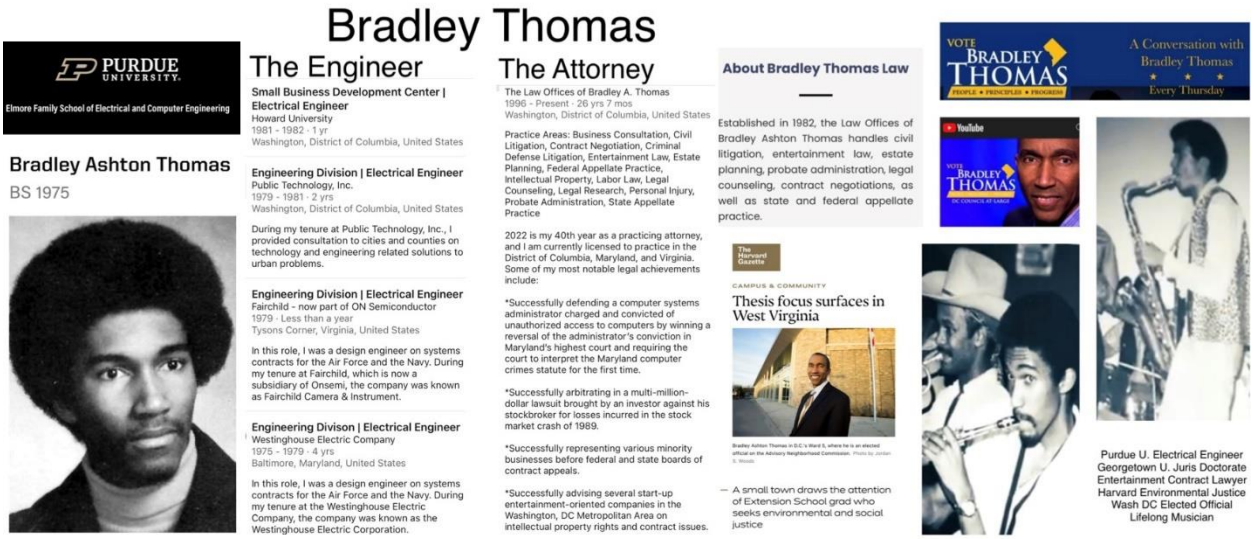
ENGINEER:
Aerospace Industry Engineer, General Dynamics, Grumman Data Systems, Hughes Helicopters, TRW (now Northrop-Grumman) (1976 - 1996)

EDUCATOR:
•Fifth Grade Teacher (Retired 2019)
•STEM Teacher of the Year 2017
•BizWorld Teacher of the Year (2005)
•Windsor Hills Mathematics/Science/Aerospace Magnet School (2014 - 2019)
•Baldwin Hills Gifted Magnet Elementary School (1997-2013)

https://usctrojans.com/news/2017/9/18/usc-ripsit-blog-trojans-go-the-extra-yard

The Bond Impact, 3rd Edition

3. Tribute by Bradley A. Thomas, BSEE 1975



I remember Art Bond as a kind, intelligent, conscientious brother. I always saw Art Bond as strong role model. He was, to me, an example of how to walk tall and speak unapologetically as a black man in a white dominated world. He was one of the bright spots I recall from my time at Purdue. I remember when he launched the Society of Black Engineers and I remember attending some of the first organizing meetings.

When I arrived at Purdue in 1971, I was an electrical engineering student and a budding professional musician.

I didn't have many academic struggles with those freshman knock-out courses. I actually earned A's in calculus, chemistry and physics. My sophomore and junior year curriculum was more challenging but I managed to navigate it and stay on course for graduation.

By the time I graduated (1975) with my BSEE, I had a recording contract with Mercury Records. I expected that entertainment, not engineering, would be my life's work. Challenges in the entertainment field led me to enroll in law school. My engineering salary paid the bills quite nicely while I pursued my new passion. From 1978 to 1982, I was a design engineer by day and a Georgetown University law student by night.

https://www.bradleythomaslaw.com/about-us/

Since earning my J.D. and passing the Bar, I've run a successful law practice in D.C., Maryland and Virginia for 38 years, in part, assisting struggling musicians and songwriters to navigate legal issues in the entertainment industry.

I have tried to model my own life these last 45 years, whether in law or in community activism, based on the three characteristic "C"s that I saw in Dr. Arthur Bond; Competence, Confidence and Compassion. Partly inspired by his example, I have dedicated much of my time and energy in recent years to volunteer service and political activism. In 2010, after several years of grass roots efforts, I was elected an Advisory Neighborhood Commissioner in Washington, DC and since January 2017, I have chaired one of the largest commissions in the city. I don't know if my life would have taken that course had I never met a servant-leader like Art Bond during those formative years at Purdue. I was saddened to learn of his passing a few years ago. Our world is a better place because he was here.

https://news.harvard.edu/gazette/story/2020/05/d-c-attorney-brings-passion-for-environment-to-harvard-extension/?fbclid=IwAR0P30F4J_a8WOKZQnyhYhChxpHl6ZieIUav16hOv6_bpAwX_VYdUzWeRe4

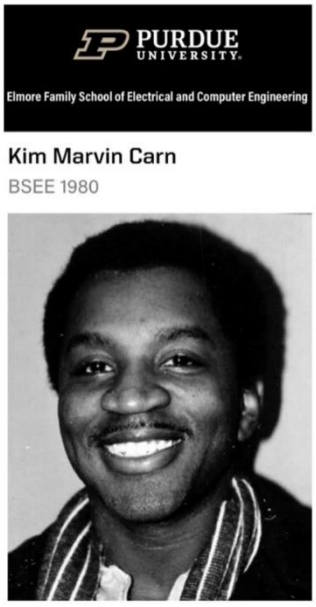
Attorney Bradley A. Thomas
Purdue, B.S. Electrical Engineering, 1975
Georgetown University Law Center, J.D., 1982
Harvard, M.A. Environmental Justice, 2020
Commissioner, ANC 5E, Washington, D.C.

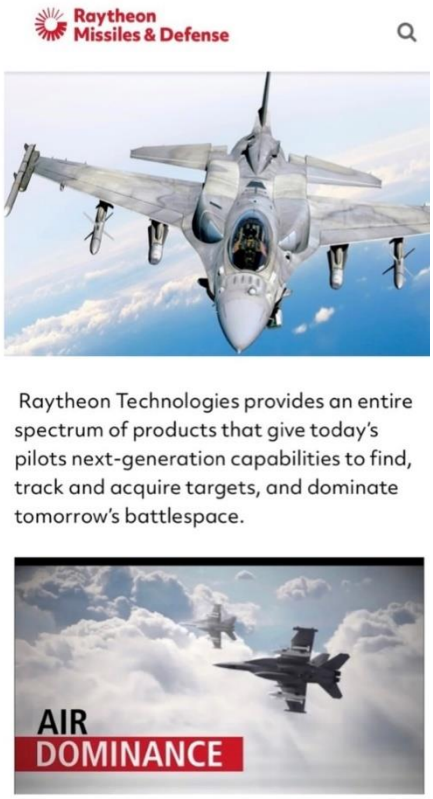
Meet Attorney Bradley Thomas in 30 seconds:
https://m.youtube.com/watch?v=w4LvjMVaiQY&fbclid=IwAR1ZGpPIEQQnor5uwZKZgyQjz5KQHFxQfB3mi_79SG2l7ZGFUGRTd46S5hE

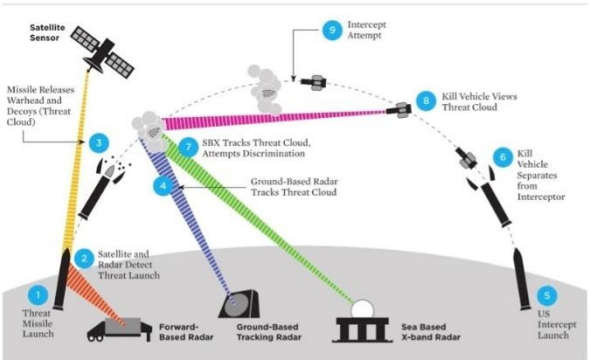
The Bond Impact, 4th Edition

4. Kim Marvin Carn, B.S. Electrical Engineering, 1980

I can still remember the first time I set foot on the Purdue University Campus back in 1975. It was during an Upward Bound tour sponsored by Flanner House to attract minority high school students who were interested in engineering. The tour consisted of a few selected buildings and John Purdue's grave site. I couldn't help but notice the absence of pictures of "Black Brothers" on the walls in the halls of all the buildings we visited. That kind of dashed my hope for being welcomed or feeling comfortable in this new environment at Purdue. But I had earned a scholarship. I had free grant money to further my education. So, I kept an open mind. After having a box lunch served in the Cary Quad Residents Hall complex, we were divided into groups based on our academic interests. My interest was in electrical engineering, so I went to the Main Conference Room in the EE Building. After waiting a few minutes, this dark, smooth skinned, short haired man came out and introduced himself as Professor Arthur J. Bond. He was well-spoken and he had a strong presence. I was impressed and I listened to his every word.







He gave me hope that a Black person can indeed achieve in the engineering field.

So, I enrolled in the Purdue School of Electrical Engineering and in the Cooperative Education Program. I eventually experienced a major turning point in my college journey. A behavior change was a necessary next step. The change affected both my study habits and my attitude toward my education.

It happened during the semester I had Professor Bond as my instructor for an advanced circuit analysis course. I half-stepped in his class. At the time, I was hoping to do just enough to pass and move on.

Professor Bond gave me an “F”. He made the right decision. He told me face-to-face that he had debated in his mind about whether he should or shouldn’t just give me a “D” and allow me to pass on to the next class. Dr. Bond said he knew that I hadn’t put forth my best effort. Then he told me, “This course knowledge will be vital to your career”. If you know Professor Bond like I do, then you can imagine the choice language he used to make his point. His tough love was 100% correct and on point. I re-took the course and replaced the “F” with an “A”. He told me later, “That’s what I’m talking about! They ain’t gonna give you nothing. You got to earn it, and once you do, they can’t ever take it away from you.” One of the proudest moments of my life was the day I earned my B.S.E.E. Diploma and my Cooperative Engineering Education Certificate.

And with that behind me, I was ready to move onward and literally upward into the Aerospace Industry. I was destined to work for some of the largest Department of Defense (DOD) Contractors in the United States. I spent the first half of my 33 year engineering career working for General Dynamics, Rockwell International, and E-Systems. There I designed electronic circuit systems for military missiles and surveillance systems. Professor Bond had insisted that I must master circuit design techniques; it paid off for me, and for my country.

It’s hard to truly describe his visionary nature and his influence as my mentor, but the result is easy to see! During the second half of my career, I managed Design, Test, and Production Teams at Raytheon E-Systems, Inc. We were assigned to a variety of military aerospace integrated electronic systems projects.

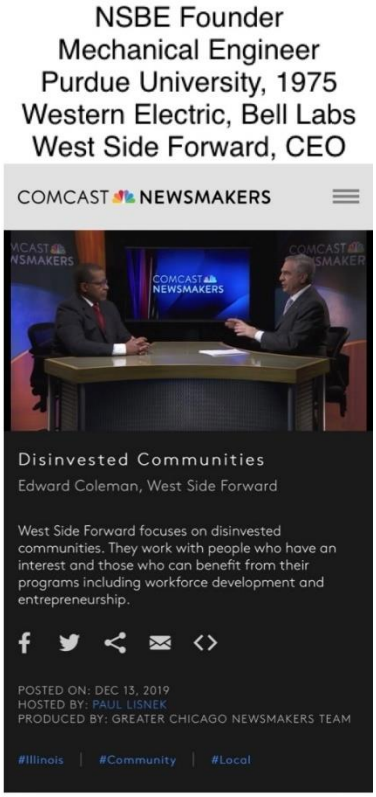
The professional wisdom I gained from Dr. Bond prepared me to navigate the corporate political conflicts I encountered throughout my career. To this day, I still use his style when I teach STEM to the young Black men in the Kappa League and Kappa Kamp at Paul Quinn College in Dallas, Texas. In the spirit of Dr. Arthur J. Bond, I continue to encourage young people to pursue an engineering education because I know it will prepare them for great opportunities within the STEM Economy.

It was very important for me in 1975 to see a Black man achieving in my field of engineering. Professor Bond was my mentor and my professional role model. I might also add that we have several outstanding Black women from Purdue that became high achievers under Professor Bond’s NSBE leadership as well. They’ve become inspirational “STEM Career” role models for the many young women who followed them.
The last time I saw Professor Bond was in 2004 at the Black Engineer of the Year Award Banquet in Baltimore, MD. We kept in touch by email during his tenure at Tuskegee and Alabama A&M Universities. I retired from Raytheon in 2013. In retirement, I set my own schedule as a Licensed Real Estate Broker. Dr. Arthur J. Bond, I thank you for making such a positive impression on me and so many others!

Kim M. Carn, Retired Engineer
Purdue, B.S. Electrical Engineering, 1980
Amber Univ., M.S. HR Business Management
Univ. of TX at Dallas, M.S. Program Management
Certified in Professional Program Management
Recipient of 2009 NSBE Pioneer Award

The Bond Impact, 5th Edition

5. Tribute by Edward Coleman, B.S. Mechanical Engineering, 1975



Art Bond Believed I was "Too Smart to Fail"
In 1971, when I arrived on Purdue's campus for freshman orientation, Art Bond was the first person I met. He was my designated advisor and mentor. The fact that he had already achieved what I had not yet started inspired me. He was friendly, relatable, and even talked like people I knew because he was from Chicagoland too. He made a fantastic first impression and we instantly established a basis for mutual trust.

Because of my high school grades and standardized test scores, Art thought I was destined for academic excellence. We agreed to agree on that. We were also in enthusiastic agreement when he recommended that I should immediately be placed in advanced/accelerated engineering preparation classes in physics, calculus, and

FORTRAN computer programming. I liked Art's plan for my education. You see, he had targeted me for completion of my Bachelor of Science in Mechanical Engineering in just three years. Why wouldn't I like that?

I was off to a good start. Then about three weeks into my first semester, I discovered that my newly acquired independence permitted me to carelessly waste too much time on fun and games. Then I learned about Murphy's Law, "What can go wrong, will go wrong". I was sidelined with a nuisance illness that kept me out of class for four weeks. Remarkably, I was able to recover in my studies. I rebounded just enough to avoid extreme embarrassment by the close of my first semester in college.

After that, I told Art that I wanted to be in regular engineering classes going forward, and that I had nothing to prove. He reluctantly agreed, and he remained an extremely encouraging influence. From then on, I was happy with both my college classroom performance and with my social life experience.

I never had Art as an instructor, nor did I ever ask him for assistance with any of my classwork. The things he gave me were valuable inputs on my important life decisions such as selection of my undergraduate major, my post graduate degree, my career options, and the available corporate opportunities for a guy with my education and experience.

Before and after Purdue, Art was amazing, and that has been well documented. But I had an up close and personal view of what he did to support me and others as we strived to achieve our engineering educations. I saw him as a role model. His leadership example showed us how to lead the students who followed us. The professional skills I developed as Vice President of the American Society of Mechanical Engineers, as Chair of the Society of Black Engineers Tutorial Committee, and as Region Breakout Leader at the First NSBE Conference have hoisted my career in every respect and in every phase ... past and present.

Please don't ever forget Dr. Bond. With his Program for Disadvantaged Engineering Students, with his Minority Engineering Program, with his Society of Black Engineers, and of course with his NSBE leadership, Dr. Arthur J. Bond started a perpetual chain reaction of Black Engineering Achievement. His legacy will live forever, his memory must live forever too.

Edward A. Coleman, MBA
NSBE Founder, Chicago Six
Engineer, Entrepreneur, Chief Executive

Education
Purdue, BS Mechanical Engineering, 1975
DePaul, MBA, Corporate Finance, 1979

Engineer
AT&T/ Lucent, Wireless Director
Amoco/Refinery Engineer
Entrepreneur
Idetic Telecom Software, VP Dev
EAC Enterprises, Telecom Owner

Non-Profit Chief Executive
West Side Forward, President and CEO
Bethel New Life, President and CEO
Hope Fair Housing, Executive Director
U.S. Census Bureau, Field Operations Manager

Professor, Business & Operations Management
Purdue University, Adjunct Professor Management
Governors State Univ., Professor of Management
City Colleges Chicago, Professor of Management

Community Leader
Neighborhood Opportunity Fund, Advisor
Chicago Development Fund, Advisor
Austin Chamber of Commerce, Chair
mHUB Chicago, Board Director

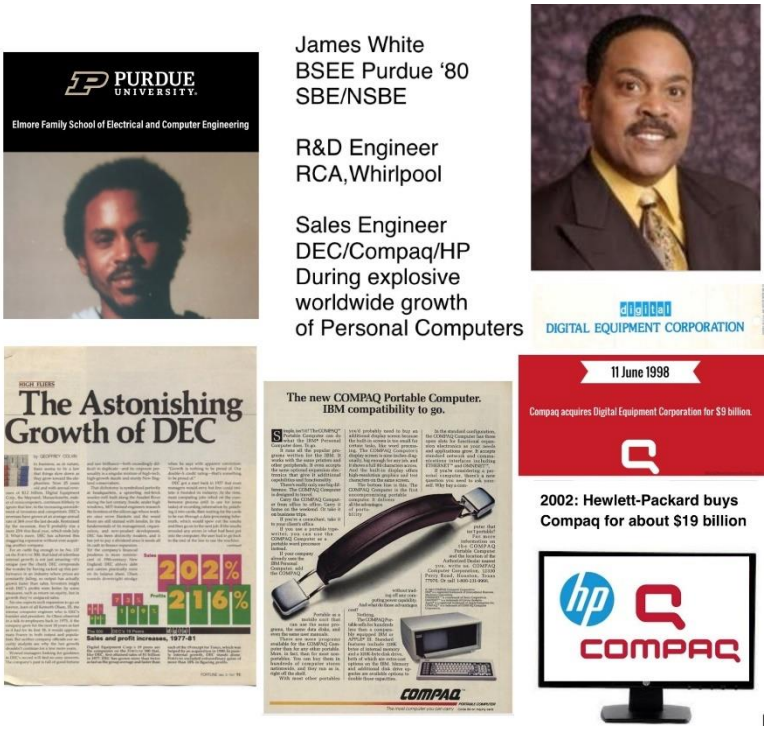
The Bond Impact, 6th Edition

6. Tribute by James White, B.S. Electrical Engineering, 1980

Today I take my hat off to George Smith for asking the Black 1970's era graduates of Purdue's School of Electrical Engineering (EE) to write individual letters of gratitude to the late, great Dr. Arthur J. Bond (Art). This effort is yet another reason why George has always been my hero.

I still remember the day I first met Art. My roommate, Jerry Perkins, had invited me to a NSBE meeting. At that meeting, Jerry introduced me to Art. During our chat, I explained to Art that although I was enrolled in Purdue's School of Humanities and Social Sciences, I "really" wanted to become an Space and I lived in the Wiley Hall dormitory, so we walked to and from class together almost every day. By dinner time, my homework was completed, and I actually understood it. Kyle was the master of "brain tricks". He had a trick to explain every problem. His techniques really helped me to comprehend the key concepts.

Electrical Engineer. The problem was, I hadn't taken the right high school courses to be accepted into the Engineering Program. So, Art invited me to his office in the EE Building and he worked with me on the pre-requisite courses almost every night. By that time, all of the heavy lifting associated with the founding of NSBE was in the rear-view mirror. But, as I quickly learned, Art Bond's work was never done.



One day, while instructing his class, Art talked about EE-in-Theory vs. EE-in-Industry. As part of the discussion, he talked about the Co-Op Education Program. Just a few weeks later, General Dynamics, the Combat Vehicle and Aerospace Corporation, came to Purdue to recruit Interns. Virginia Booth, one of the few Black young women in engineering, and another convert from Humanities to Engineering, told me about the opportunity. I interviewed and by the grace of God, I got the job!

Due to Art's counsel, I qualified for entrance into the School of Engineering. There, I met a lot of Black EE students who were "wicked smart"! Two were Bell Labs Scholars and "Straight A" students. They were Kyle Burson and Keith "Space" Williams. These dudes are two of the smartest human beings I have ever met. Art sent several struggling EE Students to Kyle and Space for help.

I was even more excited when I learned that I would have good company from my Purdue NSBE Chapter. I was joined at General Dynamics, in West Covina, California, by my fellow EEs, Ken "Breeze" Billups and Curtis McClendon. I stayed in California longer than Breeze and Curtis, much longer than I should have. While I made a lot of money, I had lost my engineering-student momentum. When I returned to campus, I had to make a huge readjustment for which I was not prepared. My grades took a free fall and like so many others before me, I thought about dropping out. Professor Bond and Marion Blalock, (Art's Assistant Director of Programs for Minorities in Engineering) took me out to the proverbial woodshed. In other words, they straightened me out!

That's when I learned one of Art's famous quotes; "Never, Never, Never Give Up" … I always accredited that quote to Art Bond (I never met Winston Churchill LOL!). He also told me "No One Likes a Quitter". Thanks to Art, I did not quit, drop out, or change majors. Well, from that point on, my posse, Kyle, Space and several others helped me to get my grades back up to speed and bring my head back down to earth. Then, George Smith invited me to join him in the EE Library. One day, George said, "turn your back to the window to avoid the distractions". It worked, I did well. Finally, I was back on the right track to complete my EE Degree.

Art always had witty and humorous words of wisdom to share with me. He once told me this; "When you graduate, you will probably make about $30K per year… 50% of that will be for what you know and what you do … the other 50% will be for the bovine stool (B.S.) you will step through." His advice always stayed on my mind, especially when, shall I say, a conflict needed to be resolved.

In my last semester, I had a full-time job interview with General Motors. Art Bond just happened to be in the neighborhood during my interview (wink, wink). He came over and paid a huge compliment about my work ethic. GM hired me, and co-signed for a car I wanted to buy. It was a brand-new Buick-Regal. Imagine that, I had not yet even graduated! Two years later, Art called me about a job opportunity with RCA. The timing was perfect because my Buick car loan was paid off. Art said "RCA is hiring and you can make twice as much as you are making now. All you have to do is sign a 2 year contract." Art signed, I signed, and together we went to work on the RCA Video Disk Project.

After RCA, I worked as a design Engineer at Whirlpool for about 4 years. Then I was recruited to work for Digital Equipment Corp. (DEC) by Purdue SBE/NSBE Alumni Ed Barnett and my old college roommate, Jerry Perkins. They convinced me to join DEC's Technical Sales Organization. Through corporate mergers and acquisitions, DEC became a part of Compaq Computers, and then Compaq became a part of Hewlett-

Packard (HP). After 28 successful years with HP, I retired in 2016, as a Regional Channels Sales Manager.

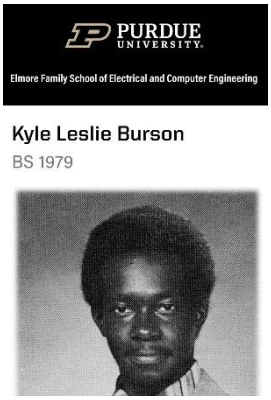
A few years ago, Tony Harris said, Art had this unique skill of recognizing which students needed help but were too embarrassed to admit it. If we didn't find Art Bond, he would find us! Art sacrificed countless hours to help others. The only reward he wanted was the satisfaction of knowing that his students were trying their best. Art changed my life and he actually became one of my best friends in life.

As you can see from my story, Art Bond was the most powerful driving force behind my success, both in college and in my engineering career. Yes, Art was an exceptional engineering skills instructor, but I learned many other priceless life skills from him too. Through his coaching advice, Art showed me how to behave like a "Professional" in Corporate America. I miss Art so much! He will always have a place in my heart. My story is a testimony about the village fellowship and love that emerged from the beginning of our "Society". And as George Smith says, "It all began with Art"!

James G. White
Design Engineer & Technical Sales Executive

Purdue, B.S. Electrical Engineering, 1980
HP Region Channel Sales Manager (Retired)
Design: General Dynamics, General Motors, Whirlpool, RCA
Marketing: Digital Equipment Corp., Compaq Computers, HP Info Tech
NAACP Branch 3053, Chief Information Officer (Current Volunteer)
100 Black Men of Indianapolis, Charter Mentor
Urban League Board of Directors, Development Chair
Indiana Black Expo, 1st Technology Center, Launch Team
American Legion Post 249, Chief Financial Officer

7. Tribute by **Kyle L. Burson, B.S. Electrical Engineering 1979**



This letter is an expression of my gratitude for the Purdue Minority Engineering Program (MEP). Its effectiveness has always been a reflection of its staff. The MEP was conceived by my earliest engineering mentor, Dr. Arthur J. Bond. During my time on campus, which began in the first semester after the founding of NSBE, Ms. Marion Blalock, another of my favorite mentors, had just joined Dr. Bond's MEP Staff.

Through the MEP, I had the honor and privilege of meeting Dr. Bond. My first meeting with him was in 1975. This was in the summer before I started my freshman year.

Having earned his BS, MS, and PhD degrees in Electrical Engineering (EE) from Purdue, Dr. Bond was truly an inspiration. To me, he was a larger than life role model. The confident manner with which he carried himself, helped to boost my own self-confidence in my ability to "make it" at Purdue.

I had heard about Purdue's tough EE program from some of my high school counselors, and also from some students. I soon learned that, although the EE curriculum was indeed tough, so was I. The guidance I gained from Dr. Bond and the encouragement I received from NSBE upperclassmen were instrumental in my early success. Dr. Bond had a unique personality; I had never met anyone like him. Ms. Blalock was a supportive mentor too.

Kyle Burson, ITIL, MSEE · 1st
Senior Director, Global Strategic Solutions at NTT Ltd.

They helped me to quickly find my comfort zone on campus. The warm environment they created allowed me to maintain focus on my coursework. With a lot of hard work and the grace of God I was able to excel academically and eventually graduate from the School of Electrical Engineering, in 1979, with a Perfect 6.0 GPA. I left Purdue with an even higher level of confidence, and academic momentum, than when I arrived. It propelled me to earn my MSEE from the University of California at Berkeley in 1980.

During my senior year at Purdue, I finally had the opportunity to take a class instructed by Dr. Bond. He was my Professor for EE 402, an upper level semiconductor class. His style was energizing and engaging and sometimes humorous. I'm pleased about the chance to share this true story, with whoever takes the time read my letter. I hope it helps you grasp the spirit of a class taught by Dr. Bond.

One day, when he was convincingly describing the functions of semiconductor P/N junctions, Dr. Bond used an analogy to help us understand his level of excitement for the topic of the day. He said, "I love P/N junctions ... I love them so much I have affairs,

with P/N junctions (in my dreams) ..." I responded out loud in the class and said, "I hope only with the holes." The entire class burst out laughing. Needless to say, it was not a boring class, and we were completely engaged.
Now, I'll share a bit about how my Purdue experiences impacted my life after graduation. While I had a variety of semiconductor and wireless phone design projects during my early engineering career ... over the last 20 years, my work has been concentrated in the Information Technology (IT) Industry.

As an IT thought leader, I am proud to say that I still use the engineering skills I learned at Purdue. The fundamentals have not changed. My focus now is mainly on putting together technology solutions with IT building blocks, instead of electronic components or semiconductor materials.
With all that said, I am very grateful for my Purdue education foundation, because I know that I wouldn't I be in the position I'm in today, if Dr. Bond and so many other Purdue Engineers had not paved the way before me.
Thank goodness for Art Bond!

Kyle L. Burson, BSEE 1979, MSEE 1980
Engineer, Inventor, CIO, Senior IT Director

EDUCATION:	**INVENTION PATENTS:**
Purdue, BS Electrical Engineering, 1979 Univ. of CA at Berkeley, MS EE, 1980	4,554,515: CMOS Operational Amplifier 5,550,895: Bimodal Portable Telephone 4,677,322: Frequency Comparator Circuit

CORPORATIONS:

NTT, LTD: Senior Director, Global Solutions 2015 **IBM GLOBAL TECH SERVICES**: •Director, Service Solutions, 2011 •Manager, American Express, 2009 •Manager, Technical Solutions Mgr, 2007 •Technical Solutions Manager, 2004	**MOTOROLA CORP**: •Director, Mobile Device Engineering, 1999 •Program Manager, Center Start-up, 1998 **PHILIPS CORP**: •Chief Info Officer, Cell Handset Div., 1997 **BELL LABS, AT&T, LUCENT**: •Electronic Circuit Design Engineer, 1980

Engineering Executive Leadership Positions held by Mr. Kyle Burson, MSEE

NTT Ltd.
6 yrs 2 mos

- **Senior Director, Digital Advisory & Innovation**

Director of Information Technology
Philips Consumer Communication
May 1997 - Oct 1998 · 1 yr 6 mos

IBM Global Services
11 yrs

- **Director, Infrastructure Services Solutioning**

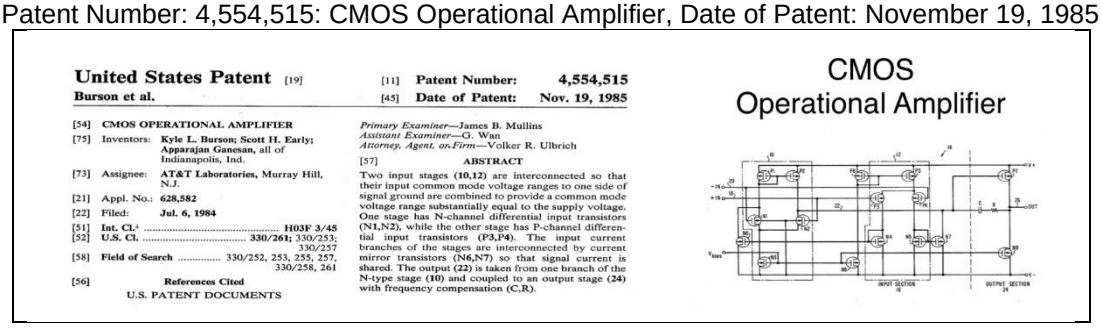
Program Lead - Start-up and IT Operations
Lucent Technologies - Consumer Products

Director, Engineering IT
Motorola

Engineering Director
AT&T Wireless Systems
Jul 1994 - Dec 1995 · 1 yr 6 mos

United States Patents Awarded to Mr. Kyle Burson, MSEE

Patent Number: 4,554,515: CMOS Operational Amplifier, Date of Patent: November 19, 1985



United States Patent [19]
Burson et al.

[11] **Patent Number: 4,554,515**
[45] **Date of Patent: Nov. 19, 1985**

[54] **CMOS OPERATIONAL AMPLIFIER**
[75] Inventors: **Kyle L. Burson; Scott H. Early; Apparajan Ganesan,** all of Indianapolis, Ind.
[73] Assignee: **AT&T Laboratories,** Murray Hill, N.J.
[21] Appl. No.: **628,582**
[22] Filed: **Jul. 6, 1984**
[51] **Int. Cl.**[4] **H03F 3/45**
[52] **U.S. Cl.** **330/261;** 330/253; 330/257
[58] **Field of Search** 330/252, 253, 255, 257, 330/258, 261
[56] **References Cited**
U.S. PATENT DOCUMENTS

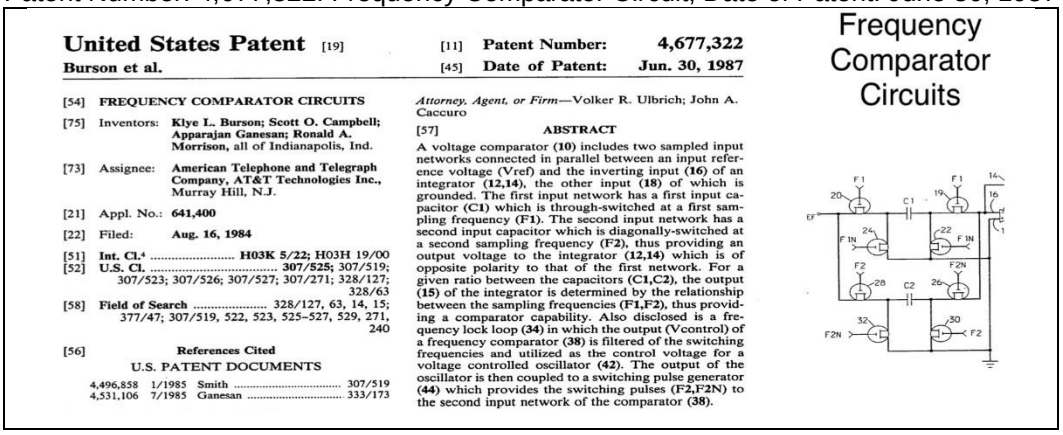
Primary Examiner—James B. Mullins
Assistant Examiner—G. Wan
Attorney, Agent, or Firm—Volker R. Ulbrich

[57] **ABSTRACT**

Two input stages **(10,12)** are interconnected so that their input common mode voltage ranges to one side of signal ground are combined to provide a common mode voltage range substantially equal to the supply voltage. One stage has N-channel differential input transistors (N1,N2), while the other stage has P-channel differential input transistors (P3,P4). The input current branches of the stages are interconnected by current mirror transistors **(N6,N7)** so that signal current is shared. The output **(22)** is taken from one branch of the N-type stage **(10)** and coupled to an output stage **(24)** with frequency compensation (C,R).

CMOS
Operational Amplifier

Patent Number: 4,677,322: Frequency Comparator Circuit, Date of Patent: June 30, 1987



United States Patent [19]
Burson et al.

[11] **Patent Number: 4,677,322**
[45] **Date of Patent: Jun. 30, 1987**

[54] **FREQUENCY COMPARATOR CIRCUITS**
[75] Inventors: **Klye L. Burson; Scott O. Campbell; Apparajan Ganesan; Ronald A. Morrison,** all of Indianapolis, Ind.
[73] Assignee: **American Telephone and Telegraph Company, AT&T Technologies Inc.,** Murray Hill, N.J.
[21] Appl. No.: **641,400**
[22] Filed: **Aug. 16, 1984**
[51] **Int. Cl.**[4] **H03K 5/22; H03H 19/00**
[52] **U.S. Cl.** **307/525;** 307/519; 307/523; 307/526; 307/527; 307/271; 328/127; 328/63
[58] **Field of Search** 328/127, 63, 14, 15; 377/47; 307/519, 522, 523, 525–527, 529, 271, 240
[56] **References Cited**
U.S. PATENT DOCUMENTS

4,496,858	1/1985	Smith	307/519
4,531,106	7/1985	Ganesan	333/173

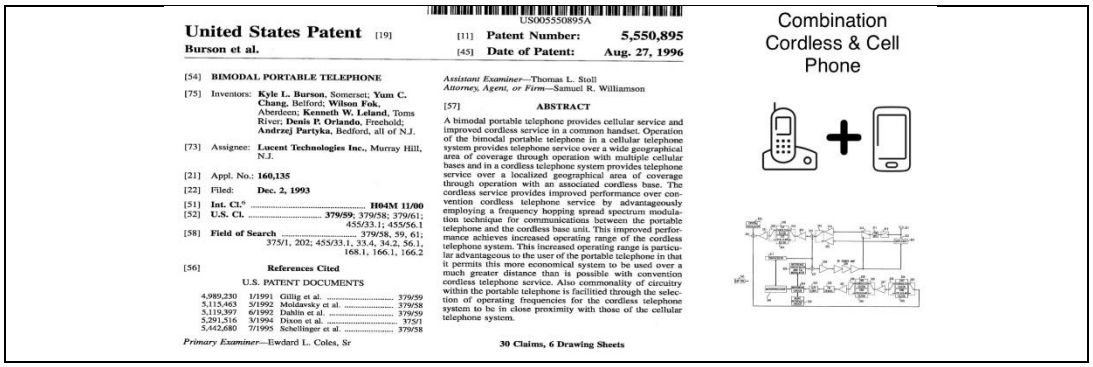
Attorney, Agent, or Firm—Volker R. Ulbrich; John A. Caccuro

[57] **ABSTRACT**

A voltage comparator **(10)** includes two sampled input networks connected in parallel between an input reference voltage (Vref) and the inverting input **(16)** of an integrator **(12,14)**, the other input **(18)** of which is grounded. The first input network has a first input capacitor **(C1)** which is through-switched at a first sampling frequency **(F1)**. The second input network has a second input capacitor which is diagonally-switched at a second sampling frequency **(F2)**, thus providing an output voltage to the integrator **(12,14)** which is of opposite polarity to that of the first network. For a given ratio between the capacitors **(C1,C2)**, the output **(15)** of the integrator is determined by the relationship between the sampling frequencies **(F1,F2)**, thus providing a comparator capability. Also disclosed is a frequency lock loop **(34)** in which the output (Vcontrol) of a frequency comparator **(38)** is filtered of the switching frequencies and utilized as the control voltage for a voltage controlled oscillator **(42)**. The output of the oscillator is then coupled to a switching pulse generator **(44)** which provides the switching pulses **(F2,F2N)** to the second input network of the comparator **(38)**.

Frequency
Comparator
Circuits

Patent Number: 5,550,895: Bimodal Portable Telephone, Date of Patent: August 27, 1996



US005550895A

United States Patent [19]
Burson et al.

[11] **Patent Number: 5,550,895**
[45] **Date of Patent: Aug. 27, 1996**

[54] **BIMODAL PORTABLE TELEPHONE**

[75] Inventors: **Kyle L. Burson**, Somerset; **Yum C. Chang**, Belford; **Wilson Fok**, Aberdeen; **Kenneth W. Leland**, Toms River; **Denis P. Orlando**, Freehold; **Andrzej Partyka**, Bedford, all of N.J.

[73] Assignee: **Lucent Technologies Inc.**, Murray Hill, N.J.

[21] Appl. No.: **160,135**

[22] Filed: **Dec. 2, 1993**

[51] **Int. Cl.**[6] **H04M 11/00**

[52] **U.S. Cl.** **379/59**; 379/58; 379/61; 455/33.1; 455/56.1

[58] **Field of Search** 379/58, 59, 61; 375/1, 202; 455/33.1, 33.4, 34.2, 56.1, 168.1, 166.1, 166.2

[56] **References Cited**

U.S. PATENT DOCUMENTS

4,989,230	1/1991	Gillig et al.	379/59
5,115,463	5/1992	Moldavsky et al.	379/58
5,119,397	6/1992	Dahlin et al.	379/59
5,291,516	3/1994	Dixon et al.	375/1
5,442,680	7/1995	Schellinger et al.	379/58

Primary Examiner—Ewdard L. Coles, Sr
Assistant Examiner—Thomas L. Stoll
Attorney, Agent, or Firm—Samuel R. Williamson

[57] **ABSTRACT**

A bimodal portable telephone provides cellular service and improved cordless service in a common handset. Operation of the bimodal portable telephone in a cellular telephone system provides telephone service over a wide geographical area of coverage through operation with multiple cellular bases and in a cordless telephone system provides telephone service over a localized geographical area of coverage through operation with an associated cordless base. The cordless service provides improved performance over conventional cordless telephone service by advantageously employing a frequency hopping spread spectrum modulation technique for communications between the portable telephone and the cordless base unit. This improved performance achieves increased operating range of the cordless telephone system. This increased operating range is particular advantageous to the user of the portable telephone in that it permits this more economical system to be used over a much greater distance than is possible with convention cordless telephone service. Also commonality of circuitry within the portable telephone is facilitied through the selection of operating frequencies for the cordless telephone system to be in close proximity with those of the cellular telephone system.

30 Claims, 6 Drawing Sheets

Combination Cordless & Cell Phone

The Bond Impact, 8th Edition

8.) Testimony by Edward Barnette, BSIE 1972

SBE Purdue Founder's Day Message
Excerpt recorded in the late 1980's:
"As an incoming senior, I realized we had some responsibility to the underclassmen in the engineering program. I went to talk to most of the Black seniors about my ideas."
"How could we start an organization that would focus on the retention of Blacks in engineering?"

"I went to talk to ARTHUR BOND, who was then, a PhD candidate in Electrical Engineering, about my ideas. He told me that the University of Michigan had already tried to start an organization like that. Matter of fact, he gave me a copy of their Constitution to guide me."
"Myself and Fred Cooper went to see Dean Hancock, who at the time, was the Dean of the School of Engineering, to get his support for our organization. The initial meeting was a DISASTER."

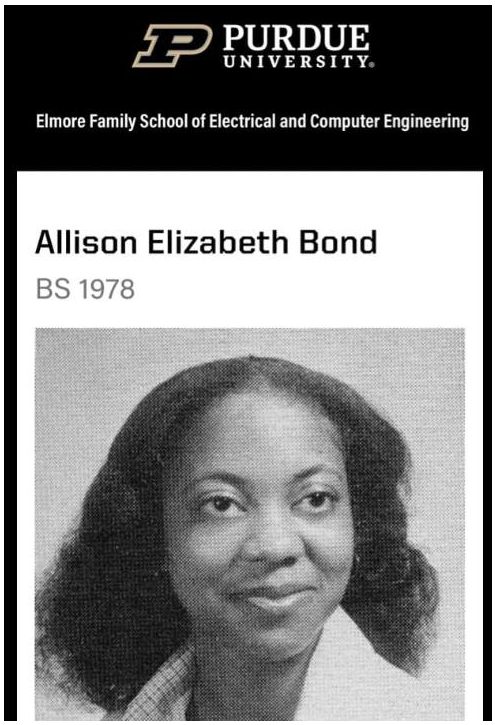
"Matter of fact, he felt that we didn't really need to have an organization that was split out from the main campus. He felt that the organizations like, the Society of Mechanical Engineers and the Society of Industrial Engineers, that were already on campus could better fit our needs."

“We went away believing that we had to do a better job of presenting our position. So in a couple of weeks, Fred Cooper and I, we went back. This time we had a CHARTER, we had a CONSTITUTION, AND we also had ARTHUR BOND, as our Faculty Advisor. Dean Hancock, at this point, he agreed to support the organization. So our organization now had a firm footing on Purdue’s Campus.”

Edward Barnette (1949 - 1991)
Purdue, BS Industrial Engineering 1972
Founding President of the BSE at Purdue
Manager of Corporate Manufacturing
Digital Equipment Corporation
Source:
https://www.facebook.com/DrArthurBondPage/videos/353344708107228/

The Bond Impact, 9th Edition

9.) Tribute by Allison E. Bond, BSEE 1978




SBE Representative Allison Bond (left)

Arthur was the second of my parents’ six children (3 boys/3 girls). All three boys were born in Jackson, Tennessee. Determined to migrate North to leave sharecropping behind, my father took the civil service exam, and landed a job working for the US Department of Agriculture. The family settled on the south side of Chicago. This is where Arthur spent his formative years. Later, my family would move to Indianapolis, Indiana.
Art was born to be an engineer. Being the second child put him in the position to be the little brother, rather than the oldest with the most responsibilities. This allowed him

a freedom to explore his curiosities. He was always getting into things. He once tore the front off of the radio speakers because he was “...looking for the little man talking inside.”

Arthur was a brilliant student who always completed his work early and used the rest of class time to quietly entertain the rest of the students with his antics. He would make his hands into puppets, or make gadgets and toys from pencils, erasers and paper. When my mother received a phone call from the teacher, her answer was simple, “You have to keep him busy. Give him more work. And if he finishes his homework in class, give him more homework.” From that time on, he came home with books. And he loved it and thrived.

Arthur was a tinkerer. In our home, he became the fixer of all things electrical and mechanical. Like many teen-aged boys of the 50’s, he and my brothers loved to work on cars. Arthur would forever after, purchase and maintain mechanical cars, so that he could repair and fine tune them himself.

I was the sixth child, born when Arthur was well into high school. I have a picture of the two of us taken in our back yard: a tiny me, standing with a walker, and him towering over me, supporting me. As I grew, I became a question box, and I was directed to him when I had a question related to science. By the time I was 12, Art was teaching and counseling at Purdue and began talking to me about the Engineering programs. He mentored me by encouraging my interest in the sciences, and later providing guidance in high school course selection. Five years later, I was admitted to Purdue, and later, graduated with a BS in electrical engineering.

One very important thing that Art did for the minority community, was to educate us that there WAS such a thing as an engineering career. He wrote letters to high schools and set up career day activities and talked to teachers, guidance counselors and students about engineering careers. This was a door that was effectively closed to the minority community, because we did not know it was there. It just was not on our radar screens. (You have to understand that at that time, most people thought that engineers drove trains.)

All the things that Art did for his students, he did that, and more, for me. All of us who majored in engineering at Purdue during his time there, will have similar stories about Arthur Bond. He was a friend, a big brother, an advisor, a guide and a counselor with the ultimate substance. He was not a just cheerleader on the sidelines, telling you that you could do it. He was a successful example who had navigated the academic gauntlet that was Purdue. My brother Art was uniquely qualified to understand what was required to survive its rigor, he readily shared his experiences, and he encouraged all of us.

Art was always proud of his students’ professional accomplishments, and would call when he heard from this one, or that one, from his teaching/mentoring days. He would be proud to hear that many have continued with the tradition of mentoring, tutoring, helping and assisting young people. We need it now, more than ever.

I retired from Allison Transmission, a manufacturer of automatic transmissions for heavy-duty vehicles, in 2009. My career spanned more than 32 years of service, working in Test, Research and Development, Product Engineering, Information Technology, Quality Engineering, and Configuration Management.

Allison Bond

SBE Publicity Committee Chair
Youngest sister of Art Bond
Engineer (Retired)
Purdue, BSEE 1978
Indiana Wesleyan University, Master of Science, Management 1987
•Society of Women Engineers
•National Society of Black Engineers
CORPORATION:
Detroit Diesel Allison Division of General Motors (later, Allison Transmission)
EXPERIENCE:
•Test Engineering
• Research and Development
•Product Engineering
•Information Technology
•Quality Engineering
•Configuration Management
••••••••••••••••••••••••••••••••••

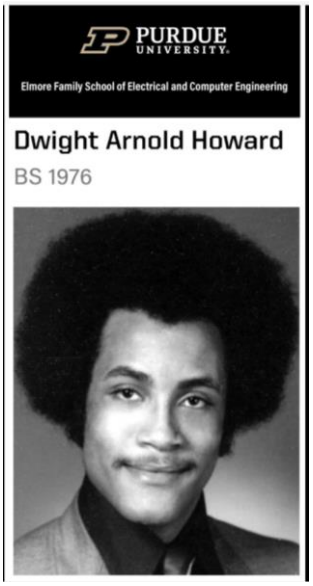
EDITOR'S NOTE

The first Black Man to graduate from Purdue with a degree in engineering was David Robert Lewis, with a BS in Civil Engineering, he did so in 1894. To our knowledge, the first Black Women to graduate from Purdue's Schools of Engineering were admitted into the engineering program at Purdue in the early 1970s.

The Bond Impact, 10th Edition
10) Tribute by Dwight Howard, BSEE 1976

Who is Mr. Howard?

General Motors Inventor/Manager of Electronic Systems for Control of Self-Driving Cars



2019 EXECUTIVE CONFERENCE

ecia
Electronic Components Industry Association

MY INSPIRATION

My professional inspiration was a man named Arthur J. Bond. A rare man! In 1974, he became only the 12th Black American, in United States history, to earn his PhD in Electrical Engineering. And he earned it at my school, Purdue University, the "Engineering College of the Astronauts".

I knew about Art Bond long before I actually met him. My lifelong friendship with his youngest sister Allison Bond, began when we were both in elementary school. Allison and I have been like sister and brother, ever since. During my childhood, there was no way for me to know, what a deep impact Art himself would have on my life.

Many thanks to George Smith for launching this Arthur Bond Memorial Tribute Letter Project. Art was The MAN ... the man who meant so much to all of the aspiring Black engineering students at Purdue during the 1970's. He encouraged us to relentlessly pursue our goals. Through his presence and his personality, Art inspired us to achieve both collegiate and professional success.

After much thought and retrospective reflecting, I came to a profound conclusion. My feeling is deeply spiritual. Brother Art was our "Moses". In that environment, at that time, Art was also our "North Star".

Beginning in 1957, his freshman year in the Purdue School of Engineering, Art experienced overt racial discrimination and segregation. Neither my fellow Black classmates, nor I, could even begin to imagine what Art had endured during the 1950's. While these conditions were less severe on Purdue's campus in the 70's, the residual challenges of covert racial bias and isolation were still accepted as a way of life, not only at Purdue University, but also in our broader American society.

Art's seemingly monumental success gave all of us, the unwavering resolve we needed, to forge ahead. With his words and his deeds, Art Bond was our tour guide on the road to prosperity. Through that role, he kept our Black engineering student body focused on the "Mission" ... to graduate and to finish strong!

Back then, the motivational force he presented to us, was a huge part of our success. And that force continued to propel us into Corporate America. But, let me be abundantly clear, about a key aspect of his presence in our lives ... Art DEMANDED excellence. In my experience, he didn't seek to make things easy. That notion would undermine his legacy. What Art did was, make things possible. There is the often-quoted proverb, "Give a man a fish, and you will feed him for a day. Teach a man to fish, and you will feed him for a lifetime". This ancient proverb embodies my experiences with Art, and it is also what I most appreciate about him. Dr. Bond helped to construct our self-confidence, knowledge, proficiency, and most of all, our success.

When all things are considered, there is no greater force than that which a person can command from deep within the human mind, heart, and soul. The force we carry within, will provide the fuel for whatever vehicle we choose to travel on the road to success.

I would, however, like to suggest a slight variation of this ancient proverbial theme. Arthur Bond did more than teach, he was the catalyst who created an enabling environment. That is how he unlocked the "force" within for so many Black engineers, both men and women, over the course of his entire adult life.

I am saying this to the spirit of Dr. Arthur J. Bond who has lived in our memories and our hearts ever since we first sat with him and began to learn how to play the game of an engineer's life.

We were so fortunate to learn directly from his examples. With that said, it would now be customary to enumerate examples. Not necessary, especially if you've already read the other tribute letters to this great man.

My classmates all know what I mean when I say he did not make things easy, he made things possible. My classmates know he never provided short cuts. My classmates know, he never lowered his standards or his expectations for us. And now, after reading this Tribute Letter and the others written by my fellow Purdue Boilermakers, the truth about Dr. Arthur J. Bond, Professor of Electrical Engineering at Purdue University, is available for all to embrace. Art gave his students psychological fuel. Please reflect on this and answer this question, Is there any greater gift, aside from the love of a parent, than the gift of advocacy a mentor bestows on a mentee?

He didn't give me my wings. He made me realize that I had wings. Then, at the critical beginning of my professional education, he taught me how to use my wings to fly. Art was my career flight instructor. These were my formative college years, a time in my life when the risk of falling, crashing, and failing was the greatest.

I am delighted to share my thoughts about Dr. Arthur J. Bond, because he is the only person, who I would say, has greatly influenced every facet of my professional life; from engineering student, to entry level engineer, to senior level engineering manager.

Thank God for placing me in his story.

Dwight A. Howard, Electrical Engineer

Design Engineer, • Inventor, • Patent Holder, • Manager of Electrical Engineering • Technology Keynote Speaker featured at Global Conferences and Symposiums held in Asia, the Asia-Pacific Region, European Union Countries, North, Central, & So America

EDUCATION:

Purdue University, BSEE 1976,

Ohio Univ., MS Engineering 1986

Indiana Univ, Executive-MBA 1995

CORPORATIONS:

RCA, General Motors Corp., GM Delphi Automotive Electronics Division, APTIV LPC Automotive Electronics: Infotainment and User Experience Products Group (formerly GM)

PATENTS:

• U.S. Patent # 20090225434A1

Car rear-view camera-sensor alert system

https://pdfaiw.uspto.gov/.aiw?Docid=20090225434&homeurl=http%3A%2F%2Fappft.uspto.gov%2Fnetacgi%2Fnph-

Parser%3FSect1%3DPTO1%2526Sect2%3DHITOFF%2526d%3DPG01%2526p%3D1%2526u%3D%2Fnetahtml%2FPTO%2Fsrchnum.html%2526r%3D1%2526f%3DG%2526l%3D50%2526s1%3D20090225434.PGNR.%2526OS%3DDN%2F20090225434%2526RS%3DDN%2F20090225434&PageNum=&Rtype=&SectionNum=&idkey=618918F817D2

• European Patent # 1909236A3

System for storing vehicle location

https://worldwide.espacenet.com/publicationDetails/originalDocument?FT=D&date=20080410&DB=&locale=&CC=US&NR=2008086266A1&KC=A1&ND=2

• Europe Patent # 1689221A2

Electrostatic discharge- CD/DVD Players

https://data.epo.org/publication-server/document...

TECHNICAL PAPERS by Dwight Howard:

* The Rapid Evolution of Automotive Features and Demands for Advanced Microelectronics Solutions

* Advances in Autonomous Driving and V2X Technologies

* Integrated Intelligent Transportation and Key Enablers

* Automotive Electronics: Durability in the Face of Harsh Environments.

Dwight Howard is a globally recognized expert on automotive electronics applications. Even in retirement, he is still asked to speak to Automotive Industry Executives about the future he helped to create.

Dwight Howard's speech at the 2019 Executive Conference hosted by ECIA (Electronic Components Industry Association) ⬇️

➡️ Intelligent Transportation Systems ⬅️

https://vimeo.com/369355077

EDITOR'S NOTE:

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My good friend Dwight Howard is not a one-dimensional man, he is also an accomplished musician. Music is a large part of Dwight's human identity. He chose to study electrical engineering in college because he was intrigued by the potential to digitize music.

There are no words that can adequately express my pride in what my fellow graduates from The Purdue University Schools of Engineering have achieved. They have each lived the NSBE Mission in their own special way. I'm just happy that our educational journeys ran parallel for a few of our wonder years.

While 8 out of the first 10 Tribute Letters are from Purdue electrical engineers, keep in mind that there are similar success stories and breakthroughs from the men and women who studied the other fields of engineering at Purdue during the 1970's. We are all proud to be from the Arthur Bond Engineering Family Tree.

THE LEGACY of DR. ARTHUR J. BOND

These are the career outcomes that Dr. Arthur J. Bond foresaw when he decided to invest his valuable time in us. He knew we could do it, even before many of us knew we could do it ourselves.

These first 10 tribute letters to the memory of Dr. Arthur J. Bond demonstrate the contributions his mentees have quietly made to our Society. Engineers are not loud people and as a result, day in and day out, we don't attract very much attention. If you have read all 10 Tribute Letters in "The Bond Impact" Series you now know about just a small fraction of the Unsung Founding Members of the Purdue Society of Black Engineers.

In the 1970's, Arthur Bond was our only academic engineering role model. For those who serve as Directors of Minority Engineering Programs throughout our international organization, I have six words …thank you, Thank You, THANK YOU! You are making a long-term "positive impact" on the future of our world.

As a freshman engineering student, I didn't realize that Dr. Bond was such a rare individual. My appreciation for him and what he accomplished for our American society grew exponentially with each year that I advanced toward my engineering degree AND with each decade since. Dr. Bond treated us all as Ed Coleman aptly said, like we were "too smart to fail". Hopefully, these first 10 Tribute Letters to Dr. Arthur J. Bond will help answer the "Why NSBE?" question. Given the state of our world today, we must as Dr. Bond repeatedly said, "Never ever give up!"

The Bond Impact, 11th Edition

11. Richard Schwartz, PhD EE

Purdue's former Dean of Engineering

Dr. Richard Schwartz
Professor and Head
School of Electrical Engineering
Purdue University

1994 Letter of Recommendation
for Dr. Arthur Jerome Bond

Richard Schwartz

https://engineering.purdue.edu/.../AnIlluminatingCareer

https://m.youtube.com/watch?v=rwUyJVqtV-U

Letter of Recommendation for Dr. Bond

The first 10 Tribute Letters in this series deal with the Impact of Arthur Bond on “The People”, specifically, his SBE/NSBE students.

Letter # 11 deals with his Impact on “The Program”, specifically, the USA Minority Engineering Program (MEP) initiative that was launched at the 1973 Symposium hosted by the National Academy of Engineering (NAE). Since Arthur Bond started developing his MEP program at Purdue in 1969, he had a four-year head start on the our nation’s effort and a 2 year head start on the launch of the BSE/SBE at Purdue.

Three National Action Committees were formed as an outcome of the 1973 NAE Symposium:

* C.O.M.E.- Committee on Minorities in Engineering

* M.I.T.E. - Minority Introduction to Engineering

* M.E.E.E.- Minority Engineering Education Effort

The Dean Schwartz Letter of Recommendation highlights the deep “Footprints” Dr. Bond made on our nation’s MEP Blueprints.

The attached 1994 Letter of Recommendation for Dr. Arthur J. Bond is the best professional summary of Dr. Arthur Bond’s impact on, not only Purdue’s Minority Engineering Program, but it also clearly describes his impact on the United States

national effort to expand opportunities for minorities in engineering. It began in the early 1970's, and it began with Arthur J. Bond!

THE LETTER of RECOMMENDATION ⬇️

Richard Schwartz, Head

School Electrical Engineering

Letter of Recommendation

January 11, 1994

ASEE Vincent Bendix Minorities in Engineering Award.

Dr. Bond left the faculty here at Purdue in 1979. Dr. Bond's contributions to the recruitment and retention of minority students in engineering began while he was still a graduate student. In 1969, he was appointed as the first Coordinator for the Program for Disadvantaged Students in the Department of Freshman Engineering here at Purdue.

In his capacity as coordinator, he initiated the development of a recruitment and retention program. In addition, he successfully sought support for the program from the industrial community.

As part of his recruitment efforts, Art traveled throughout the state and visited high schools and even junior high schools to encourage minority students to pursue studies in engineering.

As part of his retention efforts, Art – along with others in Freshmen Engineering initiated the Counselor/Tutorial Program, which provided daily tutoring in technical courses for freshmen and academic and non-academic counseling to assist minority students in the transition from their previous environment to the Purdue environment.

While the program was open to all educationally-disadvantaged students, the major participants were black students.

The tutorial program was highly successful in bringing students with deficient backgrounds up to the academic standards required by the various Schools of Engineering.

One impact of Dr. Bond's work may be seen by examining the enrollment statistics for minorities in engineering at Purdue. In 1971, there were 28; by 1977, this had grown to 268; and in 1978, it reached 304.

As part of the recruitment program, minority sophomores and juniors in the upper five percent of their class were invited to campus for talks, lab demonstrations and tours. Approximately 200 students per year were involved in this program.

In his retention efforts, Dr. Bond noticed a need for peer support, and his response was to organize the first chapter of the Society of Black Engineers. He and a colleague drafted the constitution, based on that of the Society of Women Engineers.

Since the first chapter's founding in 1971, the Society of Black Engineers has, of course, grown to a national society and forms a cornerstone of support for black engineering students.

The foundation laid by Dr. Bond for recruitment, retention, and support of minority engineering students has since been built upon and expanded by many others at Purdue, and it now represents one of the more successful programs in the country.

Until now, I have concentrated on the institutional aspects of Dr. Bond's contributions. Equally important, but much more difficult to document, are the contributions he made to individual students through his willingness to help, his availability at all hours of the day and nominating Dr. Bond for this award.

George, along with many other students, has told me that if it were not for Art Bond, he would not be an engineer at this time.

As I opened our files to refresh my memory on the dates of Dr. Bond's activities here, I came upon a number of letters which had been written to various officials from outside and which document the national impact of Art's contributions.

I don't believe that I will be violating any confidentiality by quoting from a few of these (please note that I am using the position and affiliation shown on the letters when they were written).

Melvin Thompson, Executive Director, Committee on Minorities in Engineering, National Research Council, Washington, D.C., in a letter dated October 19, 1978, wrote:

"Art has been intimately involved with various activities of the Committee on Minorities in Engineering (CME) and had made substance contributions. As the CME's programs have evolved, we have depended on the input of knowledgeable and sensitive engineering educators. Art has served us well in that regard in helping to identify key issues and problem areas related to the experiences of minority engineering students and successful approaches for addressing those problems. Art's leadership and enthusiastic support in the early developmental stages of the national minority engineering effort have significantly contributed to its growth and success."

Roy B. Cowin, Guidance Director, Engineers' Council for Professional Development (ECPD), New York, NY, in a letter dated October 25, 1978, said:

"For three years Dr. Bond served as Director of ECPD's MITE program held at Purdue."

“Dr. Bond took an active part in ECPD’s post-MITE director’s meetings, reporting on his successful innovations made at Purdue. His leadership and persuasive manner lead to the adoption of his ideas at some of our presently most successful MITE programs such as Georgia Tech, North Carolina State, University of California at Irvine, and Rochester Institute of Technology – just to name a few.”

“Dr. Bond did not limit his activities to summer programs, but he worked diligently and successfully on Purdue’s total Minorities In Engineering programs. Hence, he not only took an active role in many regional and national MIE seminars, but he was often cast in the role of moderator, panelist, and lecturer.”

Dr. Richard T. Mullins, Executive Director, Minority Engineering Education Effort, Inc., New York, NY, in a letter dated October 20, 1978, wrote:

“Recognizing Dr. Bond’s significant contribution to the development of a national effort to increase the flow of minorities to careers in engineering and science, he is most deserving of the academic community’s affirmation of a ‘job well done’.”

“Over the past four years I have worked closely with Dr. Bond in developing aspects of the national program. He was most unique in his ability to share his programmatic experience gained at Purdue with the freshmen engineering program and minority efforts. Thus, there are in place a number of programs, nationwide, which can be attributed to Dr. Bond’s vision and penchant for hard work.”

LaVoy Spooner, Assistant Director, Committee on Minorities in Engineering, National Research Council, Washington, D.C., in a letter dated October 20, 1978, said:

“Through his work with the minority students at Purdue and his participation in the development of the national program for minorities in engineering education, Dr. Bond has made a major contribution to engineering education. His dedication and active participation have been vitally important in bringing concern for the education of minorities in engineering to the prominence that has resulted in major gains nationally in the enrollment of minority students in engineering.”

I hope that the above remarks convey to the committee the dedication, insight, and service which Dr. Arthur Bond has brought to the cause of minority engineering education. He certainly deserves recognition for his pioneering efforts in this regard.

Sincerely,

Richard Schwartz

Professor and Head

Purdue School of Electrical Engineering

THE LETTER of RECOMMENDATION

This Memorial effort began over 2 years ago with an outreach to my fellow Purdue SBE electrical engineering pals. From the beginning I chose July 4th as the Inaugural date for this project because Dr. Bond, like our nation, was born on the 4th of July.

Background:

The Bond Impact Project was established to collect Tribute Letters to the Legacy of Dr. Arthur Bond's Mentorship, Coaching, and Tough Love. He was the bootstrap most of us used to pull ourselves up. This sample of letters from primarily his Black Purdue Electrical Engineering Students from the 1970's describes in detail what he did for his people. He was a Big Brother figure and he treated us like family. This is how the MEP Tradition at Purdue Began.

I will eventually call for more letters from his 1970's students at Purdue, his early 1990's students at Tuskegee University, and his Millennial students at Alabama A&M University.

IT ALL BEGAN WITH ART!
The Man Who Made The NSBE Possible

Interview with
Dr. Arthur Bond, Ph.D. EE
Dean Schools of Engineering & Technology
Alabama A & M University

by
George Smith, Purdue BSEE 1976
1st SBE Publications Chairman
Regional Leader at 1st NSBE Conference
President, SPC Company

9/15/93

In the fall of 1971 I was one of the entering freshman engineering students at Purdue University. Dr. Arthur Bond was the first black engineer I ever met. He inspired many students (including me) to hang tough in their struggle to compete at Purdue. Without Dr. Bond the NSBE would not have been possible. When you finish reading this interview you will understand why.

****

Mr. Smith:
Where & when did you do your college and graduate level work?

Dr. Bond:
I completed my college and graduate Electrical Engineering work at Purdue between 1968 and 1974 (BSEE 68, MSEE 69, PhD 74). It was a long haul. I started in Purdue's 1st Honors Engineering Program in the fall of 1957 on a National Merit Scholarship from the George Pullman Foundation and a Special Merit Scholarship from the Purdue Foundation. At that time there were thirteen black males and two black females on campus. Two of us were studying engineering and seven of the remainder were athletes. During this time we experienced a culture that tolerated us, but constantly reminded us that we were not really welcome. During a baseball game, in the spring of 1959, I was struck in the head by a pitch that was intended to back me away from the plate. I sustained a brain concussion along with a skull fracture and contusions. Afterward I had blackout spells and was advised by the doctor to drop out of school for at least a year.

When the blackouts ceased I took a job as a draftsman with an architectural firm in Chicago. Seeing war clouds on the horizon, I joined the U.S. Army Signal Corp in 1961 and served our country until 1964. Due to family responsibilities I was unable to return to Purdue until 1966.

 file: Art

Shortly before my final days as an undergraduate my little sister announced that she wanted to attend Purdue and become an engineer "...just like my big brother...". This was my main personal reason for attending graduate school at Purdue and also for joining the faculty. I wanted to create an atmosphere that was more friendly toward my little sister Allison (Bond) than it was to me. In 1978, Allison and two of her peers became the first black females to ever graduate from any engineering discipline at Purdue. George (pause), it made me very proud!

Mr. Smith:
What industrial and academia positions have you held in your brilliant engineering career?

Dr. Bond:
In 1969, after completing my MSEE, I became an instructor in Electrical Engineering at Purdue and joined the Department of Freshman Engineering, becoming Purdue's first Coordinator, Programs for Disadvantaged Students.

In 1974, after completing my PhD thesis in the area of superconductivity I was promoted to the position of Assistant Professor of Electrical Engineering and continued my work with Freshman Engineering.

In the fall of 1979, I accepted the position of Associate Professor of Electrical Engineering at Purdue's Calumet Campus.

In May of 1980, I joined RCA VideoDisc Systems, as a Member Technical Staff (MTS) where I conducted research investigations on audio and video circuitry.

In 1984, I joined Bendix Engine Control Systems as a Principal Engineer and Project Manager for the conception, design and construction of the fiber optic control system for the Boeing 7J7 Aircraft.

In 1989, I joined the faculty of Tuskegee University as Professor and Head of the Electrical Engineering Department, for the School of Engineering and Architecture. I provided technical and managerial leadership for the department, and consultant support to electronics related industries.

Last year (1992) I assumed the position of Dean, School of Engineering & Technology at Alabama, A & M University. Here I am chief academic officer and administrative head for all of the engineering and technology related programs.

You asked for it, now you got it.

file: Art

Mr. Smith:
Why did you choose to specialize in solid state electronics?

Dr. Bond:
The single most important technical project I ever worked on occurred at Union Carbide's Linde Labs. I was as a research and electronics technician there for the two years between my service in the U.S. Army and my return to Purdue in 1966. It was during this time at Linde Labs that I developed a method of controlling an electric crystal growing station that allowed us to grow the world's first laser quality ruby crystals using an RF generator. Later, I worked on a tank rangefinder for the Army, this also was a world's first. I then worked on several projects involving energy storage using superconductivity. So you see, as a direct result of my Linde experience, I choose solid state electronics as my specialty area and eventually did my PhD research in superconductivity.

Mr. Smith:
What were the unique needs of the black engineering students who followed the trail you paved?

Dr. Bond:
When I studied Electrical Engineering at Purdue I did not see another black person in the classroom until my senior year. Successful role models were the missing link. I know from first hand experience that when you don't see role models it's more difficult to visualize your future success. Many of my students had come from an all black environment and needed a place where they could interface with other blacks to relax and talk about how to accomplish their common goals.

Mr. Smith:
What circumstances lead to the establishment of Purdue's Programs for Disadvantaged Students?

Dr. Bond:
The volatile 60's served a wake-up call for American institutions. After the civil rights marches and campus demonstrations colleges and corporations began to take steps toward opening the doors of opportunity to minorities. Purdue made a commitment to increase the minority students and faculty members within the engineering schools. The minority engineering graduation rate prior to 1969 was typically less than one-half of one percent. In April of 1968, shortly before I received my BSEE, I received a call from Dr. George Hawkins, Dean Emeritus, Schools of Engineering (acting President). He asked if I would stop by his office as soon as possible. When we met he indicated that Purdue had been trying unsuccessfully to recruit black faculty members, especially engineers. He had heard of my rapport with the younger students on campus. Dr. Hawkins asked me to stay at Purdue after graduation and work on my MSEE and PhD with "an eye toward joining the faculty". So, in the fall of 1969, I received a joint appointment as a graduate instructor of Electrical Engineering and academic advisor in Freshman Engineering and began developing a total recruitment and retention program. We decided to call our initiative the Program for Disadvantaged Students so that all educationally disadvantaged students would qualify regardless of ethnic background. I was given the title of Coordinator, Programs for Disadvantaged Students. We went on to develop a set of recruitment and retention efforts that collectively constituted the program. Our program was so complete that, with the exception of a few name changes, it comprises the bulk of Purdue's Minority Engineering Program to this day.

Several corporations were receptive to our plans and we successfully brought in financial support from the industrial community. Amoco, GE, Kodak and IBM were among the earliest and strongest supporters of our efforts.

file: Art

Mr. Smith:
What were your key objectives as Coordinator of Programs for Disadvantaged Students at Purdue?

Dr. Bond:
The idea was to focus on developing black students and other students who showed promise. We tried to bridge the gap between high school and college and help students get off to a successful first year. The Counselor-Tutorial (CT) Program was initiated in the fall of 1972 under my guidance and based on a model developed by a number of us in Freshman Engineering. Under this program selected "educationally disadvantaged" students were able to participate in a three credit hour course. Our objectives were to:
1. Provide daily tutoring in technical courses for freshman.
2. Provide academic and non-academic counseling to assist students in the transition from their previous environment to what they experienced at Purdue.

We also hoped to ease the social transition by providing an opportunity for black students to establish a relationship with one another and continue to study in groups beyond the freshman year.

The CT program has done such a good job of preparing students that more than one-third of all entering students are now being placed in it.

Mr. Smith:
What did the black engineering students ask you to do to help them succeed?

Dr. Bond:
Oh god, there were so many things (chuckle); father, mother, brother, sister, give a pat on the back, buy dinner on Sunday night, explain a technical problem at 2:00am, provide a shoulder to cry on... you name it. I also gave them a voice on the faculty and whatever else they needed. The black students often felt more comfortable coming to me for help, instead of to other faculty members.

Mr. Smith:
What triggered the establishment of Purdue's Society of Black Engineers (S.B.E.)?

Dr. Bond:
The vast majority of black students felt isolated. There were so few black engineers on campus, they often did not have study groups. The blacks in engineering were typically not welcome in the white study groups. The goal of the S.B.E. was to help people interact and solve problems together and quite frankly, to see that they were not the only ones struggling scholastically.

I had been discussing the idea of a minority student engineering organization with several students at Purdue. I visited the University of Michigan at Ann Arbor where there was such a student organization in existence. We decided to form a similar organization at Purdue. Using the constitution of the Society of Women Engineers and that of the University of Michigan student club, I drafted a constitution for the Purdue Society of Black Engineers (SBE) which became a Purdue student organization in 1971.

Mr. Smith:
What initial projects of the Society of Black Engineers at Purdue proved the great potential of your students?

Dr. Bond:
More and more of the students began to demonstrate that they could compete in the classroom on an equivalent basis with their white peers. They showed initiative by setting goals and attaining them. They planned scholarship dinners, developed resume books and organized technical project teams.

Mr. Smith:
Describe the S.B.E. team spirit during the formative years?

Dr. Bond:
The comradery was unlike anything I had ever seen. Everyone had a common goal... to get to the finish line together! It was incredibly unique. Where you came from didn't matter.

Mr. Smith:
What are your most satisfying memories of the S.B.E. evolution?

Dr. Bond:
Oh god, that is a tough question. The 1st National Meeting, the successful scholarship dinners, the banquets during Engineers Week, seeing companies from all over the country coming to interview my students, and seeing the jobs they were getting. Being at graduation, to see particularly, those students who had doubt but finally made it. The students effort to build a go-cart to compete in Purdue's Grand Prix Race. There were so many things, it's impossible to say them all.
file: Art

Mr. Smith:
What did the students ask you to do to help launch the 1st N.S.B.E. Convention?

Dr. Bond:
I helped them secure the funding and administrative resources from our office in Freshman Engineering. We provided help stuffing envelops, making hotel arrangements, you name it. It was great to see the students effort. I should also add that in anticipation of the great demands of the 1974-75 school year, I hired Dr. Saunie Taylor to help work with our program. Dr. Taylor worked tirelessly to back-up the students that year. In 1975-76 Dr. Saunie Taylor moved on with her family and I hired Marion Blalock to fill the position vacated by Dr. Taylor. Under Marion's leadership the program I initiated while serving in Purdue's Department of Freshman Engineering has continued to grow and serve many minority students.

END OF INTERVIEW
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If there has ever been a question about the significance of the role played by Dr. Arthur Bond, during the birth of the NSBE, let this interview serve notice that he was not only there, but he was the hub that enabled the NSBE wheel to rock and roll!

Interview designed, conducted and edited by George Smith

ps: Dr. Arthur Bond's answers to my questions tell the story of how the foundation for the NSBE was laid. I thank God for Dr. Bond. This article obviously could not have taken shape without Dr. Bond's contribution. I have therefore chosen to assign sole copyright privilege to him.

Chapter 2. The Purdue University SBE Student Story

NSBE Founder Brian Harris, SBE Treasurer & Chair of the Projects Committee (4/73 - 5/75) formulated all social and business plans for the Society of Black Engineers at Purdue University. He managed the logistics for our Big 3 Events:

Oct 1974 - The Equal Opportunity Luncheon

Feb 1975 - The 1st Annual Corporate Banquet
Apr 1975 - The First NSBE Conference

Brian Harris was the First Conference Planning Committee (CPC) Chair in NSBE History. Please join me in a round of applause to thank Brian for his monumental effort. For those who've heard me call Brian "our hardest worker", this is why!!

For the historical record, note that we published our Calendar of Events for 1974 & 1975. You can view it in this post. For me, there has never been any mystery about what we did and when we did it , it's all "on the record". We recorded our activities in the first 3 Cornerstone Magazines, you'll see the cover pages below. I was our first Publications Committee Chair ... it was my job to initially determine the best way to report the SBE achievements to our members, high school recruits, and to corporations. Some things never change.

So, how did the Chicago Six pull off the Founding of NSBE? First of all, it was not a single event by a single person. It was a series of events and actions taken by our key advisors, committees, and volunteers.

In summary:
WE DID IT by COMMITTEE
We did it with the help of Purdue University Leadership.
We did it with the help of Dr. Arthur Bond.
We did it with the help of Dr. Saunie Taylor.
We did it with the help of Ed Barnette.
We did it with the help of corporate sponsors.
We did it with the help of many SBE members.
We also did it with the help of SWE.
We did it most importantly, by the Grace of God
The Big Hair photo (L-R) Rudy Nichols, Founder Brian Harris, Founder John Logan.

Topic: The 1st Publication of the Society of Black Engineers at Purdue was our Recruiting Brochure.

In 1973, I became the very first Chair of the Purdue University Society of Black Engineers Publications Committee. I was still a teenager. It was the most important responsibility I had ever volunteered to take on. I wore many hats: primarily, I was the Reporter. It was my job to closely observe what we were doing and report it to our target audience. Initially, I had a narrow view of who composed our audience. I thought we'll write this for our Black Engineering classmates. Then during a casual conversation with our Faculty Advisor, electrical engineering PhD candidate Arthur Bond, my perspective

changed. Art said, “George, I need a brochure to recruit [top Black] high school students.” That changed everything!

Our target audience expanded to include high school students, parents, high school career counselors, and corporate sponsors. It helped Art Bond describe the program he had developed for recruiting and retaining Black engineering students to his academic colleagues at other engineering colleges across the nation.

The Process (or lack thereof):
Keep this in mind, the Purdue SBE was not the massive multi-level, multi-decision-maker, multi-million-dollar organization that it is today. We were a bunch of college roommates, sitting at dormitory cafeteria tables, kitchen tables, or library tables. The only person who had the ability to approve anything was Arthur Bond. If it didn’t get past him, it would go no further.

Our Writing Staff:
I set the agenda for each meeting, I authored articles, assigned topics to volunteer writers, who were eager to help. I brought a Purdue general audience recruiting brochure and a Jet Magazine to our meetings. We used them as benchmarks for our project. I did the final edits on every paragraph, every sentence, every word, and every punctuation mark. It was laborious and it hurt my grades, but it was worth it. Finally, I was the artist for the design on the front cover.

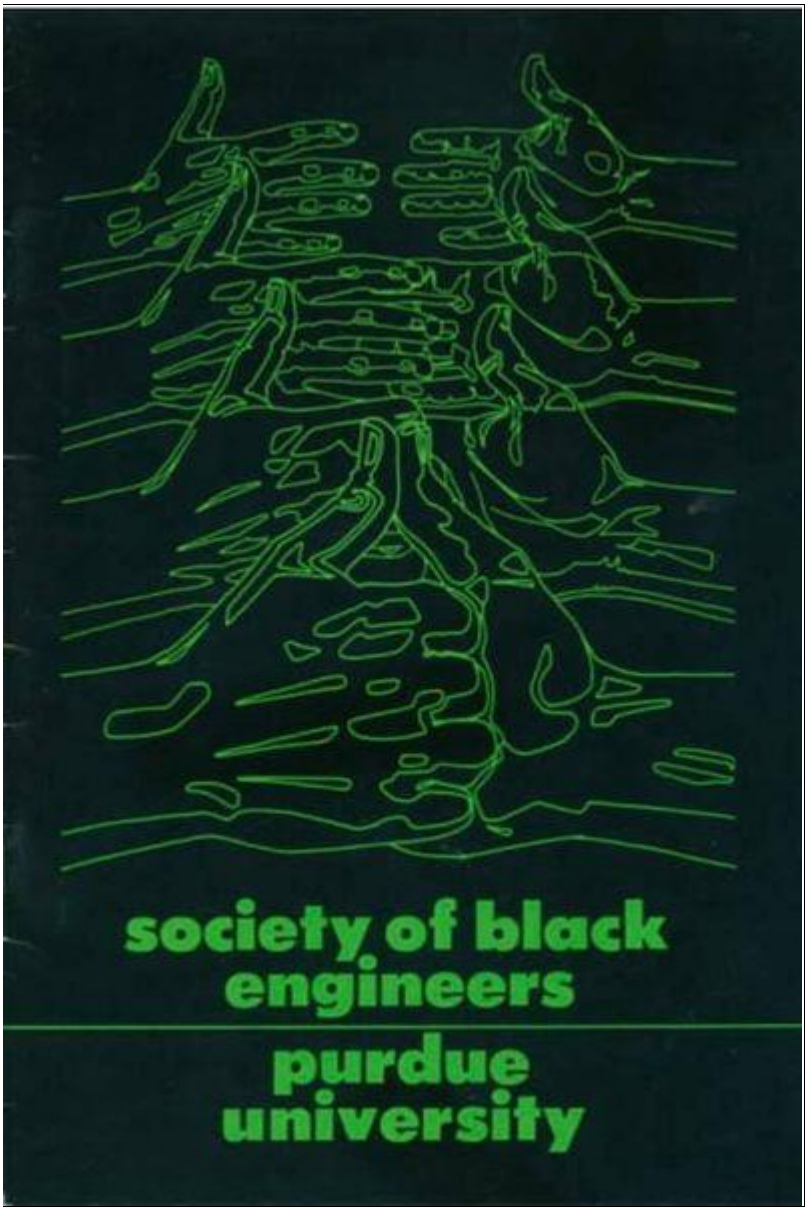
We used the same front cover design on our Placement Brochure (aka The Resume Book). See the credits my friends, see the credits. Our committee rolled up our sleeves and rolled out a product that I am still proud of, to this very day.

We clearly stated our purpose, and our determination was self-evident. I am posting this today because history is important. Far too important to be left to imaginative folklore sound bites.

These are the FACTS.
Over the past 45 years since the Founding of the National Society of Black Engineers, better known as NSBE, I have seen accounts of our history that, at times, have been “mildly embellished”. LOL!! So, I feel obligated to share the official undisputed history in the form of the original documents written by the unsung members of our Publications Committee.

This was our SBE’s first publication:
The High School Recruiting Brochure.
It was so effective that the Purdue MEP Department continued to distribute it with no edits or modifications for at least ten years thereafter. Until the kids on Soul Train stopped wearing the big Afro hairstyle. LOL!
Join me on this walk down memory lane.
p.s. Take note of the credits on the bonus (last page, The Placement Brochure, is the last page of this Post. Our Resume Book Chair, Kevin Mason, included an Index with

the names of the students who submitted Resumes. The last page of the Index acknowledges my “Handshake” cover design. More importantly, it also acknowledges the assistance provided by the Purdue Chapter of the Society of Women Engineers. In previous discussions of NSBE History, SWE has never been credited for partnering with us ... until now.
My friends, there is far more to the Story of how we founded NSBE than what has heretofore met your eyes.
That’s why I do what I do. 😉
More to follow.



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Chatting informally about engineering programs at Purdue are (left to right) Kevin Mason, Jerry Perkins, Gilliam Duvall, John Logan, George Smith, Rudy Nichols, and Brian Harris.

Purpose of the Society

by Kevin Mason, Junior, Electrical Engineering

According to the preamble of the constitution of the Society of Black Engineers [SBE], our function is as follows: "As a student-based organization, we intend to develop intensive programs for increased Black participation in the field of engineering. These programs will be initiated both within and without the University community and will serve to strengthen relations between industry, the University, and the Black community. This organization will provide general counseling for all."

In addition to what the constitution prescribes as group goals, the SBE's major priorities are centered around the academic achievements and degree fulfillments of each member. For such an undertaking to be successful, it is imperative that the willing and sincere cooperation of every member be received. In short, the effectiveness of the SBE hinges upon the active participation of its full membership to implement viable projects.

Additional objectives of the SBE are to recruit minority high school students as well as to make our membership aware of any available employment opportunities in engineering-related areas.

Finally, to fulfill our group objectives, our members should be aware and take full advantage of any facilities made available to the student by the University.

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Chapter 2. The Purdue University Leadership Story

Chapter 3. The American Corporate Allies Story

Chapter 4. The American College Minority Engineering Program Story

Chapter 5. The Growth of NSBE Story

Acknowledgements: My Fellow Founders & The NSBE F.A.C.T. Committee

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