

Architect and Engineer **William Pittman** (1875-1958): Accomplished designer of public buildings in Washington, D.C., Durham, North Carolina, Montgomery, Alabama, and Dallas, Texas.

Architect **Wallace Rayfield** (1874-1941): Designer of churches and other public buildings including the 16th Street Baptist Church and the Day Street Baptist Church in Mobile and Montgomery, Alabama.

Architect **Robert Robinson Taylor** (1868-1942): First accredited African-American architect in the United States and designer of most of the buildings at Tuskegee University built prior to 1932.

Geology Engineer, Geographer, and Professor **Marguerite Williams** (1895-1991): First African-American to earn a Ph.D. in Geology and an expert in the fields of erosion and geological history.

Engineer and Architect **Paul Williams** (1894-1980): Designer of the Los Angeles International Airport and the Hollywood homes of Frank Sinatra, Lucille Ball, and Cary Grant.

KEEP THE LEGACY ALIVE!

There is an ever-growing need for students to enter the fields of Civil Engineering and Surveying. Without the scientific professionals of tomorrow, we cannot continue to address many of the technological and social problems that face our world.

Challenging our ways of life and mere existence are needs for improved nuclear and toxic waste disposal, garbage recycling, water purification and delivery, sewage treatment, housing, transportation, and energy development. Keep the legacy alive by becoming a builder of dreams that benefit humanity.

For additional information, please visit the web sites of the **National Action Council for Minorities in Engineering** and the **National Society of Black Engineers**.

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THE BUILDING OF A NATION:



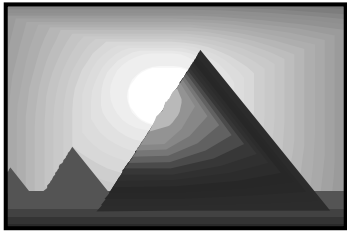
AFRICAN-AMERICANS IN CIVIL ENGINEERING AND SURVEYING



A PUBLICATION FROM

DEAN C. RINGLE, P.E., P.S.
FRANKLIN COUNTY ENGINEER

**CELEBRATING OUR COLORFUL PAST, PRESENT, AND
PROMISE FOR THE FUTURE**



Our African Heritage

The African continent was the site of mankind's first use of basic civil engineering and surveying concepts. As early as 3500 B.C., practitioners were designing, measuring the land, and overseeing the construction of the world's oldest civilizations.

Beginning with the building of the great temples and pyramids of ancient Egypt, shared engineering and surveying techniques lead to the development of flourishing cities in the regions that became Sudan, Mali, Zimbabwe, Ethiopia, Ghana, Benin, and Nigeria.

Trade routes across the world's most diverse and wild terrain consisted of a vast infrastructure of trails, roads, bridges, canals, and ports that provided for the shipment of Africa's great riches, and the tragic capture and sale of human beings.



MUSCLE AND MIGHT OF AMERICA

Since their arrival as slaves beginning in 1526, African-Americans have been a major force in the engineering and construction of our nation. Their skills contributed to the creation of some of our earliest cities such as St. Augustine, Florida (1565), Boston, Massachusetts (1630), Annapolis, Maryland (1649), and Charleston, South Carolina (1670).

Following the Civil War and the abolition of slavery, most African-Americans continued to be segregated to the lowest jobs of drudgery and despair.

The death of railroad steel driver "**Iron**" **John Henry** in the 1880s, following his victory of a legendary race with a steam powered drill to break away rock for the building of either the Big Bend Tunnel in Talcott, West Virginia or the Oak Mountain Tunnel in Leeds, Alabama came to epitomize the plight of black workers and their many sacrifices.

During the construction of the first New York City subway tunnels (1904), African-Americans were relegated to the "Digger" position

since it was thought that they could withstand the heat better than other workers.

Throughout the Great Depression, President Roosevelt's Works Progress Administration employed more than a million black workers to construct infrastructure projects, but it was not until the opening of the Alaska Highway in 1942 that black engineers and builders were widely recognized for their accomplishments. The all-black 93rd, 95th, and 97th Regiments of the Corps of Army Engineers (3,695 troops) played a major role in the construction of the 1,523-mile long military supply route between Dawson Creek, British Columbia and Fairbanks, Alaska that was completed in just 8 months at a cost of \$135 million.



BRIDGE BUILDERS

Spanning the adversity, there were African-Americans determined to excel in the building of our nation:

Architect **Julian Abele** (1881-1950): Award winning designer of the Philadelphia Museum of Art, Philadelphia Free Library, and buildings at Duke University and New York University.

Civil Engineer **Archibald Alexander** (1888-1958): Designer of the Kutz (Tidal Basin) Bridge and K Street Freeway in Washington, D.C., and other projects around the nation.

Surveyor, astronomer, and clock maker **Benjamin Banneker** (1731-1806): Member of the survey crew responsible for laying out the original property boundaries and streets of Washington, D.C.

Builder **Horace King** (1807-1885): Builder of more than 100 covered bridges, including the first major crossing of the Chattahoochee River at Columbus, Georgia.

Builder **Frederick Massiah** (1886-1975): One of the first successful black construction engineers and an expert in the use of reinforced concrete for the building of domed churches and other structures.

Inventor **Garrett Morgan** (1877-1963): Contributor to public safety through his inventions of the gas mask (1916) and automated traffic signal (1923).