Between shifts, Standard Oil employees flow out of the plant’s Bayou Sara gate toward their homes in the roasted hamlet of north Baton Rouge in December. The plant was the nucleus of the surrounding neighborhoods, which sprang up during the decades after the plant opened in 1900.

In 1949, Standard Oil built the chemical plant on 150 acres next to the oil refinery with much of the refinery’s output used as feedstock, or raw materials, of the chemical plant.

Churning out high-grade aviation and automotive fuel and specialty rather for the Allies, the plant expanded employment boom.

Culver estimated the chemical plant and refinery’s 12,000 workers at the time made up more than 10 percent of the total population, comprising 1 percent of the state’s workforce.

Then America went to war.

With 2,100 employees from the plant drafted into service - Bayou Sara being one of them - Standard Oil began hiring women to keep up with demand, primarily as clerks keeping track of employee time cards, said Danelle Willard.

Stevenson applied for a job at the plant while her husband, an enlisted marine.

The plant’s oil output as a chicken in the Navy’s inspection program in 1944.

The “women were really kitted out here at the factory,” she said. “We were supposed to know what fumes came marching home.”

But then nothing was ever said about that “temporary business, anyway,” as so many of the women continued working there, said Edith Brown.

In 1949, the Standard Oil refinery was operating at full capacity, said Brown, with a capacity between 10 and 15 million barrels.

Price recall how employees used to get their hair cut with their names stenciled on their hair in the back window of their cars for everyone to see.

The king of the plant was a status symbol.

“Back in those days, you didn’t have to say ‘fancy’; she said. “It was worked at the plant. You didn’t have to spend a penny.”
The birth of the cat cracker

By CHAD CALDER
Advocate business writer

It may not be as well known as radar or as infamous as the atomic bomb, but the fluid bed reactor, which boosted the production of high-grade fuel for cars and airplanes, was a World War II-era invention crucial to the victory of the Allies.

And it was developed right here in Baton Rouge.

"This was one of a lot of heroic things that were done around the country at that time," said J. David Paynter, manager of Exxon Research and Development Laboratories in Baton Rouge.

"But it's pretty impressive that Baton Rouge was the home for this. The community should be proud of it."

Paynter also pointed out that while many technologies are quickly rendered obsolete by subsequent discoveries, fluid bed "cat crackers" are still the industry standard today.

"It's virtually the heart of every refinery throughout the world. You can't go to a refinery and not find a cat cracker," he said.

Fluid bed cracking produces about half the gasoline consumed in the United States and 45 percent of the propylene, a chemical building block used in making plastic bags, diapers and carpet.

In the years before America's entry into World War II, high-octane fuel had become scarce.

Demand quickly outstripped the speed and efficiency at which the U.S. refining industry could convert heavy fuels like crude oil into automobile and aviation fuel.

Standard Oil's 1941 projections showed the Allies would run into a shortage of aviation fuel by 1942.

A team of scientists, including about 1,000 from Standard Oil, had begun research in 1939 to solve a fundamental problem in "cracking" the hydrocarbon molecules in heavy fuels to create light, high-quality fuels.

The problem was the relatively short life of the catalysts that split the molecules and the inefficiency of the existing method of reactivating them.

At the time, the catalysts in fixed-bed reactors were only usable for a few seconds because they would become covered with a layer of coke, which deactivated them.

The catalysts could be reactivated by adding air and burning off the coke, but this ground the cracking process to a halt.

Scientists discovered the catalysts would move like a liquid if a low velocity gas was blown through a more complicated system of reactors — one including cracking and reactivating chambers.

Catalysts could now be moved quickly and efficiently from the reactors where they cracked the hydrocarbon molecules, into the reactivating chamber, and back again.

Fluid bed cracking was born.

A prototype was completed in 1941 at the refinery off Scenic Highway in north Baton Rouge.

Within a month after it went online, two others were built and the first commercial fluid bed reactor was running on May 25, 1942.

While the prototype is gone, these two reactors are still operating today.

Paynter said Standard Oil made the technology available to other refiners to support the war effort.

Fluid cat crackers helped the United States and its Allies increase the production of high-octane aviation fuel by 10,000 percent by the end of World War II.

They also provided a source of butylene, the key raw material for synthetic rubber. This was important because Japan's control of southeast Asia cut off the United States' supply of natural rubber.

"That's how wars are won," Paynter said, "on natural resources."

Paynter pointed out that by the end of the war, the Germans were so short on natural resources they were even converting coal to make high-grade fuel, a process even less efficient than converting crude in a fixed-bed reactor.

The American Chemical Society recently designated the fluid bed reactor a National Historic Chemical Landmark.

"We're still making fairly sizable improvements in a technology as old as this," Paynter said. "You'd think we'd have this on the shelf by now and not be working on it anymore, but it still has potential."

"It's really part of our overall heritage here at the research laboratories," he said.