

Engineering The Spruce Goose

By Professor McKinle Burt

This week I present to you, Mr. Don Rutherford, our next African American engineer whose innovative designs has had a major impact on the technology of the nation and the world. A Portland native, Mr. Rutherford graduated from Benson Technical High School in 1932 as a technical aviation major.

An imaginative and prolific inventor, "Don," as he likes to be called, designed the all important "throttle controls" for Howard Hughes' famed "Spruce Goose." Our highly respected skilled craftsman and inventor was aboard that historic maiden flight of the largest airplane in the world as "system specialist"; an "engineer's engineer," whose demanding job was to keep any and all systems "go" under any circumstance.

But we get ahead of our story. Let us go back a few years and listen to Don's own narration, often terse, factual and to the point, as would be expected of a competent engineer. Don is from a pioneering Portland family, several of whom had illustrious careers of their own (see pp. 32 and 33 of the 1995 edition, "Cornerstones of Community: Buildings of Portland's African American History").

"My father and uncle were recruited in Columbia, South Carolina, to come west to work in the newly opened Portland Hotel. My father was the house barber and my uncle was a bellboy. Soon, thereafter, they purchased a two-story building which was located in what is now downtown Portland, here, they opened a Barber shop, general store, and were Wells Fargo agents. One the second floor they operated a rooming house and bath house (1880)."

"I graduated from a technical high school and was a technical aviation major. My graduation class was recruited by an agent of the "U.S. Aid

to China." I was rejected."

"This same class was later recruited by Clair Chennault and became part of the original Flying tigers of the Chinese Air Force."

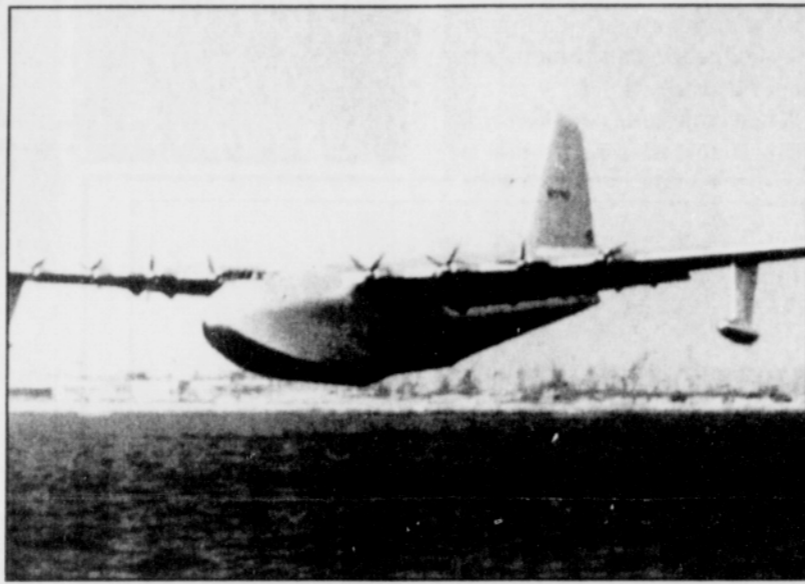
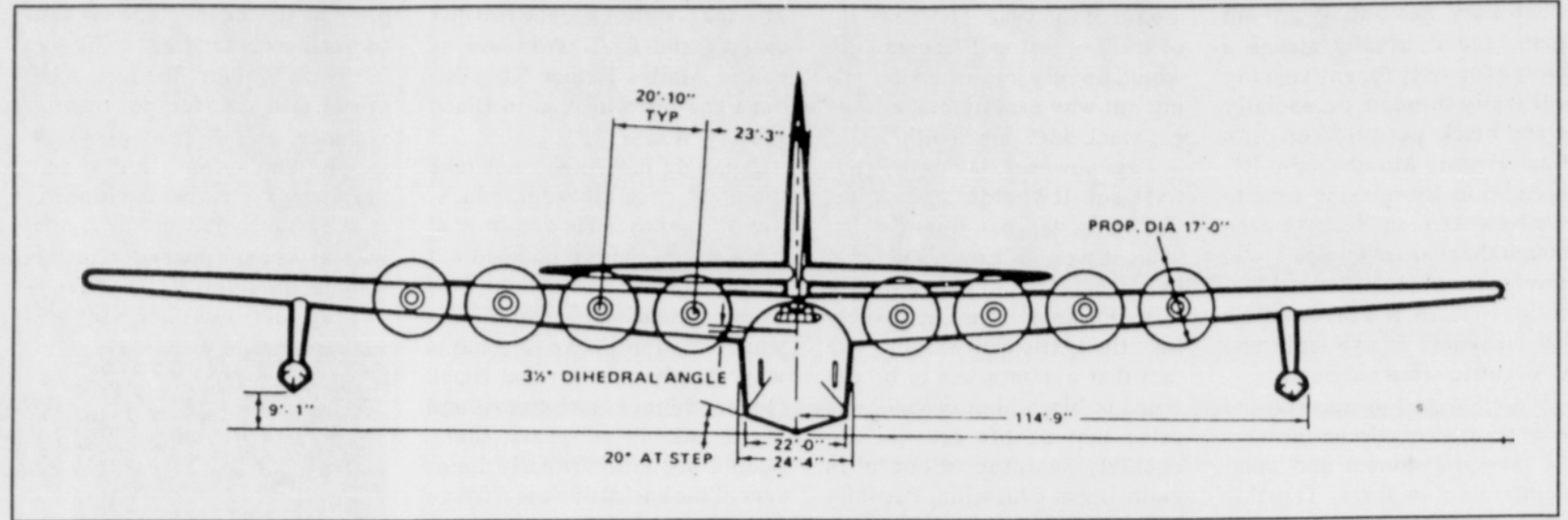
"During the period between high school graduation and entering college (1932-1936) I tried to enlist in the R.A.F. and also the French air force both rejected me. I later applied to Boeing Aeronautical School but, here again, rejection."

"By now, my tow brothers had finished college and I entered college. I graduated from the University of Oregon, Class of 1941 with a B.A. in Science, and only 5 blacks in the entire class."

"In December, 1940, I arrived in Los Angeles and in May, 1941, I was hired at the Santa Monica plant of Douglas Aircraft Co. as a tool designer. All during World War II I designed jigs and fixtures, forming and blanking dies and modified production machinery for use by the handicapped."

There is so much unsaid here, of course, and I have reams of documentation in support of the trials and tribulations that beset this highly qualified African American in his quest for professional employment, either at home or abroad. No difficulty here making a case for "affirmative action" programs. Our determined and persevering Mr. Rutherford continues his saga.

"At the end of World War II, I accompanied my supervisor to the Hughes Tool Co. Aircraft Division in Culver City where I spent the next 12 years, mostly as a systems designer for the Hughes Flying Boat project. Among my contributions were: design of pilots' engine throttle control system, pilots' instrument panels, a system to prevent variable pitch propellers from going into reverse while airborne; developed process and spraying metal on wood;



by this "engineers engineer," but there is not the space here. A number of years ago I did a television feature on his U.S. Patent No. 2680268, June 8, 1954. This patent is for the sliding door panel and latch that you see on automotive vans all over the world today.

Don's friends from yesteryear describe a mechanical and electrical genius of a teenager who could fix or design anything. Who could convert gasoline powered cars to diesel. Already on the way to become the mechanical genius who could design the engine throttle controls for the world's largest flying machine: eight massive 4,360 horsepower engines, each 112 cylinders and 224 spark plugs. And all the power needed for a plane which dwarfs the size of our familiar C-130 was controlled by a system at Howard Hughes' fingertips, and designed by Portland's Don Rutherford. What a role model for our youth.

Recently widowed, Mr. Rutherford still gives life his all. He and his lovely wife, Joy, a dedicated educator, spent many enjoyable years together. They traveled three continents in a motor home when on vacation, making life-long friends around the world. We thank both of these African Americans role models for their great contributions.

participated in an in-depth study of facilities for water-based planes to carry oil field equipment; (transferred to helicopter section) designed transmissions and clutches for helicopters; participated in developing forced air cooling systems for helicopter line engines; participated in study of helicopter vibration; designed various mechanical devices pertinent to aircraft power plant control."

"At the shutdown of the Fly-

ing Boat project, I found work at Litton Industries in Beverly Hills, California. Here, I was a group leader in the Tactical Weapons Design Laboratory. The work was top secret but I can divulge the following: I designed read and write heads as well as memory drums for computers (1958); designed high pressure valves capable of operating at high altitude and low temperatures; designed array of explosion proof housings; designed miniature mechanisms; designed special facilities for gold plating circuit boards; designed classi-

fied uses for conductive rubber."

During his year at Litton, Mr. Rutherford was also enrolled in UCLA Extension classes working toward a teaching credential. Though he realized his work was critical to the defense of this nation, Don decided he could make a more productive use of his talent by delivering his knowledge to our youth. His choice was to teach machine design at Los Angeles Southwest College, a school with a predominately black enrollment.

There is so much more I could cite of the significant technology invented



Attendees of the Shiloh Baptist Church in the Montavilla section of Portland in 1916. The social center of the Black community before 1940 was the Black church. Courtesy of the Oregon Historical Society.

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Cameroon and Gabon, 1995, directed by Bassek ba Kobhio.
Feb. 19, noon
Feb. 20-21, 7:30 p.m.



Clando

Cameroon, 1996, directed by Jean-Marie Teno.
Feb. 26, 1:30 p.m.
Feb. 28, 7:30 p.m.



Saturday Family Film Day

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The Fulani Magician
The Greedy Child
Ramohamy's Son

Feb. 21, 2-3:30 p.m.

Great Great Great Grandparents' Music

Burkina Faso, 1997, directed by Taale Laafi Rosellini. Rosellini will be at the Friday screening to present and comment on his film.
Feb. 26, noon
Feb. 27, 7:30 p.m.

Deluge

USA and Ethiopia, 1995, directed by Salem Mekuria.
March 5, noon
March 6, 7:30 p.m.



Flame

Zimbabwe, 1996, directed by Ingrid Sinclair.
March 5, 1 p.m.
March 7, 7:30 p.m.

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