

Section  
American Society of Civil Engineers  
Box 40367  
San Antonio, Texas 78229-1367

Non Profit Org.  
U.S. POSTAGE  
PAID  
Austin, Texas  
Permit No 879

COPIED FROM THE COLLECTIONS IN  
THE CENTER FOR AMERICAN HISTORY  
THE UNIVERSITY OF TEXAS AT AUSTIN

## 70 Years of Service - Texas Section 1913-1983



# TEXAS CIVIL ENGINEER

MARCH

1983

### IN THIS ISSUE

|                                                       |    |
|-------------------------------------------------------|----|
| From the President.....                               | 2  |
| Looking Ahead.....                                    | 3  |
| Branch Reports.....                                   | 4  |
| News Notes.....                                       | 6  |
| In Memoriam - George R. Brown....                     | 12 |
| New and Transfer Members to the<br>Texas Section..... | 19 |
| Professional Directory.....                           | 22 |

### TECHNICAL PAPER

|                                                                                                    |    |
|----------------------------------------------------------------------------------------------------|----|
| Initial Response of Foundations<br>on Stiff Clay" by C. E. Williams<br>and John A. Focht, III..... | 14 |
|----------------------------------------------------------------------------------------------------|----|



JOHN A. FOCHT, JR.  
ZONE III VICE PRESIDENT NOMINEE  
PAGE 9

**ASCE Members Honored By TSPE Pg.9**  
**UT El Paso Summer Institute Helps**  
**Young People Into Engineering Pg.10**

PLAINTIFF'S  
EXHIBIT  
B&R-119

## In Memoriam . . .

### GEORGE R. BROWN

George R. Brown, internationally known engineer, one of Texas' best known citizens, and an Honor Member of ASCE (1971) died January 22, 1983 after a brief illness. He was 84.

As retired board chairman of Brown and Root, founder director of Texas Eastern Transmission Corporation and retired chairman of Rice University's board of trustees, he had spent his last years in a continuing program of philanthropy, benefiting not only Houston but science and the humanities for the good of humankind.

He is survived by his wife, Alice Pratt Brown, and three daughters, Mrs. Nancy Negley, Mrs. Ralph S. O'Connor and Mrs. Wallace S. Wilson; a niece, Mrs. Faye Sarofim, and a nephew, M. S. Stude, nine grandchildren and seven great-grandchildren.

Born in Belton, May 12, 1898, Brown was a member of a distinguished Texas family that came to Texas before the Civil War. A grandfather organized Lee County and was its first county judge. Brown entered Rice Institute in 1917 with the hope of becoming a doctor. He left the campus in 1918 to enlist in the Marine Corps.

While in the service, he discovered engineering. "I never thought I'd make any real money as an engineer," he said years later. "What was important was the romance of engineering. Engineers were men who went to far places, who built things all over the world...as far away as China."

With that vision he returned to a civilian life that ultimately took him all over the world to build things. After a term at The University of Texas, he entered the Colorado School of Mines and graduated in engineering in 1922. His first job was as a geologist for the Anaconda Company in its early copper mine at Butte, Montana.

Meanwhile, his brother Herman, financed by his brother-in-law Dan Root, had been busy building roads across Texas. Herman persuaded George to join him. In those days road contractors could be put out of business by a run of rainy weather.

"All you had to build was roads and streets, levees and railroad beds," George Brown said. "We took two jobs in West Texas, where there was no rainfall, for every job we took in East and South Texas, where there was a lot of rainfall. So we had a balance at the end of the year."

Herman Brown, as president, ran the business. George Brown, as executive vice president, mapped the future and won the contracts.

In 1925, George Brown married Alice Nelson Pratt of Lometa and found in her the life partner for his long career in industry and philanthropy.

It was an era of change, when the dirt roads suitable to the mule, the horse and buggy were giving way to the paved highways needed by automobiles. The firm built roads and bridges.

In 1926 it seemed sensible for George Brown to move to Houston because the city was laying out steets in rapid growth, and the port offered contract possibilities.

The Depression years brought federal projects. The biggest was the Marshall Ford Dam on the Colorado River near Austin. Brown and Root had never built a dam before, and this one required 2 million tons of concrete and millions of tons of dirt fill. It was 27 stories high and a mile wide. It took four years to complete.

This was the kind of adventure that had lured George Brown into engineering. "We had imagination and were willing to gamble," he once said. "By having imagination and being willing to gamble, if you're reasonably good in your judgment, you'll be successful." Other bigger leaps of imagination lay ahead.



In 1940, with Marshall Ford still under construction, the Browns began to build the naval air station at Corpus Christi. By the time Pearl Harbor was attacked, Brown & Root was ready to meet the demands of a nation plunging into world war.

The biggest test came when, on 24 hours notice, the Brown brothers accepted a lump sum contract to build a shipyard near Houston and deliver a specific number of ships at a specific price by a specific date. Nobody in the company had ever seen a ship built.

But as George Brown once said, "Timid money has created very little in our economic history." And, "You name it, we'll build it."

The Browns invested \$2 million before the first ship slipped the way. Although materials were hard to obtain and workers scarce, the Brown Shipyard amassed a staff of 25,000 men and women, and the first ship moved down the shipyard on schedule, its launch greased by overripe bananas in lieu of available lubricant.

By 1945 the company had delivered to the Navy 359 destroyer escorts and landing craft. Brown and Root won the Army-Navy E (for excellence) and a presidential citation for speed and excellence of production.

When the war ended, the Browns shifted the shipbuilding team to work. In 1946 Brown and Root announced its new petroleum and chemical division to be housed in shipyards on Greens Bayou.

The company headquarters moved from Houston to Austin, and in the years, George Brown began to travel to the far-off places he had envisioned when he fell in love with engineering.

Brown and Root's first big overseas job was as managing partner in the reconstruction of Guam, South Pacific island so badly damaged in World War II. The work began in 1946 and continued for years.

In the 1950's the Browns pioneered in the construction of offshore drilling and production platforms and in laying submarine pipelines in the Gulf of Mexico, moving on to the North Sea, the Persian Gulf and Maracaibo.

Brown and Root built the world's longest highway bridge - the 24-mile Lake Pontchartrain Twin Causeway.

By 1962, Brown and Root had completed hundreds of projects in scores of countries. But the greatest imaginative leap of that period was made in the United States: a leap that would change households and corporations throughout the country. Built to meet the emergency, the Big Inch and Little Big Inch pipelines had delivered crude oil.

By its size, the 24-inch Big Inch from East Texas to New Jersey defied contemporary engineering ideas, the possible and revolutionized the economics of pipeline transportation. If oil, the Browns thought, why not gas? Natural gas was being burned off in flares that lighted the countryside for lack of a market. Cities of the eastern seaboard were still burning oil, coal, coke for heating, cooking power.

The Browns saw that it would be cheaper and quicker to convert oil pipelines to carry gas than to build separate lines. Inviting men to bid in the project with the understanding they bought the pipelines from the federal government for \$143 million, 98 percent of the original cost.

George Brown considered it a fair price. The Browns organized the Texas Eastern Transmission Corporation to operate the system.

By 1960, revenues were running to \$1.2 billion. The bonds were fully paid off in 1973.

Throughout these years, George Brown's involvement with Rice University was growing as the school grew. Elected to the board of trustees in 1943, he pushed the board into purchase of the Rincon Oil Field by giving the first \$50,000 toward the \$1 million down payment and bringing in another \$50,000 from his brother Herman. In the first quarter-century after the purchase, the investment yielded Rice \$27 million for its endowment fund.

In the 1940's, Rice Institute's football was Houston's only contact with major college sports. Crowds regularly overflowed the old stadium to watch the Owls play.

At the end of the 1949 season, Brown and Root set out to build a 70,000-seat stadium and have it ready for the next year's homecoming game Sept. 30. It was, of course, a non-profit contract. Although the last wheelbarrows were still rolling out as the spectators began to come in, the stadium opened on time and Rice beat Santa Clara, 24-6.

In 1950, George Brown became the first Rice alumnus to be elected chairman of the board. He once said, "I often think the younger generation has more common sense than their fathers did at the same age." His faith in the young was proved by a quarter-century of service to and financial support for colleges and universities.

While building a strong financial structure for the university, Brown

continued to stimulate excellence in teaching, scholarship and research. In the mid-1960's, after being shown a rudimentary heart pump by a surgeon at Baylor College of Medicine, he suggested that engineers might prove helpful.

This led to the Rice-Baylor artificial heart project. In 1967, he established an annual award for the best undergraduate teaching, with a fund of half a million dollars.

The Browns were among those instrumental in bringing the Manned Spacecraft Center to Houston.

In 1951, the Brown Foundation was established to channel gifts into charitable works. But in 1960, when Herman Brown underwent heart surgery, the Browns began to plan for the future. In 1962, in the midst of negotiations with the Halliburton Company for the sale of Brown and Root, Herman Brown died. After the sale was completed, George Brown still had the BrownCo Oil Company which later became Highland Resources.

In 1970, Texas Eastern announced that it had bought 32 blocks of downtown Houston. It planned to transform them into an entire city section, larger than Rockefeller Center. George Brown moved his office into Two Houston Center, a soaring and beautiful building at the heart of the enterprise.

This decade allowed George Brown more time to expand his career as a philanthropist, civic leader, patron of the arts and humanities. In all these ventures he had as partner his wife Alice.

They had been major supporters of the Museum of Fine Arts for years when they gave the Brown Pavilion, which stretches across the museum

front on Bissonnet. It was the last work of the great architect, Mies van der Rohe.

Through the Brown Foundation they gave major gifts to most of the larger colleges and universities in Texas and a number of others elsewhere - in all the foundation has given away about \$170 million.

The plan, Brown said, "continues the foundation policy of acting as a catalyst through our gifts to the arts, science and institutions of higher learning."

In 1977, six national engineering societies joined to give George Brown the John Fritz Medal, the profession's highest honor for scientific and industrial achievement - an honor given in the past to Alexander Graham Bell, Guglielmo Marconi, Thomas Edison and Herbert Hoover.

In 1979, after several years of planning and effort, the Browns gave the city of Houston 840 acres, much of it shaded in pines and hardwoods. It is named Herman Brown Park, the second largest in the city.

An Episcopalian, Brown was a member of Saint John the Divine Church. He was the recipient of numerous honors and awards and the holder of several honorary doctorate degrees.

He held the Texas Society of Professional Engineers license No. 4; in 1971, he was designated an Honor Member of the American Society of Civil Engineers. George R. Brown, the Texan, through his life and work, surely discovered the romance of engineering, but also brought to his profession his wide-ranging interests, innovations and concerns which have inspired and served his fellow citizens.

(The above was excerpted from the The Houston Post, Jan. 23, 1983.)



## ASCE Continuing Education Services SHORT COURSES

offered in conjunction with the  
OFFSHORE TECHNOLOGY CONFERENCE

### OFFSHORE PILE FOUNDATIONS

### DESIGN OF COASTAL STRUCTURES

Please register me for the ASCE course indicated below, to be held May 6-7, 1983. Enclosed is my check made payable to "ASCE Continuing Education" in the amount of \$ \_\_\_\_\_. All checks must be payable in U.S. dollars and drawn on U.S. banks.

CHECK: ☐ OFFSHORE PILE FOUNDATIONS ☐ DESIGN OF COASTAL STRUCTURES

NAME \_\_\_\_\_ NICKNAME FOR BADGE \_\_\_\_\_

TITLE \_\_\_\_\_ TELEPHONE # \_\_\_\_\_

FIRM \_\_\_\_\_

ADDRESS \_\_\_\_\_ ADDRESS IS (CIRCLE): HOME BUSINESS

CITY/STATE/ZIP \_\_\_\_\_

Fee: \$350 OTC Co-Sponsoring Society Member (Circle): ASCE AAPG AICHE AIME ASME IEEE  
\$420 Non-Member MTS SET SME SNAME SPE TMS

☐ ASCE Membership # \_\_\_\_\_ ☐ Non-ASCE Member Social Security # \_\_\_\_\_ (For CEU Records)

Please complete if paying by Credit Card: Payment Assured by my Credit Card (☐ American Express ☐ Visa ☐ Master Charge)

Credit Card Number \_\_\_\_\_ Expiration Date \_\_\_\_\_ Signature \_\_\_\_\_

MAIL BY APRIL 18 TO: Dolores Nix, Continuing Education Services, ASCE, 345 E. 47th St., New York, NY 10017.  
If mailing deadline is missed, telephone for confirmation: (212) 705-7318.

COPIED FROM THE COLLECTIONS IN  
THE CENTER FOR AMERICAN HISTORY  
THE UNIVERSITY OF TEXAS AT AUSTIN