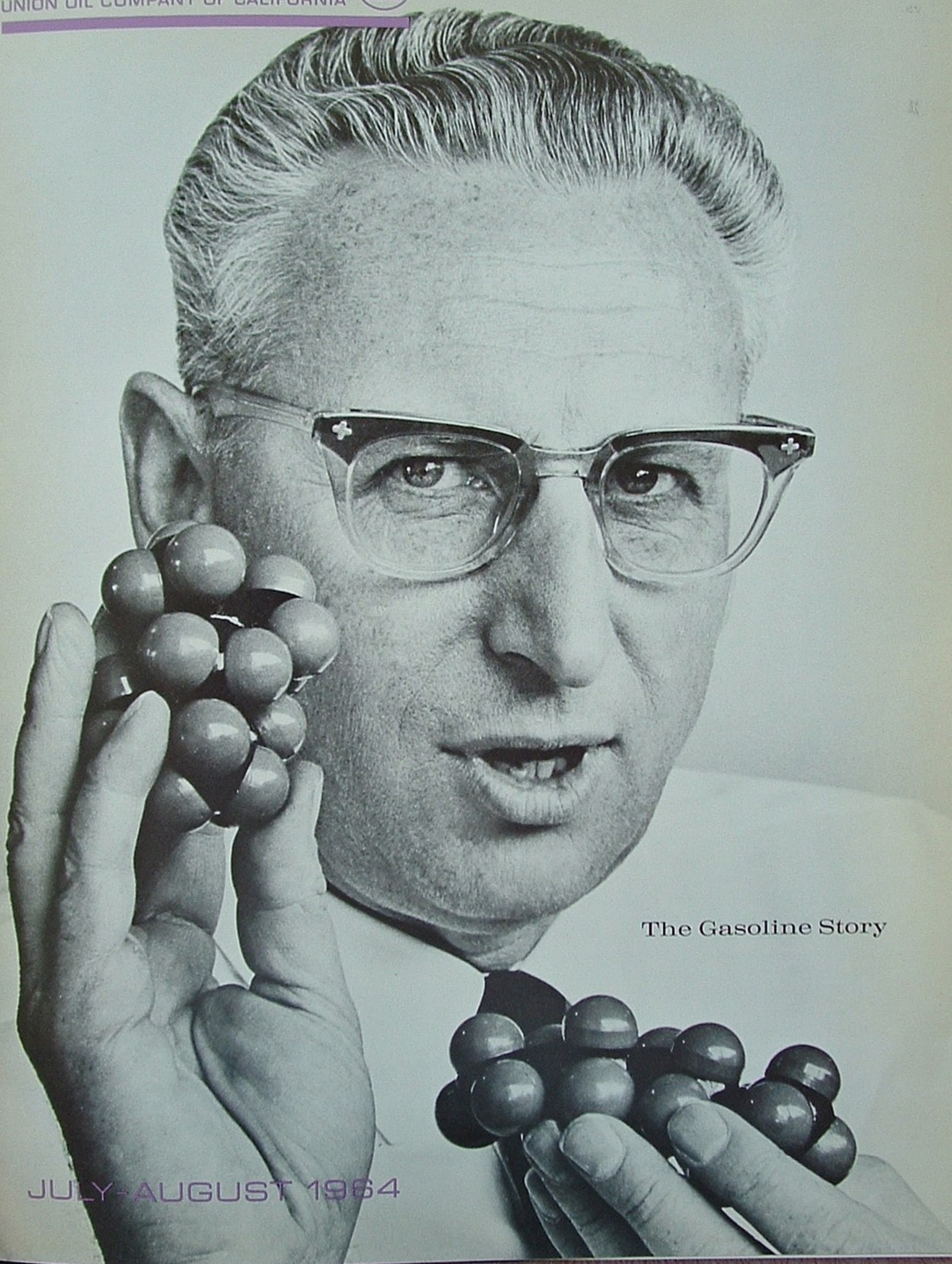


**SEVENTY SIX**  
UNION OIL COMPANY OF CALIFORNIA



The Gasoline Story

JULY-AUGUST 1964



# OPERATION DESERT STRIKE



## A study in military mobility

*Diesel-powered tanks churn up a sand storm north of Blythe, California.*

**I**N DAYS GONE BY, an army's mobility was limited by the distance horses could gallop in one day. In today's mechanized armed forces, nourished by gasoline and diesel, tanks roam hundreds of miles a day at near-freeway speeds. In the air, jet-powered planes command skies for hundreds of miles around.

Operation Desert Strike, the largest military maneuver since World War II, provided dramatic evidence that it takes both men and machines to run the armed forces today. More than 100,000 soldiers, airmen, national guardsmen and reservists were involved in the two-week long exercises—a mock war held in May that sprawled over 13 million acres of deserts and plateaus in Southern California, Arizona and Nevada. For mobility, these men required more than 7,000 trucks and jeeps, 1,000 tanks, 800 airplanes, and they used—by one conservative estimate—more than 15 million gallons of petroleum products, much of it from Union Oil refineries.

In the field, it is impossible to isolate a gallon of gasoline or a barrel of diesel fuel and say this came from our refineries. Centralized purchasing from Washington, D.C., precludes this. But traveling to and from the desert encampment, several hundred U.S. Army trucks from Ft. Lewis, Washington, filled up with the finest—Royal 76. 76



*Alert crews at Edwards Air Force Base race to F-102 jets.*



*Jeeps rode "piggy back" on Colorado River assault crossing.*



# Letters

(We invite readers to participate with us in an exchange of ideas and information. Address: Editor, Seventy-Six Magazine, Union Oil Center, Los Angeles 90017.)

Sir:

In the story on Moonie Oil Field in Australia, you describe a mounted jackaroo as a sheep farmer. Now I ask you, does one farm cows, pigs and chickens? One does raise them, nicely speaking, even breed them, but farm—never. A jackaroo also may be called... a flockman, station man or sheepman.

Bill Keith  
Glendale, Calif.

Sir:

I regret to say that in the text of that handsome "He Covers the Waterfront" layout, there is a typo to make all San Franciscans shudder. Embarkadero may be good simple English spelling, but the Spaniards, who gave the area its name, spell it Embarcadero, as do the Anglos who now populate old Yerba Buena.

Dennis Quam  
San Francisco

Sir:

Your tribute to W. W. Orcutt and his wife in the March-April issue was greatly appreciated. There could well be more of this sort of thing.

May I point up one error: You state that Mrs. Orcutt was widowed forty years ago. The figure should have been 22. W. W. Orcutt died April 27, 1942.

W. R. Moran  
Los Angeles

(Many thanks to sharp-eyed reader Bill Moran and a dozen others who spotted the error. — Ed.)

Sir:

I thank you for the copies of your (May)... article on the Oroville Dam project, which was wonderful. Matter of fact, it's so good I don't have a single copy left in my office and, if possible, would appreciate a few additional copies.

Sen. Stan Pittman  
Sacramento, California

## SEVENTY SIX

UNION OIL COMPANY OF CALIFORNIA



VOLUME 8 NUMBER 6

JULY-AUGUST 1964

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### ABOUT THIS ISSUE

The pictures in the article "Eva Wears a Texas Jacket," beginning on page 2, represent a considerable achievement in photographic logistics. Photographers had to be stationed at the proper times in Houston, the Panama Canal, Huntington Beach and on the offshore platform itself. At one time or another seven photographers were involved.

When Angela Kutas, a draftsman in our Exploration and Production office in Anchorage, was asked to set down her impressions of America eight years after the Hungarian Revolution, she first appeared pleased, then frightened. "What ever will I say?" she asked. Nevertheless, Mrs. Kutas turned to her typewriter and produced the heart-warming story beginning on page 16.

Another article you'll want to read is "Last Chance Gulch," beginning on page 20. It describes the fascinating story of how main street in Helena, Montana, got its name.



OUR COVER—The two molecular models being held by chemist Raymond W. Mattson represent normal butane and iso-octane, two compounds you'll learn more about in a three-part article on gasoline beginning in this issue. The cover is by Richard Tolbert.



is a Union Oil Company of California trademark. It also symbolizes the American freedoms won in 1776, which made possible this nation's industrial development and abundance. Our SEVENTY-SIX magazine mirrors industrial freedom through the thoughts, skills, accomplishments and appreciations of Union Oil people.

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JULY-AUGUST 1964

1







# EVA

## wears a Texas jacket

*Before drillers put down their first well, Union Oil had poured millions into a patch of water off the coast of California. One question remained: Would it pay off?*

**D**RILLING ENGINEER Ben Talley glanced at his watch. It was 2 p.m. Friday, May 8. A dazzling sun made a bright glare on the galvanized iron shed of the drilling rig. In offices and factories ashore, men were dreaming of Saturday's ball game. But on this steel platform two miles at sea, there was little time for leisure. For the last dozen hours, men had been scurrying around the platform to check electric switches, circulate drilling fluid and plug the leaks that inevitably show up.

Finally, toolpusher Bill Durett of Western Offshore Drilling signaled to Talley. "I think we've made it, Ben."

"Swell," Talley replied. "Let's spud in."

The word was passed to the rig floor. Driller Garth Haskins touched the control knob and a drill bit slid down the casing toward the ocean floor. Well No. A-2 was drilling.

Why the big rush? Why hurry on a sunny Friday when men's minds might rather dwell on fishing, golf or baseball? For the men in the Pacific Coast Division's offshore operations, the answer was simple: This was Platform Eva, the company's first major venture into the Pacific Ocean. Situated little more than two miles southwest of the city of Huntington Beach, this permanent offshore platform was Union's \$10 million gamble that the vast and productive Huntington Beach Field would extend at least three miles under the sea from the shoreline. Dick Yarbrough, superintendent of the Pacific Coast Division's offshore operations, gave us this background.

"At a state offshore auction in May of 1963, the company offered \$6,110,000 as a bonus to win the right to drill on this 2,113 acre parcel. It's called Parcel 14. The state awarded the company a contract in July. Three days later we had a drilling ship out here to test the prospect with a core hole. We drilled to 7600 feet and penetrated several hundred feet of oil-saturated sands. So we knew we had a winner, of sorts. The only question was: How big was it?"

Only the drill would answer that one. So a permanent offshore platform had to be built as a base of operations for the drilling program. Once this decision was made, dozens of Union Oilers focused their skills on the project. Geologists Frank Noble and Jack Van Amringe began analyzing core samplings, then laid out a program of wells that would

fully explore the earth under the sea. Engineers manned their drawing boards to design a platform and its vital production facilities. Purchasing agents surveyed the market seeking the best buys for the thousands of tons of highly specialized equipment they were called upon to purchase. Properties administration men had a big task too. They had to secure land titles and rights of way for pipelines and storage tanks. Then they began a long series of appearances before city, county and state boards and planning commissions to secure the bushel basket of permits needed to go ahead. Attorneys, insurance men, even public relations specialists lent their skills to various aspects of the project.

While all this was going on, there were little problems too. One such task involved naming the platform. Getting the right name wasn't easy. Because submerged coastal lands are owned by the government—state or federal—any fixed structure erected over this public domain comes under jurisdiction of the U.S. Army's Corps of Engineers. For safety and easy identification, the Army requires that all platforms have a name. The name could be any of Union's choosing, providing it met certain specifications. It must start with an "E"—as do all fixed structures in the Huntington Beach vicinity. Moreover, the name must contain no more than two syllables; it must not conflict with presently named structures, and it must be easily recognizable over the squawk of marine radio static.

Oddly enough, Dick Yarbrough admits, they couldn't come up with a name that quite filled the bill. Employee names from Eaton to Ewing were considered. So too were the first names of some Union Oil wives. Either the name was too easily mistaken for Emmy—already being used—or it was too difficult to understand over the radio.

Finally, while talking one day with Vice President Ray Burke, Yarbrough asked, "What would you suggest, Ray?"

Burke's reply brought a little company history into the picture. It seems that when Union Oil people made their first exploratory foray into Louisiana in the 1940's, they

*continued*

### FACTS ABOUT PLATFORM EVA

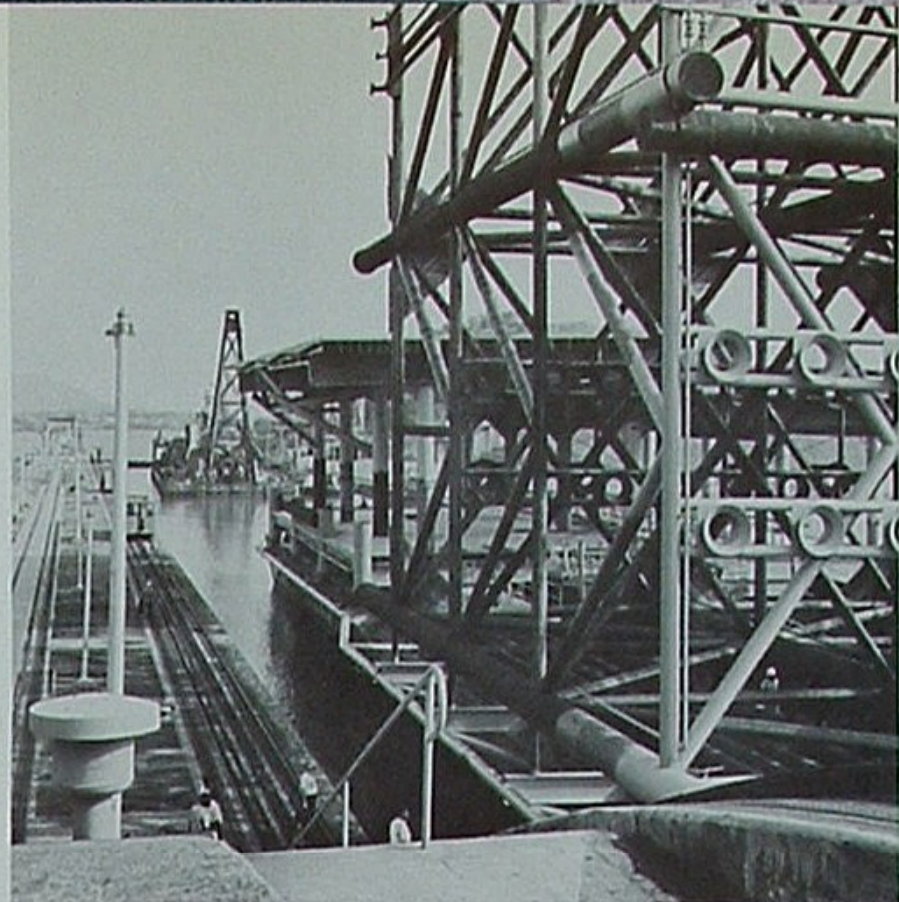
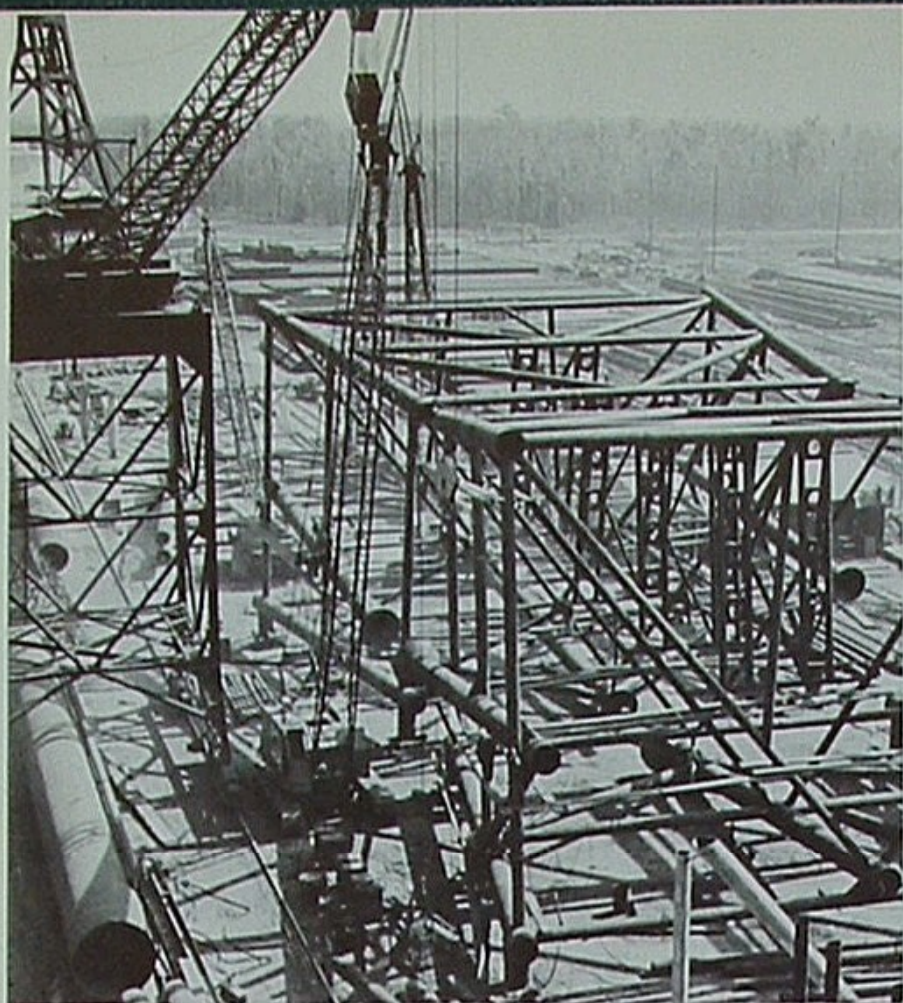
**LOCATION:** The platform is situated on state offshore Parcel 14, a 2,113 acre block that extends from the second to the third mile southwest of the shoreline at Huntington Beach, California. The parcel is believed to be on the western flank of the Huntington Beach Field.

**FACILITIES:** Eva is a 12-pile, 30-well permanent drilling and production platform, connected to shore by pipelines for crude oil, natural gas and fresh water. It is fully self-contained, with shops, drilling and production equipment, storage room, living quarters and galley. It is serviced by crew boat and helicopter.

**STATISTICS:** The platform weighs 1,640 tons. Production and drilling equipment add another 500 tons. The top, drilling deck measures 104 by 106 feet. The lower, production deck measures 80 by 90 feet. The platform stands in 58 feet of water. The floor of the drilling rig is 76 feet above sea level. The 30 wells will be directionally drilled to encounter all possible productive oil zones under the parcel.

*Platform Eva, a permanent drilling and production platform, is situated two miles off the coast of Huntington Beach, California. The jacket consists of a labyrinth of steel pipes supporting the decks. Project was a \$10 million gamble for Union Oil.*





Left: Platform Eva's jacket and decks were constructed at Houston yards of Brown & Root. Above: Upon completion, the platform was loaded aboard ocean-going barges and towed through the Panama Canal to California. Voyage took 30 days.

## EVA *continued*

bought an old houseboat. This unnamed craft was towed across East White Lake to serve as living quarters.

Somewhere along the line, the men got to calling the houseboat Little Eva. And like the character in "Uncle Tom's Cabin," the name "just grewed." Little Eva became famous as Union's first home in the marshes. It sheltered hundreds of Union Oilers, from roustabout to executive. A dozen times Little Eva has appeared in the pages of this magazine. Mere mention of Little Eva's name brings memories to many a Union Oiler in the Gulf Division. A photo of the old houseboat still hangs on Burke's office wall—a reminder of his early days as a geologist.

"Why don't you call the platform Eva?" Burke suggested. "Maybe she'll bring us another stroke of luck."

Although luck helps, Union's offshore people weren't taking any chances. Under construction at the Houston yard of Brown & Root, Eva was well equipped for the task. Structurally, the platform came in three sections. Two of these are now joined to form the upper steel decks of the platform. A third section—called the jacket—consists of a labyrinth of steel pipes supporting the decks above the ocean floor.

Getting the Texas jacket and decks from Houston to Huntington Beach required a small flotilla. When completed, the platform was loaded aboard a sea-going cargo barge and towed through the Panama Canal to California. A second barge, carrying a derrick big enough to handle Eva, accompanied the platform on its month-long voyage through the Caribbean Sea and Pacific Ocean.

Despite her Texas-sized construction, Eva's jacket was engineered to float. The builders simply welded caps over the ends of the hollow legs, making the jacket lighter than the sea water it displaced. When tipped—with a Texas-sized splash—into the ocean off Huntington Beach, the jacket bobbed up and floated merrily as a mother duck.

Next step was stationing the platform. After surveyors positioned the jacket over its assigned location, valves were

opened and the 12 steel legs slowly settled into the mud. Large steel piles were lowered into the jacket legs and driven 70 feet into the ocean floor.

Welded and wedged together, Eva's jacket and steel pilings form a base strong enough to support decks, drilling equipment, derrick crane, shops, living quarters, helicopter pad, coffee pot and all other essentials of a big, offshore drilling venture. Neither wind nor waves will prevail against steady work 'round-the-clock.

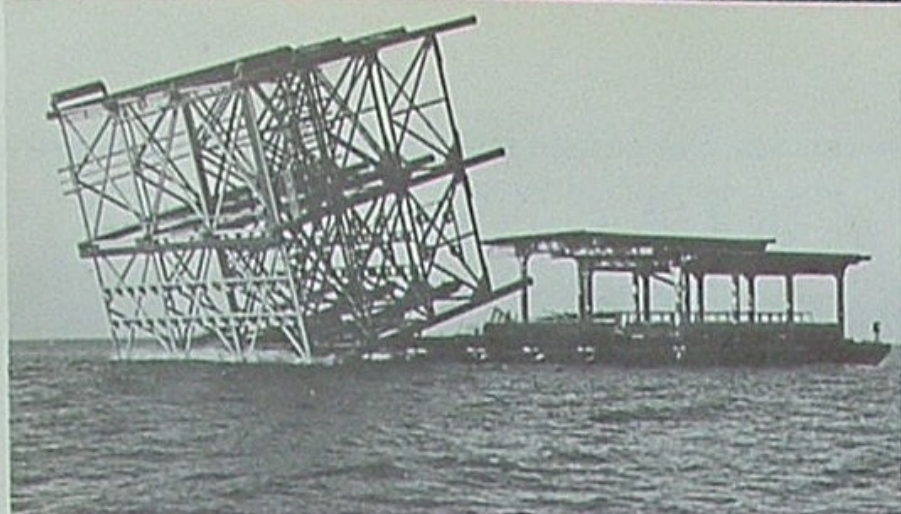
While the wedging and welding were going on, a group of pipeliners led by Jack Hannaman was doing a unique job of welding too. They installed three pipelines and a 12,000 watt power cable from the shoreline to the platform two miles at sea. The pipelines—an eight inch crude oil line, an eight inch gas line and a four inch fresh water line—were welded into 600 foot lengths and pulled by barge from the shoreline out to the platform. Each time the barge drew a 600 foot length out to sea, a new 600 foot section was welded to the line. As for the 12,000 watt cable, it permits the entire platform to be powered by electricity.

"Another big job," Project Superintendent Cliff Dunham said, "was Ray McGraw's task of installing the production equipment and the support systems." This included special tanks used to separate liquid crude oil from natural gas, oil pumping machinery, storage tanks, fire fighting equipment, electric lighting and—most time consuming of all—hooking up the heavy electrical gear needed to power 3,000 horsepower in electric motors.

As one of the largest fixed platforms now exploring California's shores, Eva was designed to accommodate 30 wells. Ten are scheduled to be drilled this year. When one well is completed, the rig can be skidded a few feet to another conductor pipe and the next well started. By using slant drilling techniques, all 2,113 acres of the parcel can be probed from one platform.

Certainly no barnacles have grown on Eva. The contract was let to Brown & Root last September 15. Her jacket and decks were designed, built and loaded at Houston by





Above: The jacket, engineered to float, tipped with a Texas-sized splash. Method of installing is described in the article.

Top: Derrick barge lifted decks onto jacket, making complete platform. Installation of equipment followed. Center: Pipelines were welded into 600 foot lengths and drawn out to platform at sea by seagoing tow-barge. Below: Union Oil began drilling from platform on May 8, even before heliport was installed.

January 25. The platform arrived off Huntington Beach on February 26. It was erected by April 20. Drilling began May 8.

Thanks to last year's core hole test, Union geologists are confident that most of the 30 wells will be producers. Yet despite the encouragement of core samples, an unknown geological fault somewhere under the earth could shatter these dreams. That's why everyone was cheering on May 21 when the drill encountered productive sands.

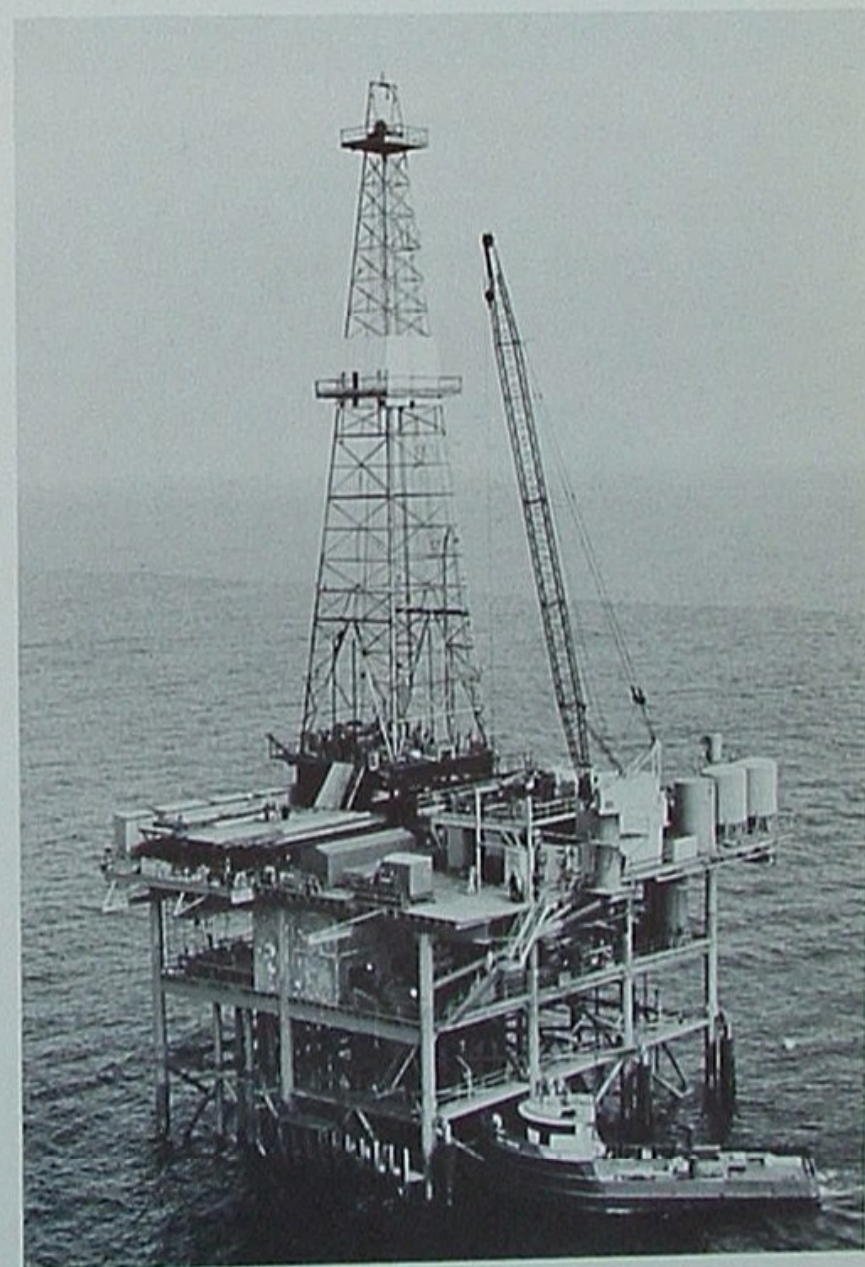
On June 17 the last chapter in the drama began to unfold. The first batch of Huntington Beach crude oil was sent by pipeline to the Los Angeles Refinery. Who knows, by the time you read this article you may be driving on the finest gasoline pumped from Huntington Beach Field. 76

#### A \$10 MILLION GAMBLE

Here's how Union Oil Company spent \$10 million to put Platform Eva to work:

Bonus to State of California:	\$6,110,000
Platform Eva:	\$2,300,000
Platform production equipment:	\$500,000
Pipeline and storage tanks:	\$600,000
Core hole testing:	\$375,000
Installation of drilling rig:	\$250,000
<b>TOTAL</b>	<b>\$10,135,000</b>

Had this money been invested in bonds, high quality securities or real estate mortgages last year, it would have earned about \$300,000 in dividends or interest. Invested in an oil platform, however, it hadn't earned a cent in the past year. If there was no oil—or only a little amount—the investment would have been lost. But there was oil, and so the \$10 million gamble will pay off, thus offsetting the inevitable unsuccessful gambles in other areas. 76





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# ACRES OF ORCHIDS

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SOUTH SAN FRANCISCO, CALIF.

WHERE DO YOU SUPPOSE the world's rarest and most beautiful orchids originate? In the rain forests of Central and South America? Africa? Asia?

Well, originally most orchids came from such greenhouses of nature. But so great has been their appeal to explorers, adventurers and conquerors throughout history that the tropical beauties are now hybridized even in cool climates.

The place of origin we have in mind is far removed from rain forests of the tropics. Today's hybrid orchid prefers plastic greenhouses to steam forests—petroleum generated heat to the jungle variety—and a chap named Rod McLellan to serve as Mother Nature's consultant.

Orchid enthusiasm is as old as civilization. Confucius called cymbidium orchids "the king's fragrance." Samurai warriors and feudal lords of Japan carried the blossoms into battlefields and on long journeys as an assurance against homesickness. English homes of the 19th century overcame the British climate by inviting the blooms to develop inside their living rooms. Around-the-world, the prettiest compliment to a woman is the gift of an orchid.



Rod McLellan, the world's leading hybridizer of orchids, displays one of the blooms that have made his Acres of Orchids famous.

The Rod McLellan Company at 1450 El Camino Real in South San Francisco, California, is perhaps better known as Acres of Orchids. A sign facing the old Spanish roadway from those beautifully cultivated acres welcomes visitors seven days a week. Thousands accept the invitation every month, with the result that South San Francisco has become world renowned as a center of orchid hybridizing and growing. Not only do flower lovers from everywhere beat a path to McLellan's door, some of his floral creations go regularly to every state in the Union, Hawaii included, and not a few are sent on missions of goodwill to nations abroad.

Like so many enterprises in America, this one started from a family hobby:

Back in 1850, Rod's grandfather, David McLellan, and his bride took passage down the Atlantic Coast on a combination honeymoon and gold rush. They sailed to Panama, crossed the isthmus by mule train, and came via mail and cargo ships to the California gold fields.

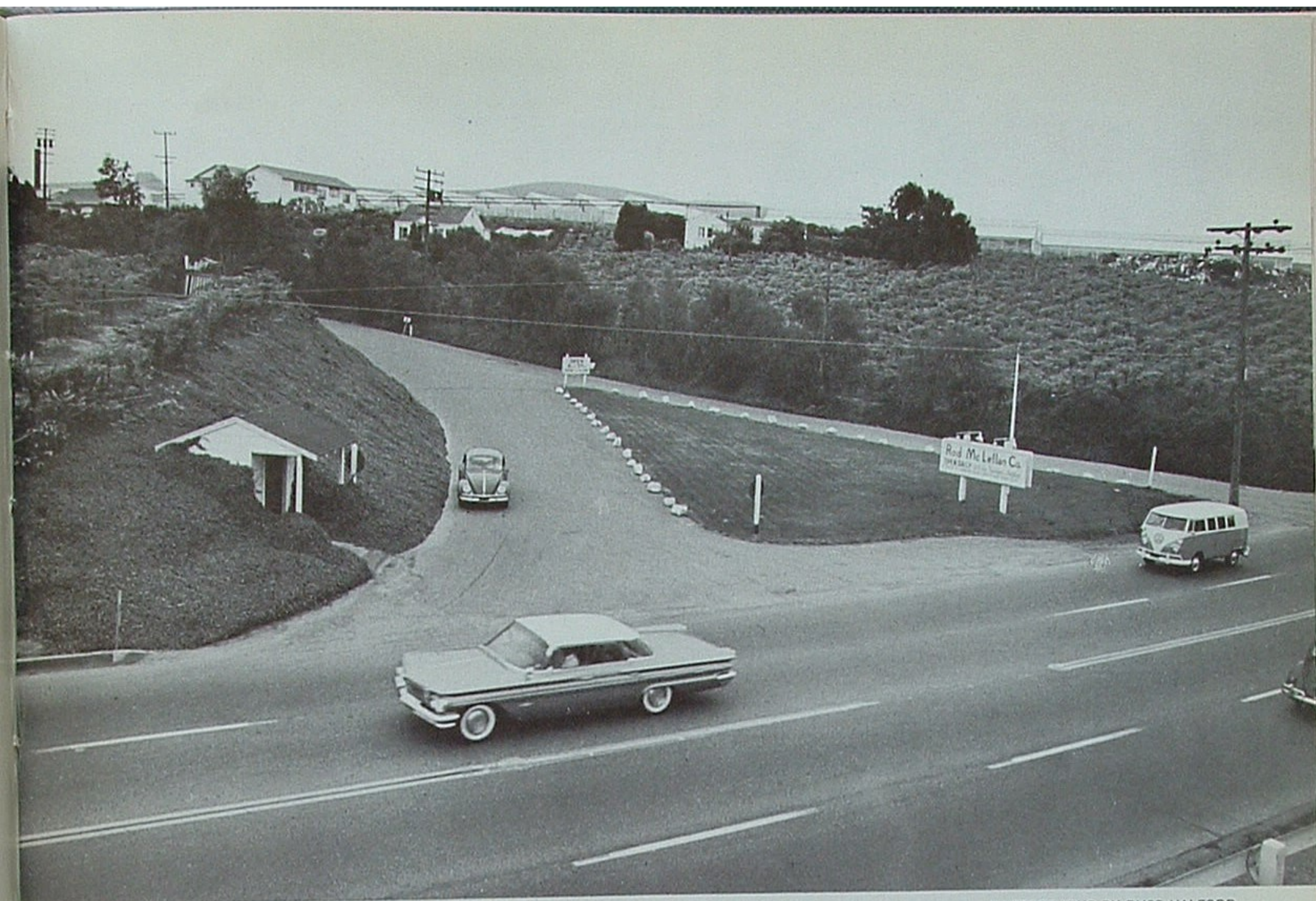
A visit to the "motherlode" country quickly convinced the newlyweds California creeks were not paved with gold. They hastened back to the Pacific seacoast, bought 1,200 acres of land in what is now known as the Hillsdale-Belmont area, and started a produce market at the junction of Fifth and Market streets in San Francisco.

It was the McLellans' fifth son, Edgar, who started the floral business. He had struck off on his own in the construction and dairying industries, but from his boyhood he had been enthusiastic about flowers. The home, construction yard and dairy blossomed beautifully with his flower beds and potted plants. Eager to share his hobby with others, he arranged to send a few bouquets into San Francisco each morning with deliveries of milk. Many customers—particularly those who paid their bills promptly—were happily surprised to find these nosegays on their doorsteps. Soon Edgar was receiving orders for flowers as well as milk.

But it was a honeymoon also that put Edgar in the floral business. Reversing his parents' wedding trip to California, Edgar and his bride journeyed to New York. There they observed the big city's tremendous demand for cut flowers and realized the fine commercial possibilities offered by San Francisco and the San Mateo County climate. Back home they turned every available asset into floriculture.

The third-generation member destined to carry on this family enterprise was Rod McLellan, one of Edgar's eight children. Rod was reared in yesterday's perfectionist tradition of long hours and painstaking work. It was a fortunate beginning because eventually his interest expanded to orchids. He pursued the intricacies of these exotic plants far beyond ordinary endurance and existing scientific texts. Today this man's Acres of Orchids contains more than 500 different species and, through hybridizing, accounts for more new varieties annually than are produced by any floral nursery elsewhere in the world.





Located on famed old El Camino Real, the orchid farm is open daily, the year around.

PHOTOGRAPHS BY RUSS HALFORD

### SEVEN YEARS FROM SEED TO BLOOM

There are three general classifications of orchids, two of which are semi-terrestrial, meaning they grow best in light, well-aerated, sandy, high-organic soils. But most of today's commercially grown orchids are *epiphytes*, which were originally found clinging to the bark of rain-forest trees, supposedly obtaining their food from the air through green growing tips at the ends of their exposed white aerial roots. Actually the epiphytes are neither air eaters nor parasites. They feed upon decayed bark, leaves and other organic substances washed down the tree trunks during tropical rains.

The technique of breeding or hybridizing orchids, Rod insists, is basically simple. Two suitable parent plants are selected, having dominant characteristics that one wishes to extend to the progeny. The desirable characteristics may be fine shape, color, texture, lasting quality, productiveness, fragrance or vigor. Pollen from the flower of one parent is removed on a wooden pin or meat skewer and placed on the stigmatic surface of a flower on the other parent. The seed pod matures naturally on the plant and may be removed one year or so after the cross is made. As many as 50,000 seeds, each as fine as dust, are removed from a single pod.

It is the growing procedure that tests a man's stamina and patience: After sterilization, the seeds are injected

with a syringe onto the surface of agar solution in sterilized bottles or flasks. Agar, extracted from a form of Japanese seaweed, is the base to which are added various nutrients required by the seeds during their first 12 months of germination.

One year later, seedlings are transplanted from the flask to shallow trays containing a fine grind of fir bark. Transfer of the young plants to another flat some nine months later is done for two reasons: to give the roots more freedom and to discourage growths of moss, which invariably thrive in the young orchid's favorite climate.

Then follow four years or more during which the plant requires individual quarters in a pot and annual re-potting in progressively larger containers of bark to accommodate its growth.

Finally, seven years after hybridization, the new creation bursts into bloom—perhaps unmatched throughout the ages for delicacy, depth, variety and blending of beautiful color. Orchids remain the aristocrats of flowers through endless hybridization and improvement.

### A BOARDING HOUSE FOR FLOWERS

Acres of Orchids is more than its name implies. Its open plots and long rows of plastic-covered greenhouses continue Edgar McLellan's fine business of supplying the San Francisco market with carnations, roses, gardenias and small potted plants for the home.

*continued*





Larry Newman, Union salesman who serves the McLellan account, has one word for the sales call—"Exquisite!"

## ORCHIDS *continued*

But so great is Rod McLellan's passion for orchids he nearly emulates Johnny Appleseed in sharing his enthusiasm with the world. He'd far rather supply you with an orchid plant than an orchid bloom. He's eager to share all his knowledge of orchid culture and hybridizing. With each young plant he sells go detailed instructions for keeping it vigorous and beautiful longer than the average human lifetime. If a plant appears to need a doctor or caretaker, there's always a welcome sign at Acres of Orchids.

It was Rod's solicitude for all orchids and their owners, in fact, that led to a unique service—a boarding house for flowers. Some of his customers prefer to call the service "orchid sitting."

This too began as a spontaneous act of kindness soon after Rod sold his first orchid plant. One of the buyers, who

was planning an extensive vacation trip, asked how the highly valued plant could be cared for in her absence. "Just bring it back to us," Rod invited. "We'll treat it like a baby. When you return, it will be waiting for you—with open fronds."

From that modest beginning the boarding house at Acres of Orchids has grown to an establishment of several thousand boarders. Most of the floral guests are there only for the duration of a vacation or trip abroad. However, a few people fortunate enough to own a "stable" of the plants let Rod do the work; they take a plant home only during its annual blooming period. A board-and-room fee of about 65 cents a month is evidence that the McLellans still regard this service as a customer accommodation.

Incidentally, orchid plants are within the financial reach of nearly any household. A few rare plants, of course, may be priced at hundreds of dollars. But some of the most beautiful and popular varieties are available at under \$10 per plant. Moreover, they thrive in the interior of any home and in many an open garden—with a minimum of care—and with stout immunity to insects or disease.

Petroleum? Well, the greenhouses at Acres of Orchids receive their tropical heat via natural gas. There's also a standby tank of fuel oil in case the gas supply might fail during cold weather. It also takes a lot of gasoline and punctual lubrication to work the farm and make deliveries. *Finest* of all, Acres of Orchids is a loyal 100 per cent Union Oil customer.

But let's just skip the commercial in this story and give full credit to an energetic family, the McLellans. Their hard work, intelligent effort and private enterprise throughout three generations has added an immense harvest of beauty to human life and many a delightful creation to the world of orchids.

As Rod McLellan would say it, "Enjoy your orchids!"

76



A table display arranged by McLellan employees Jill Rand and Bertie De Martini portrays various steps in the seven-year development of an orchid from seed pod, at extreme left, to blossoming plant, at right. A well cared for plant has longer life span than its owners.





Careful and precise blending of gasoline stocks is the key to top notch performance in your automobile. Here Harold O. Miller sits at the master console of an automated gasoline blending unit at Los Angeles Refinery.

# 76 BLENDS OF 76 GASOLINE

## 3 VIEWS OF GASOLINE

Pound-for-pound, there is more gasoline refined in the United States than the combined output of every lumber mill, meat packing house, dairy and wheat farm in the nation. By weight, gasoline production nearly doubles the steel output in America.

Millions of dollars are spent producing gasoline; yet before tax it is cheaper than bottled water. Wars have been fought for gasoline, but you can buy all you want on the nearest street corner. Gasoline is, in fact, one of the most misunderstood products of the American economy.

This is the first in a three-part series on the plain facts about gasoline. It was written for Union Oilers whose work is far removed from gasoline refining—the toolpusher, geologist, accountant, secretary, land man, and others.

The first article deals with blending gasolines for top performance. Next month we'll talk about knock and surface ignition. In the final article, we'll see what's behind our advertising claim "A Chemical Tuneup in Every Gallon."

This series was produced in cooperation with Dr. Raymond W. Mattson, who at the time was group leader of the fuel research section at Union's Research Center. Since this series was written, Dr. Mattson has been transferred to the Economics and Corporate Planning Department.

**B**ACK IN THE TWENTIES, one test of a gasoline was to throw a cupful into the air. If some of it hit the ground, the gasoline wasn't very good. It didn't evaporate fast enough.

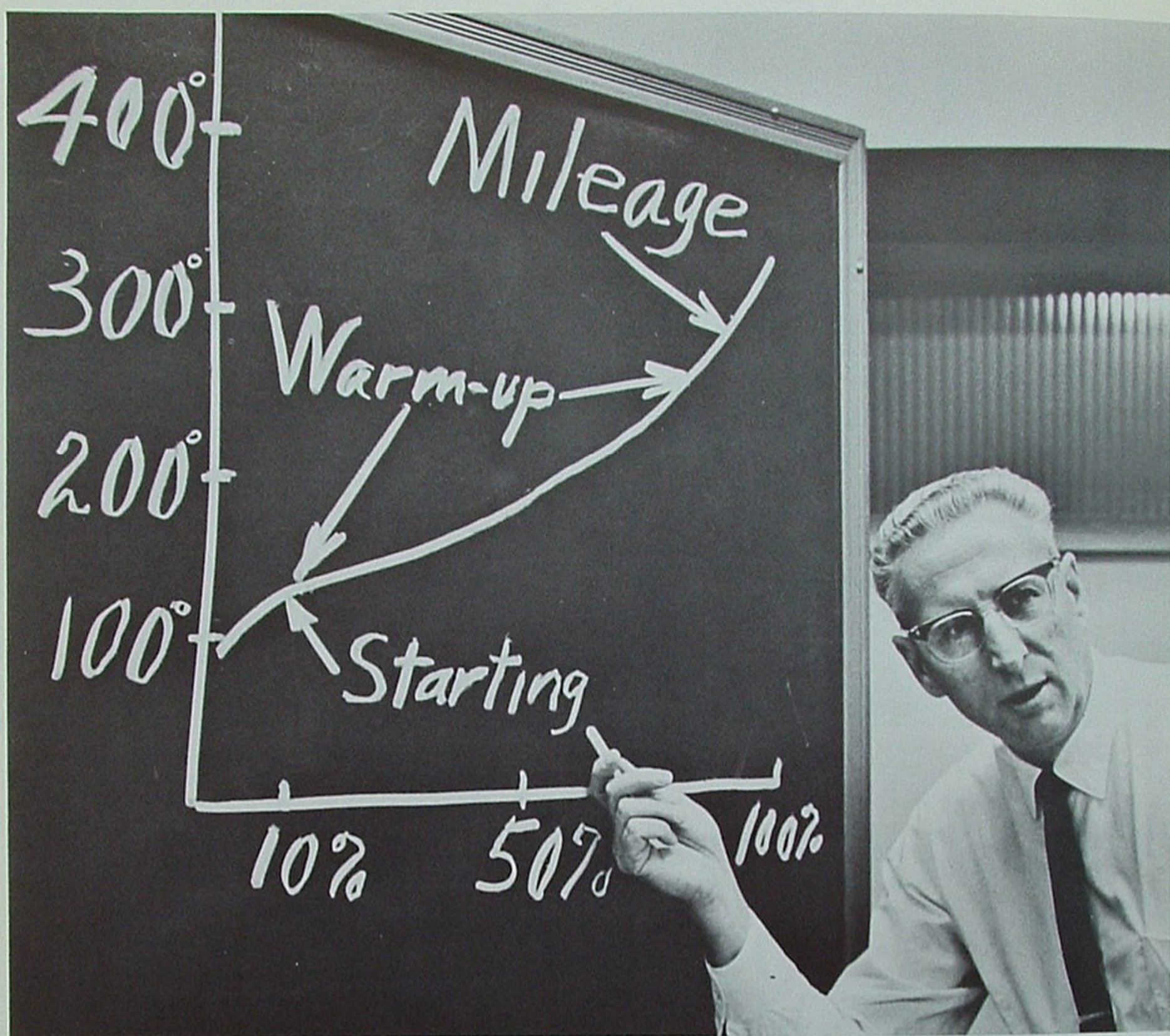
Today no one tests gasoline by throwing it into the air. In fact, any scientist would strongly recommend against it. But this simple evaporation test did point in the right direction. Here's why:

When it comes to engine performance—starting, warm-up, acceleration, and mileage—it is a gasoline's rate of evaporation that draws the interest of technical men. And because evaporation is so closely tied to boiling, let's see how a gasoline boils.

In a pure compound, such as alcohol or water, boiling occurs at a constant temperature for any given altitude or barometric pressure. In a mixture of compounds, such as alcohol and water, boiling occurs over a temperature range. For gasoline this range is about 90 to 410 degrees F.

*continued*





**STARTING:** For ease of starting on a wintry morning, gasoline must be capable of evaporating quickly despite cold weather. This means gasolines sold in Montana, Idaho and Washington must evaporate more readily than those sold in California and Arizona.

**BOILING RANGE:** Many motorists consider only octane when they buy gasoline. Few customers are aware of the key role played by the boiling range (or rate of evaporation) in a gasoline. Here Dr. Ray Mattson delivers an impromptu lecture on how boiling range manifests itself as starting, warmup and mileage.

## 76 BLENDS *continued*

All this is fine, you say, but how does this put zing and pep in my car? To see, let's look at three things: starting, warmup, and mileage.

**STARTING:** When you step on the starter, does your engine come quickly to life? Or does it grind and sputter? For your car to start, about ten per cent of the gasoline fed to your engine must evaporate immediately. Thus, the key to easy starting is the temperature at which ten per cent of a given quantity of gasoline has evaporated. Technical men describe this as the "front-end volatility" of a gasoline. On a cold winter's morning in Montana, you'll need a gasoline that evaporates quickly if you want your



car to start without trouble. To assure this, the gasoline expert usually turns to butane. Butane evaporates quickly, even at sub-freezing temperatures, and if you increase the butane content in your gasoline mixture, you'll get easy starting. There's a limit to this, however, as we'll see later.

**WARMUP:** After starting, how soon can you step on the throttle and get a smooth surge of power? If your engine bucks and jerks excessively—even though it is properly tuned—chances are your gasoline has poor warmup and acceleration properties. What it comes down to is this: In a warmed up engine, the intake manifold is hot; this promotes rapid evaporation of gasoline flowing into your engine. In a cold engine, however, the intake manifold is cold and the gasoline must have "built-in" evaporating properties. For good warmup and acceleration, gasoline must evaporate at ever-increasing speed to feed a hungry engine. The technical index to this is the boiling range of the middle half to two-thirds of the gasoline. (See black-board photo.) Precise control of middle volatility is the secret to smooth acceleration in a cold engine.

**VAPOR LOCK:** Suppose you're driving along the freeway on a hot summer day. There's a traffic jam and you have to stop. That's irritating enough; but then suddenly your engine stalls. You might have vapor lock. If so, this is what has happened: The light compounds (those at the lower end of the boiling range in your gasoline) have started to boil in your fuel pump or the fuel line. The combined effects of a highly volatile gasoline, a hot summer day and a hot engine did it. The vapors choke off the fuel supply to your engine, and it quits. Best bet, in this case, is to wrap a wet cloth around the fuel pump, and next time you pass a Minute Man station fill up with "76" gasoline. In a moment we'll see that (except for a worn out fuel pump) "76" gasolines guard your engine against vapor lock.

**MILEAGE AND POWER:** Everyone likes to see the words mileage and power used in describing the gasoline he uses. They mean economy. The power we're talking about comes from—or gets a big boost from—the compounds that boil in the range of about 300 to 400 degrees. (A chart accompanying this article shows the heating or energy value in British thermal units [Btu] for several hydrocarbons.) In a warmed-up engine, it is the high Btu-content compounds that deliver power and mileage. Without these valuable compounds, your mileage would suffer. And that's why, if you were to toss a cupful of gasoline into the air, you wouldn't want all of it to evaporate. If it did, you'd be lacking the power and mileage-producing compounds.

**BLENDING:** So far, we seem to be working at cross purposes. For quick starting on a wintry Montana morning, you need a gasoline that evaporates with ease. Yet if it boils too easily (i.e., at too low a temperature), the motorist traveling in the torrid Imperial Valley of California might get vapor lock.

The answer is to tailor the gasoline to the time and place. Because altitude (more specifically, atmospheric pressure) and season (actually, temperature) dictate how readily your gasoline can evaporate without danger of vapor lock, "76" gasolines are blended for location and season.

The task is no more simple than it sounds. Here in the

*continued*



**WARMUP:** What the researcher calls warmup, the motorist translates as "power." From the researcher's viewpoint, warmup and acceleration are represented by a curved line on a graph depicting boiling range. From the motorist's viewpoint, good warmup says "yes" to a question on the freeway on-ramp: "Do I have enough power to make it?"



**VAPOR LOCK:** Suppose you're driving along a freeway or up a steep mountain on a hot day. You slow down or stop and suddenly your engine stalls. You may have vapor lock. What has happened is the light compounds in your gasoline have boiled off in the fuel pump, and the vapors have choked off the fuel supply to your engine. Next time fill up at a Union Oil station.



**MILEAGE:** In a warmed-up engine, it is the high Btu-content compounds that deliver the best power and mileage. These high energy fuels come from the heavy, high boiling range stocks in the 300 to 400 degree range. Without them, mileage suffers.



## FOR ROYAL 76, SEASONAL CHANGES 6 TO 8 TIMES A YEAR...

West we have high mountain regions, low desert valleys, and extremes in temperature from torrid days to frigid mountain nights. To meet these challenges, Union Oil Company refineries manufacture an amazing number of "76" gasolines.

**GEOGRAPHIC BLENDING:** First, let's see how it's done geographically. At Los Angeles Refinery, they produce what they call "hot" gasoline. This is a blend for use in the inland deserts and mountains. The L.A. Refinery people also produce a "cold" blend—for use in coastal regions. So far, that's two.

Now let's look at Oleum Refinery, near Oakland. At Oleum, they turn out "hot" and "cold" blends of "76" gasolines, too. But these hot and cold blends differ slightly from the hot and cold blends manufactured at Los Angeles Refinery. Here's why: Because the temperatures in the north are always a little cooler than in the south, Oleum gasolines (both hot and cold) are slightly more volatile than LAR gasolines. Oleum gasolines evaporate more readily; this makes for easier starting on a cold morning in Portland, Seattle or Anchorage.

So far, then, it seems we have four geographic blends of "76" gasolines—hot and cold from Los Angeles Refinery, and hot and cold from Oleum. But "76" gasolines come in both regular and premium grades. Because these two gasolines are composed of different compounds, it is necessary to make hot and cold grades of both Regular 76 and Royal 76 at each refinery. So it's really not four blends, but eight—plus those made at Cut Bank Refinery in Montana which add a few more to the list.

**SEASONAL BLENDING:** The hot and cold blends of gasoline pretty well take care of the geographic problem. Now what about the weather? Obviously, it's going to be more difficult to start your car on a cold January morning than on a hot August day—regardless of where you live. And for quick warmup and acceleration in the winter, better mid-boiling volatility is required.

To solve this seasonal problem, Union refineries vary the volatility (evaporation rate) of both Regular 76 and Royal 76 as the seasons change. In the winter, more of the light, front-end compounds are included for easier starting. In the summertime, the front-end volatility is reduced to prevent vapor lock. These seasonal changes come five to six times a year for Regular 76, and six to eight times a year for Royal 76.

**COMBINED BLENDING:** Now we come to the point where refinery men and distribution men get their headaches. You'll recall that each of our refineries turns out hot and cold blends of both Regular and Royal 76 gasolines. Each of these hot and cold blends is, in turn, varied seasonally. For example, Los Angeles and Oleum Refineries each produce 14 blends of Royal 76. Each turns out 11 blends of Regular 76. Cut Bank Refinery adds half a score more to the list.

In addition, the Pacific Northwest presents its own unique problems. Conditions are different east and west of the Cascade Mountains that run through Oregon and Washington. To solve the problems presented by this mountain range, Union Oil Company varies the volatility of its gasolines destined for the Pacific Northwest according to a special schedule. This adds 16 more seasonal blends to this list. This is no mere shuffling of paperwork either; it requires extra storage tanks at both Portland and Seattle—an added headache for the distribution men.

All in all, they add up to 76 blends of "76" gasolines—actually more. If you were to include "76" aviation gasolines, "76" white gasoline, and "76" commercial gasoline, the total is more like 100 blends of "76" gasolines.

What it means to you, the driver, is this: No matter where you drive in the West, the *finest* starting and the *finest* driving performance are no farther away than your nearest Minute Man station. ⑦

(Next: Eliminating knock and surface ignition)

### PHYSICAL CONSTANTS OF SOME PURE HYDROCARBONS

NO. CARBON ATOMS IN MOLECULE	NAME OF COMPOUND	RELATIVE MOLECULE WEIGHT	BOILING POINT IN DEG. F.	BTU PER LIQ. GAL. (60° F.)	VALUABLE FOR PERFORMANCE CHARACTERISTICS	
C-4	Normal-Butane	light	31	103,000	Starting	
C-5	Iso-pentane	↓	82	109,000	Starting/Warmup	
C-6	Iso-Hexane		141	114,000	Warmup/Acceleration	
C-7	1, 1-Dimethylcyclopentane		190	127,000	Warmup/Acceleration	
C-8	Iso-octane		211	120,000	Warmup/Mileage	
C-9	Iso-propylbenzene		306	135,000	Mileage/Power	
C-10	N-Butylbenzene		heavy	362	136,000	Mileage/Power

Here are seven pure hydrocarbons that show how boiling points vary according to size and weight of gasoline molecules, and how the heavy molecules deliver greater heating value. The light C-4 and C-5 compounds are valuable for quick starting. Mid-range

compounds from the C-5's to the C-8's give fast warmup and acceleration. The heavy Btu-content compounds such as the C-8's to C-10's are needed for mileage and power. Actual "76" gasolines are far more complex mixtures than the illustrations shown.



# Business

# Highlights



## UNION OIL PEOPLE, EQUIPMENT COME OUT OF FLOOD SAFELY

We are pleased to report that our employees, equipment and plant in the Glacier Division came through the recent Montana floods in good shape.

An early report indicated that our distributor's bulk plant at Choteau suffered water damage. Fortunately the report was incorrect. There was no damage.

• • •

*Man blames fate for all accidents, but feels personally responsible when he makes a hole-in-one.*

## SPOTLIGHTS BLAZE MESSAGE FOR SPIRIT OF 76 TIRE SALE

It's a widely known fact in the tire business that about one car in four could use a new set of tires. Capitalizing on this fact, the company in June and July sponsored a month-long "Spirit of 76" tire sale.

North of Los Angeles in the San Fernando Valley, our Minute Man dealers kicked off the sale on June 19 by renting 76 powerful spotlights to light up the skies. Vin Scully, the ever-popular Dodger baseball announcer, broadcast the message over the radio to Dodger fans throughout the greater Los Angeles area.

While the spotlights were making the San Fernando Valley look something like D-Day at Normandie Beachhead, a helicopter was hovering over the valley flashing news of the tire sale.

How did the promotion go? One dealer, Palmer Moth, whose station is at Victory and Sepulveda, threw up his hands and said, "I can't install them as fast as we sell them."

Early reports from the rest of our marketing area were just as encouraging.

• • •

*Last year one million quarter-inch drills were sold—not because people wanted quarter-inch drills but because they wanted quarter-inch holes.*

## COMPUTER SIMULATES START-UP OF UNICRACKER

With Union's own \$22 million Unicracker now taking shape at Los Angeles Refinery, there come the twin challenges of forecasting its operation and of training its operating crews. This preparatory work is being tackled by two engineering groups.

First off, one group is using a computer to predict the Unicracker's performance and to see how best to integrate the unit into over-all refinery operations. The group has simulated the start-up of the Unicracker

*continued*



Sprucing up for the "Spirit of 76" tire sale described on this page were, above, dealer Palmer Moth, left; Frank Hollinghurst, top of rock, and Walter Burks, right. Moth said the \$9.76 tire sale offer and the 2,200 pound rock brought customers flocking to his station at Victory & Sepulveda. Below, manager Fred Stone, left, and dealer Joe Namson set up carload tire display at Ventura and Van Nuys station.





## Business Highlights

*continued*

by employing a computer program that substitutes numbers and equations for crude oils and processes. The group began by gathering information from company departments such as Marketing, Crude Supply, Distribution, Planning and Budget. This information was fed into the computer along with a mathematical equation that represents operations of the Unicracker.

There are so many possible combinations of temperatures, pressures, rates of flow and compositions of raw materials that figuring out the best combination would be a life-time job. With the computer, however, a set of complex symbols indicate the Unicracker's performance under a variety of conditions. This enables engineers to evaluate raw material mixes, choose among finished products and estimate efficient levels—all without turning a valve, changing a temperature or altering a flow pattern.

Early trial runs on the computer proved so life-like that a number of false starts occurred before all went smoothly. But once the kinks were ironed out, the computer integrated the Unicrackate (Unicracker product) into the finest gasoline blends.

A less mathematical but equally important problem has been assigned to a newly formed Los Angeles Refinery Unicracker Coordination Group. This team, composed of experienced engineers and process foremen, is responsible for training the operating personnel, for the physical start-up, and finally for putting the multi-million dollar set of refinery tools on stream. The usual problems associated with a start-up are expected, but thoroughness of the dry runs today should go a long way toward making the Unicracker the finest producer from the day it goes on stream.

\* \* \*

*Wisdom is knowing what to do;  
skill is knowing how to do it; virtue  
is doing it.*



At a 30 year anniversary party for employees in Exploration and Production, Marie Dunlap, above left, admires the engraving on a gold watch presented to her husband, Don. Dinner party was held in the French Room of the California Club. Prior to the dinner, employees being honored toured Union Oil Center. Pictured in the office of Senior Vice President K. C. Vaughan, below left, were (L-R) Kieth Kaufman of Torrey Field (obscured), Al Marsh of Orcutt Field, F. L. Holmgren of Las Cienegas Field in Los Angeles, Ira Triggs of Santa Fe Springs, Adolph Lenz of Santa Maria (taking picture) and Otto Pedro of Bakersfield. Wives, who attended the party, toured in separate group.





## UNION OILERS WIN AWARDS IN NATIONAL SAFETY CONTESTS

Safe operations at the Oleum Refinery have been recognized by the National Petroleum Refiners Association. An NPRA certificate award has been made to the company in recognition of an "exceptional record" of safe operations at the refinery.

In another ceremony, the Los Angeles chapter of the National Safety Council has presented the company five awards for safety in its Petroleum Division. They include:

—Manufacturing operations category: a perfect record (tie for first) to Union's compounding and packaging section at Los Angeles Terminal.

—Research & Development category: a perfect record (tie for first) to Union Research center. (Since then, Research has passed the two million hour mark without a chargeable accident—the third time in 14 years this has happened.)

—Company-wide category: a second place award to the entire company.

—Transportation category: a second place to Union's motor transport section, and

—Manufacturing operations category: a third place to Los Angeles Refinery.

• • •

*The best safety device is a careful man.*

## COMMITMENT PURCHASES CUT EXPENSES, WAREHOUSING

Buying equipment for new service stations is no simple matter. Many items must be custom built. While the Purchasing Department would prefer to use standard equipment, many items are unique to Union Oil stations. After all, the appearance of our new stations is something special too.

Almost 60 items going into service stations are considered special and the Purchasing Department must develop sources for these items long before they are needed. Included are merchandise display cases, work benches, dealer desks, cabinets and signs—to name a few.

After bidding the equipment

among all likely suppliers, a commitment is issued to the successful bidder. This commitment authorizes him to build as many items as we expect to use. Commitment purchasing offers three advantages to the company: (1) it guarantees having the material on hand when needed, (2) it gives the company benefit of low prices because of volume, and (3) we don't have to warehouse the material and pay for it before using it. This is important because we will buy about \$1 million in committed service station items this year.

Not all committed items are special. Substantial savings have been made by standardizing shelf materials. These are items used throughout the industry, and readily available out of supplier stocks. Examples include pumps, hoists, compressors, underground storage tanks and lighting fixtures. By committing for these items, our volume usage is reflected in lower prices.

• • •

*The communist, seeing the rich man and his fine home says, "No man should have so much." The capitalist seeing the same thing, says: "All men should have as much."*

## DRIVING COURTESY, ABILITY THEMES OF CAR CLUB CONTEST

Forty young men and women, equipped with slide rules and watches, climbed into 20 matched

cars on Saturday, May 16, to drive 500 miles over California and Nevada roads in what was described as the nation's first "Econability Run."

The contest was set up by the International Car Club Association, a world-wide youth auto organization and a distant cousin of the National Hot Rod Association. Essentially the contest was a road rallye with driving ability, gas economy, courtesy and safety thrown in as stabilizing features.

California Dodge dealers provided the matched cars. Union Oil arranged to fuel and service these cars at our stations along the route.

## MILITARY FUEL ORDER WOULD FILL 2,400 MILE PIPELINE

The Defense Fuels Supply Center in Washington, D.C., has awarded the following contracts to the company for the six months commencing July 1, 1964:

—7,728,000 gallons of aviation gasoline for delivery from Los Angeles Refinery.

—828,000 barrels of Navy special fuel oil for delivery from Los Angeles Refinery.

—7,175,000 gallons of Arctic (low pour) diesel oil for delivery from Oleum Refinery, and

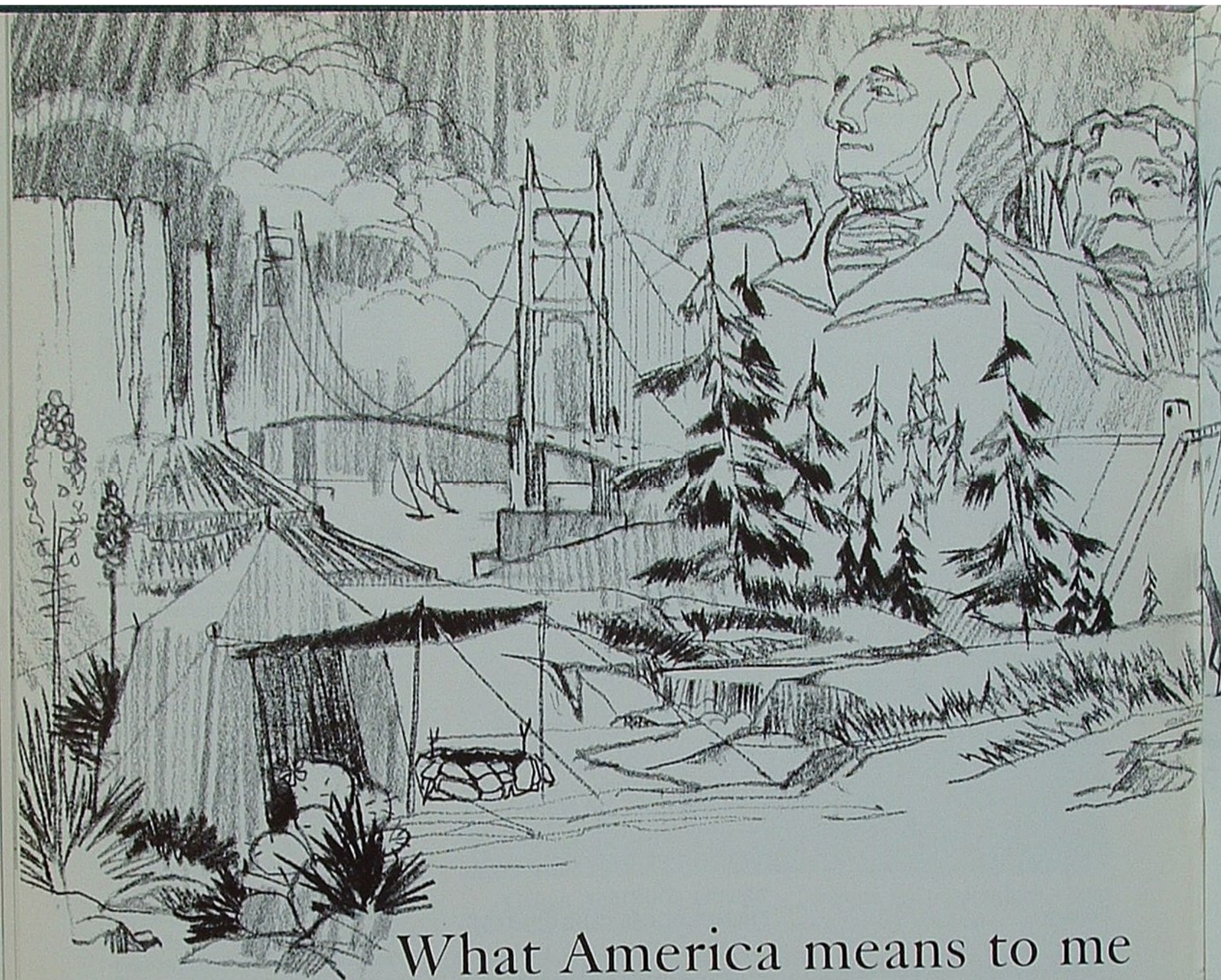
—200,000 barrels of bunker oil for delivery from Oleum Refinery.

This volume would fill a ten-inch pipeline approximately 2,400 miles long.



*The largest highway construction contract ever let in Washington is for a freeway that will bisect Seattle, and take two years to build. Handling the earthmoving job—about four million cubic yards involved—is Fiorito Brothers, general contractor. Union Oil is supplying petroleum needs for the heavy earth-moving machinery.*





## What America means to me

By ANGELA KUTAS

ANCHORAGE, ALASKA

**I**N THE OLD COUNTRY, Hungary, where I was born and lived until 1957, we were accustomed to hearing the word freedom. But it had little meaning. The term had no application for us as individuals; it meant only that the Communist Party could do as it pleased.

During the 1956 revolution in Hungary, a faint hope of real freedom flared briefly. When that flame perished, my husband and I decided to leave the country of our birth, to leave many of our loved ones behind. We wanted a better future, at least for our children.

In Vienna after World War II, my husband, Leslie, had met an American Air Force captain, Leroy E. Holen. Their subsequent exchange of letters suggested that in America might await the type of freedom we were hoping for.

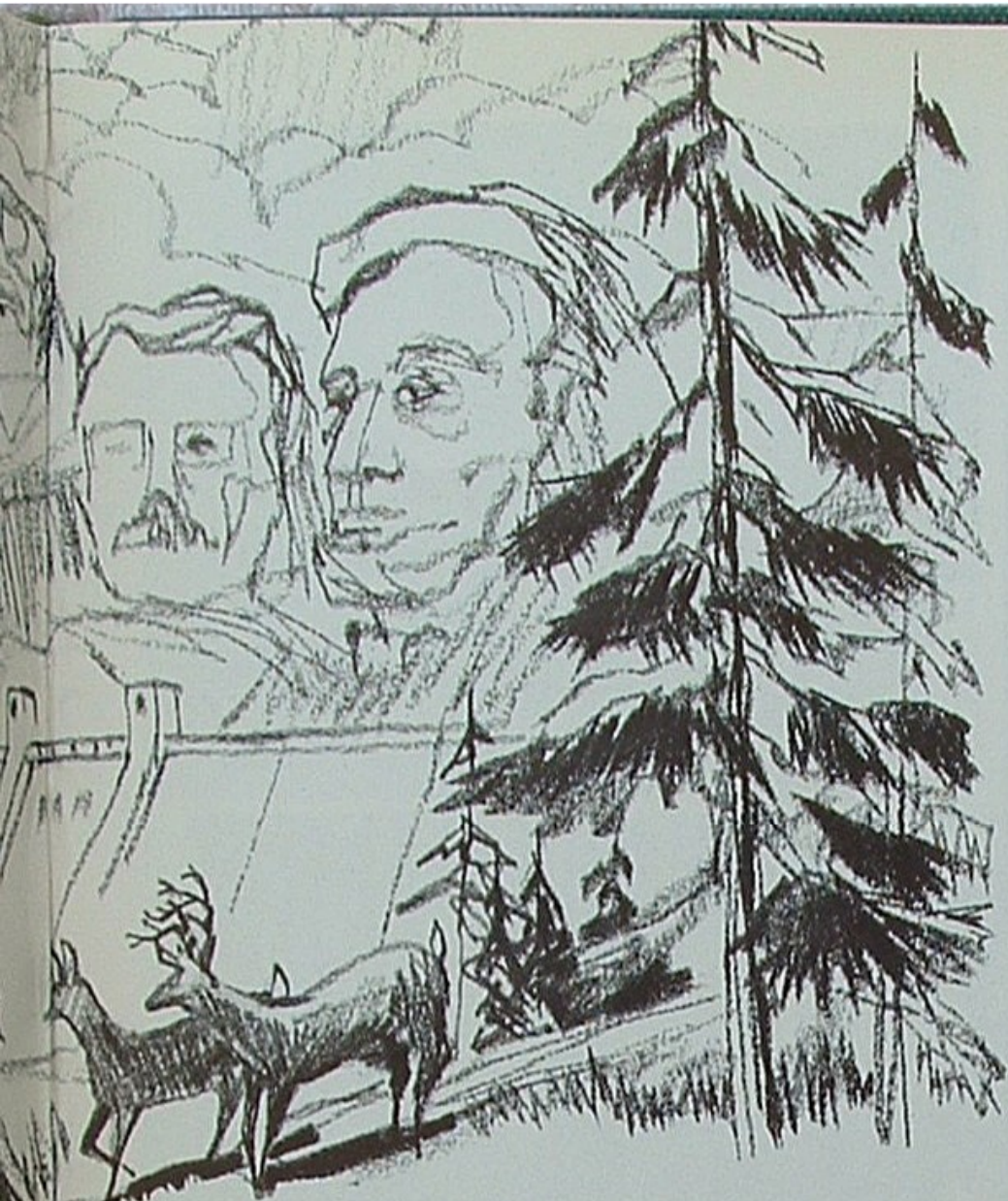
In desperation we crossed the frontier on a bitterly cold January night—crossed the Iron Curtain and left Communism behind with its false promises, lies and murders. Our goal was America. But first we had to endure ten

months of misery, hunger, constant fear—life in a Yugoslavian concentration camp. Only when we caught sight of the Statue of Liberty did we know that at last we had come home.

How can I describe in less than several million words our impression of the New World, its beauty of nature from coast to coast? We admired the snowy mountain tops reaching up to the sky . . . the hot and dry deserts . . . the beautiful green forests . . . the blue and green of the sea . . . the rapid rivers and creeks . . . the colorful fields of wild flowers and berries. This we saw while traveling through only fourteen states. How much greater must be the treasure of beauty in all fifty states.

What does America mean to me? It means people, American people. Though we were foreigners, handicapped by not knowing the language, Americans accepted us without question. They gave us warmth and love, extended a helping hand so we could establish our new home and find a place in this society. We had to learn new skills, to establish ourselves, to work and to earn a living. Here again,





wonderful people helped us over the hurdles; they were understanding and patient, and proved themselves to be honest, decent and open hearted.

My three children were never made to feel uncomfortable or unhappy because they were foreign-born. They were given special help by teachers. Eva was 6 then. Her teachers spent many hours teaching her English and expediting the process of adjusting. Extra effort also was volunteered to help all of us understand everything there is to being good citizens in our new country.

America means cultural life: art, literature, music, dance, sports. Each was new and different. My first newly acquired knowledge was in the field of music—perhaps because I was exposed to it prior to our arrival, or maybe because I could approach music without having to fight the language barrier. Little-by-little, the sound of American music became familiar to me: folks songs, the music of the prairie, cowboy songs, traditional Negro spirituals and modern American jazz. America gave me the pleasure of knowing musicals, semi-classical and modern classical music. Today I enjoy hearing music when Leonard Bernstein is conducting and count the tunes of Gershwin and Rogers and Hammerstein among my favorites.

Likewise, I found language no obstacle in exploring the fields of fine arts and dancing in my new country. And having achieved by now some mastery of English, I find America's world of books and literature being opened to me.

On the more practical side, America means an unquestioned supremacy in technical knowledge. Personally, it means a high standard of living, easy access to modern equipment, the availability of appliances for the average person. I like this ideology of having new inventions serve all the people—not just a select few.

But are these—the beautiful and comforting things of life—what America really means to me?

No, they are only part of it—perhaps the least of it. It is not just the friendliness and warmth of the American people. It is not just the beauty of nature decorating this big country. It is not just the culture of this people. Neither is it the reward of modern invention nor America's high standard of living.

Far more important than these is the source of this harvest. To me, America means freedom—not a freedom that can be coveted by a few and denied to the many, but a type of freedom that best rewards those who share it with others.

America means to me the freedom of the individual—the right to dream, to hope, to plan, to live one's own life, to build one's future—and to know that my plans will go on living in my children's future. To me, this freedom means everything. It is what God gave man and it is what makes life worth living. 76

#### About the Author

Angela Kutas (like Kootash) was born in Kaposvar, Hungary, about 120 miles from Budapest. She studied in Budapest and taught elementary school in Kaposvar from 1948 through 1957. Married to businessman and law student Leslie Kutas, she is the mother of three children: Leslie, 18, an honor student who will matriculate at the University of Chicago in September to study medicine; Alex, 16, a junior in high school, and Eva, 13, a ninth grader who wants to be a teacher or housewife. Shortly after the Hungarian revolution, the Kutas family fled Hungary, only to spend ten months in a Yugoslavian concentration camp. Sponsored to the United States by Leroy E. Hoken, a reseller of Union Oil products in Anchorage, the Kutas family settled in Anchorage. Mrs. Kutas is a drafts-woman for Union Oil Company. She is pictured here with Homer Burrell, Union landman in Anchorage.







**IN  
FOCUS**



Stan Biehn, right, supervisor of credit card accounts, San Francisco, took office June 1 as president of the Administrative Management Society's San Francisco Chapter. Out-going president, George Loveland, gave Stan the society's official congratulations and the gavel.

from J. J. Grunewald



Twice honored by the Los Angeles County Heart Association at its annual meeting in April were some good-hearted members of the Union Oil Family. Dr. Richard Call, center, medical director at Union Oil Center, was given a special award for his eight years of service to the Heart Association. Union Oil Girls' Club, represented by Ruth Bryson, right, received the Outstanding Contribution Award "for the countless hours of typing, clerical and secretarial services they devoted to the Association's many programs." Making the presentations was Dr. Willard J. Zinn, president of LACHA.



Leading salesman for the first quarter of 1964, as determined by the Retail Incentive Bonus Plan, was Marty Wachtel, right, retail sales supervisor. The bonus check he received from A. R. Ousdahl, sales manager of California Mid-Coastal Division, represented the finest individual performance among retail sales personnel in the marketing of tires, batteries and motor oil.





Dads' Club man-of-the-year is the honorary title bestowed upon Larry L. Davies, right, of our Portland Marketing terminal by the club president, Bill Stewart, left. Larry's many hours devoted to school athletic and recreational programs despite having no child of his own in the school this year were factors that made him the club's unanimous choice for the award.



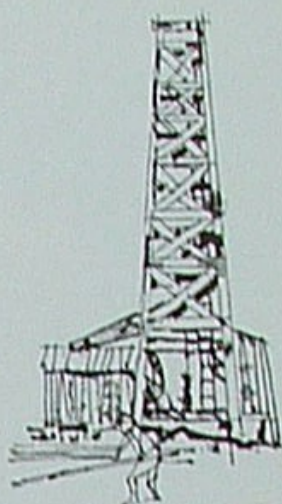
The 76 Gun Club at Los Angeles Refinery added another first-place prize to its trophy case by defeating the Hawthorne Elks Club in a pistol shooting tournament sponsored by the National Rifle Association. Holding the trophy are John Hopkins, left, refinery manager, and Bill Leamy, president of the sharpshooters. Club members, background, are P. Davis, F. Walker, H. Hill, A. Reckling, R. Delay, W. Eichholtz, B. Votaw, R. McLaughlin, R. Rentzel, B. Ferraro, C. Bernhardt and J. Kovaly. The club's aims are straight shooting, not the quick draw; good fellowship rather than more notches on the gun handle.

from Cleo Goyette



Appointed to the Air Force Academy in Colorado are two sons of Union Oilers. Appointee Arthur R. Miller, left, is the son of our consignee, A. J. Miller, at Boise, Idaho. Cadet Ray Barnes, in the photo at right, is the son of Ray Barnes of our Los Angeles Refinery.

## TURNING BACK THE PAGES



### OUR GROWTH IN BARRELS

**1894**—Known in historical archives as the "turning point for Union," 1894 saw our annual crude production at 90,276 barrels. The decline from a *high* of 139,784 barrels in 1892 was attributed to over-production in Los Angeles and the importation of oil from Peru.

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**1904**—The "aggressive acquisition of oil lands" and Hartnell Gusher near Santa Maria were factors in doubling the company's best previous production to 747,395 barrels.

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**1914**—New fields at Coalinga, Kern River, Stearns Rancho, Torrey Canyon, Lompoc, Brea Canyon, Simi, Lake View and Bell Estate jumped production to 5,005,510 barrels. "Every well brought in by Union to this date is still producing."

• • •

**1924**—Rosecrans Field was discovered. Test wells were drilled at Dominguez, Saugus, Rio Bravo, Wisecarver; in Wyoming, Colorado, New Mexico. Our crude oil total for the year was 14,658,594 barrels.

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**1934**—In the doldrums of world-wide economic depression, Union, with 539 wells producing and 461 shut in, still produced 11,677,000 barrels of oil during the year.

• • •

**1944**—World War II demands—success in Louisiana and Texas—Union's purchase of Glacier Production Company in Montana—these were factors in a new all-time production record of 24,688,000 barrels for the year.

• • •

**1954**—From 3,133 oil and gas wells, scattered from Northern Canada to the Gulf of Mexico, Union produced 37,164,000 net barrels of crude and 68 billion cubic feet of natural gas during the year.

• • •

**1964**—If the current rate of production continues throughout 1964, Union will exceed its record year of 1963, when company wells yielded 42,216,000 net barrels of crude and 206 billion cubic feet of gas. Our *daily* production now exceeds our *annual* production in 1894.

78





Last Chance Gulch in 1870, six years after gold discovery.

## LAST CHANCE GULCH

IF EVER YOU DRIVE down the main street of Helena, Montana, and wonder why the thoroughfare meanders like a stream, this brief historical sketch will give you the answer:

**July 14, 1864:** A quartet of tired and luckless prospectors, known to their contemporaries as "the four Georgians," pulls up beside a small gulch in western Montana. There's not a sign of settlement or civilization anywhere around them. The four are down on their prospecting luck; they're practically out of everything: money, food, supplies, strength, hope.

The gulch contains one of those typical Rocky Mountain creeks—ranging from white rapids to a mere trickle or dry wash, depending on winter snows or summer cloudbursts. Today, in July, 1864, it runs water. One of the four Georgians rinses his gold pan in the creek, slakes his thirst and perspiring chest with the same cool draught, and says, "Well, boys, this gulch is our last chance."

A few minutes later, the gold pan scoops up a sample of sand from the creek bottom. The prospector's deft swirling motion with the pan gradually washes away the sand. Then from among a few coarse particles clinging to the vessel's bottom emerge traces of color.

The pan swirls, stops, swirls, stops—shakes a little. Suddenly it is grasped vise-like between a muscular arm and hand. Calloused fingers of the miner's free hand push the coarse particles aside and pinch the streak of gold. "Hey, you Georgia paupers," he shouts excitedly, "look here what I've found!"

**July 26, 1864:** There are few newspapers anywhere west of the Mississippi at this early date, least of all in the Montana territory. But the *Bannack News Letter*, just getting started at the scene of another Montana gold strike, already boasts headlines that will shake the nation:

"EXTRA! EXTRA! EXTRA!  
"GREAT STRIKE IN LAST CHANCE GULCH  
"Thousands Stampede to the New Field

"The reports were brought in by 'The Georgians' headed by Jown Cowan and Bob Stanley. Over \$150 to the pan."

You wonder why prospectors always run to town with the announcement of a gold discovery. Why not keep it quiet for a few months and make certain you've staked the best claims? But no doubt the Georgians wanted to record their claims—or needed supplies desperately—or couldn't resist spending part of the gold dust.

It's customary for those who strike it rich to buy a round of drinks at the saloon. Whiskey loosens shyness and tongues. Someone soon pries loose the location of Last Chance Gulch and how the gold was found.

Needless to say, the word spreads as fast as men can run, women can talk and horses can gallop. Last Chance Gulch, never heard of before in the territory, becomes the magnet of a feverish migration. After a day or two, there is little need for maps or directions. Just follow those ruts, that wagon ahead, that column of dust, that string of pack horses; they're all headed for the new bonanza.



At the diggin's, there's now hardly room to pitch a tent. Every foot of ground is taken, first by the claim stakes of the early birds, next by hordes of gold-camp followers. A canvas and lodgpole city unfolds in a week's time. It extends from the valley into the hills—a long, pulsating serpent of a city. Promising everything, it offers nothing but dust, mud, sweat, discomfort, bad water, no supplies except at fantastic prices, shady dealing, thievery, gun play. Only bad whiskey to relieve the tension. Only gold in the gulch to keep the frenzied stampede yelling.

**November 8, 1889:** It's quieter, law-abiding, sedate, comfortable—even luxurious—today along Last Chance Gulch. The rabble has departed. Fine stores and shops line the old creek banks. The stream is dry—smooth as paving—castaneting with the hoofbeat of fine carriage horses and a few of the saddle breed. At the edge of town, the mansions of fifty millionaires stud the community with elegance. From the ashes of three major fires that swept the crowded creek banks three years apart have risen half-a-dozen other banks—with assets of \$10 million. Hotels the likes of the Magnolia, International and Merchants welcome notables and celebrities without a blush. Ming's Opera House is competing on nearly equal terms with "Chicago Joe's" hurdy-gurdy girls. Nearing completion is the Broadwater Hotel and Natatorium, "largest enclosed natural hot water swimming pool in the world."

Gone are nearly all the old stage coaches, but three major railroads arrive on the scene with 22 passenger trains daily. A telegraph instrument in the railway station keeps in intimate touch with New York, New Orleans and Washington.

Under such circumstances, of course, Last Chance Gulch is hardly the proper name for a city. So they put the old gold-rush title back where it belongs—in the gulch-now-become-a-street, which flows mostly with carriages and, in winter, bobsleds and cutters. The name of the city now is Helena, thanks to an influential early settler who migrated to the gold fields from his hometown of the same name in Minnesota.

Over the telegraph key this November 9th of 1889 comes an important message: "The admission proclamation has just been signed. Montana is now a state. Helena is the capitol." For a day or so Last Chance Gulch cuts loose with something of the excitement and celebration it knew during the first boom week of 1864—just 25 years ago.

**March 30, 1964:** Gone with the wind, fires, wear, demolition and change of a century are the tent town of 1864 and much of the city as it was in 1889. In their place is a bustling western community complete with paved streets, modern shops and stores, schools and churches, service stations, an airport, the state capitol building completed on July 4, 1904, motels, inns, and thousands of automobiles.

Still called Last Chance Gulch, the famous old creek is a one-way street now, flowing all of its traffic upstream. Hardly a bend of the original gulch has been modified.

At Jorgenson's Holiday Inn is gathered a group of more than 300 distinguished Montanans. Among the state, civic and business leaders responding to invitations is Montana Governor Tim Babcock.

Main feature of the noon luncheon is a 17-minute documentary film. It is being offered to the people of Montana as a centennial reminder of Last Chanch Gulch and a

diamond jubilee token of statehood. Sponsor of the film is Union Oil Company, one of today's *black gold* prospectors, refiners and marketers under Montana's Big Sky. Host Michael Kennedy, director of the Montana Historical Society, introduces Burton D. Thorpe, manager of Union's Glacier Division. With a minimum of fanfare, Thorpe invites the distinguished audience to look and listen.

During the next 17 minutes, the silence—except for unrestrainable ripples or outbursts of emotion—is proof of the film's impact and authenticity. At its conclusion the guests arise and applaud. Sincere praise is heaped upon the film's creators—narrator and newscaster Chet Huntley, writer and television personality Norma Beatty, photographer George Armstrong, and producer Gordon Platts—Montanans all.

Through warm gratitude to the sponsor and a highly congratulatory press, Union Oil also *strikes it rich*. As one reporter puts it: "More local history has been jammed, pushed and crammed—yet presented in a grand and professional manner—into the 17-minute film than any pictorial communication on history I've seen.... The Union Oil Company has certainly done its part to enhance Montana's Centennial year."

The film's premiere showing is only the beginning. A special copy of the documentary, boxed in gold, is presented to the Montana State Historical Society. Other copies are moving across the state in response to hundreds of requests from service clubs, schools and civic organizations. A copy rides the centennial train to the World's Fair in New York. An eastern audience estimated to exceed 250,000 viewers sees the western epic via NBC's closed-circuit television. Title of the film, of course, is "Last Chance Gulch."

So, whether you see Helena in the film, or from an auto or airplane, you'll now know why its main street is as crooked as a dog's hind leg. Its bends are the gold-rush imprints of a great pioneering era—enduring monuments to the sturdy character of those stalwart citizens who won the West. ⑦



Helena's Broadwater Natatorium in 1890 claimed to be the largest enclosed natural hot water swimming pool in the world.





## PEACE OF MIND for Union Oil Credit Card Holders

AS A UNION OIL COMPANY credit card holder, you may now buy low-cost personal accident insurance and probably never feel the payments. The premiums will be added to your gasoline bill and charged on your regular monthly statement.

Unlike some other plans, this provides basic coverage 24-hours a day anywhere in the world. There are no tricky clauses saying you have to be struck by lightning on the second Tuesday in November while harvesting watermelons. The protection is offered by the Insurance Company of North America, through its locally licensed agents. As an insured person, you receive a policy contract from INA; Union Oil merely handles billing arrangements through its credit card system.

What coverage is provided? Under this 24-hour-a-day, world-wide protection, there are two plans:

Plan No. 1, which costs \$2 a month, provides a death benefit of \$12,500 if you are killed in any accident—on or off the job, at home or anywhere else in the world. A special double indemnity feature provides a \$25,000 benefit if you are killed while traveling. This means while driving or riding in (or getting in or out of) any pleasure car,

jeep or boat, or small truck, or while riding as a passenger in any public conveyance. This includes Military Air Transport Service airplanes and similar services of other countries. It also includes being struck by any auto, truck, boat or public conveyance.

That's a lot of coverage for \$2 a month.

Plan No. 2 costs \$4 a month, and the benefit payments are doubled: \$25,000 for any accidental death or \$50,000 if accidental death results from any of the travels described above. Moreover, both plans provide coverage for accidental loss of limb or sight, and special hospital confinement benefits ranging from \$150 to \$600 a month for a full year.

For an additional \$1.30 a month, you can have coverage for your entire family—regardless of size. This will provide \$10,000 in coverage for your wife and \$5,000 for each child—or \$10,000 for the eldest child and \$5,000 each for the others. (Hospital confinement benefits do not apply to dependents.)

The most this plan could cost you is \$5.30 a month. There are no health questions, and the only exclusions are for suicide, illness, test pilots, speed car testing, air crew members, and persons over 70. Furthermore, this coverage pays in addition to any other insurance you or any member of your family may carry—now or in the future.

Application forms will come in your regular monthly statements.

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# SERVICE EMBLEM AWARDS

## EXPLORATION & PRODUCTION

### July 1964

#### 30 YEARS

MILAN A. EASTON ..... Sansinena, California  
ALFRED G. HILTON ..... Anchorage, Alaska

#### 25 YEARS

REGINALD W. ELLIOTT ..... Coalinga Nose, California

#### 20 YEARS

WILLIAM C. BEST ..... Abbeville, Louisiana  
ELMER HARDIN ..... Abbeville, Louisiana  
GRADY A. LEDBETTER ..... Brea, California  
THELMA F. SCUTT ..... Houston, Texas  
JOHN R. SLOAT ..... Union Oil Center

#### 15 YEARS

ELEANOR J. DAVIDSON ..... Union Oil Center  
EDWARD J. MATCHUS ..... Midland, Texas  
RICHARD K. THOMAS ..... Union Oil Center

#### 10 YEARS

WILLIAM D. LONG ..... Lafayette, Louisiana  
FLORENCE F. MERCK ..... Midland, Texas  
MILLIS H. OAKES ..... Casper, Wyoming  
MILTON S. OLIVER ..... Santa Paula, California  
MARJORIE K. PEW ..... Union Oil Center  
DONALD F. SKEELE ..... Houma, Louisiana

### August 1964

#### 35 YEARS

ADOLPH C. LENZ ..... Santa Maria, California  
PAUL K. NOLAND ..... Houston, Texas

#### 25 YEARS

GEORGE P. ELDERKIN ..... Midland, Texas  
GERRAL W. WAINSCOTT ..... Cat Canyon, California

#### 20 YEARS

J. J. BOURRET ..... Houston, Texas  
MORRIS J. DANIELS ..... Brea, California  
RAY T. FREDRICK ..... Dominguez, California  
JACOB C. GASTAL ..... Abbeville, Louisiana  
RUSSELL Y. HART ..... Santa Maria, California  
ADOLPH F. HOFF ..... Cut Bank, Montana

#### 15 YEARS

EARL O. ROUSSEL ..... Torrey Lease, California

#### 10 YEARS

L. J. ANDERSON, JR. .... Coalinga, California  
ROBERT L. HUMPHREY ..... Midland, Texas  
ROBERT F. McCLATCHEY ..... Union Oil Center  
BILLY RAMSEY ..... Coalinga Nose, California  
DEAN H. UPCHURCH ..... Cat Canyon, California

## REFINING & MARKETING

### July 1964

#### 40 YEARS

THOMAS E. TRUESDALE ..... Santa Maria Station, California

#### 35 YEARS

GEORGE W. CABRAL ..... Oleum Refinery  
ROY F. CLARK ..... Oleum Refinery  
ROBERT L. COOMBS ..... Los Angeles  
JOHN D. DRAKE ..... Santa Margarita Station, California  
REYNOLD R. MILLER ..... Los Angeles  
STANLEY C. NEWMAN ..... Oleum Refinery

#### 30 YEARS

GEORGE H. CASSELL ..... Los Angeles, Refinery  
RAY W. DAVIS ..... Los Angeles, Refinery  
ROBERT E. HAIRE ..... Los Angeles, Refinery  
G. H. A. PHILLIPS, JR. .... Union Oil Center  
JOHN D. ROBERTS ..... Los Angeles Refinery  
RUPERT C. ROSE ..... Oleum Refinery  
RONALD R. WRIGHT ..... Los Angeles Refinery

#### 25 YEARS

COMLY S. PALMER ..... Colton, California

#### 20 YEARS

PAUL S. BARTHOLOMEW .. Los Angeles Refinery  
CHARLES G. BURK ..... Los Angeles Refinery  
ERNEST L. DAY ..... Los Angeles Refinery  
MONDO A. GEMIGNANI ..... Oleum Refinery  
JAMES H. HOWELL ..... Los Angeles Refinery  
W. F. KIRKPATRICK ..... Los Angeles Refinery  
CHARLES L. NICHOLS ..... Oleum Refinery  
WINN F. STEWART ..... San Francisco  
ALFRED H. SWEET ..... Oleum Refinery  
F. S. WILLIAMSON ..... San Francisco

#### 15 YEARS

ROBERT A. CAMPBELL ..... Los Angeles Refinery  
ROLAND G. CARDINAL ..... San Francisco  
WILLIAM H. EVANS ..... Oleum Refinery  
PETER D. FISLER ..... Union Oil Center  
GENE C. KINSER ..... Bakersfield California  
ROBERT F. KOCH ..... Pasadena, California

#### 10 YEARS

RONALD B. GRAVES ..... Oleum Refinery  
RUTH W. GROTH ..... Seattle  
MARY J. HAMES ..... San Francisco  
HARRIS E. LAKEMAN ..... Oleum Refinery  
FRANK J. McCARTHY .. Philadelphia, Pennsylvania  
DAVID P. McCLELLAN ..... Oleum Refinery  
NORMAN H. MILLER ..... Vallejo, California  
GALE E. NEWTON ..... San Francisco  
EMILY PARR ..... Oleum Refinery  
J. D. POWERS ..... Union Oil Center  
GEORGE C. ROWE ..... Los Angeles

### August 1964

#### 40 YEARS

LOUIS L. COSTA ..... Oleum Refinery

#### 35 YEARS

ROBERT L. COOPER ..... Oleum Refinery  
JAMES H. DUNN ..... Los Angeles Refinery  
WILLIAM H. GOLAY ..... Los Angeles Refinery  
JOSEPH HUMM ..... Oleum Refinery  
MARVIN E. LAMBORN ..... Sacramento  
FRANK C. McCULLOUGH ..... Los Angeles

FRED W. OLSNESS ..... Santa Maria Refinery  
JOSEPH W. WHITE ..... Portland

#### 30 YEARS

DEAN B. MORSMAN ..... Portland

#### 25 YEARS

NORMA E. HULFORD ..... Union Oil Center  
WILLIAM S. McINTYRE ..... Los Angeles Refinery  
J. M. WILDENHAIN ..... Los Angeles Refinery

#### 20 YEARS

JESSE C. AVILA ..... Oleum Refinery  
ORIN RILEY BAKER ..... Los Angeles Refinery  
GERALD BARBER ..... Los Angeles Refinery  
THOMAS V. CAMPBELL ..... Los Angeles Refinery  
STANLEY L. DEAL ..... Los Angeles Refinery  
ELMER E. EDWARDS ..... Phoenix  
GEORGE D. GEDGE ..... Honolulu, Hawaii  
LEONARD L. HERMAN ..... Phoenix  
STELLA M. HULIHAN ..... Union Oil Center  
JOHN R. KINCAID .. Torrance District, California  
ROBERT E. O'BRIEN ..... San Francisco  
JOHN W. PRETZER ..... Sacramento  
CLARENCE V. ROBERTS ..... Oleum Refinery  
ROSCOE R. SNEAD ..... Los Angeles Refinery  
LLOYD I. TOLAND ..... Los Angeles Refinery

#### 15 YEARS

ROBERT D. GODWIN ... San Fernando, California  
C. RICHARD INGELS ..... Oleum Refinery  
RUTH MILLIGAN ..... Oleum Refinery  
OSCAR F. NOSS, JR. .... Los Angeles Refinery  
PHILIP F. TIGER ..... Los Angeles Refinery

#### 10 YEARS

CAMERON C. BATES ..... Los Angeles Refinery  
NEWTON E. CORN ..... Oleum Refinery  
JOHN F. DAVIDSON ..... Union Oil Center  
MARION H. GRIFFIN ..... Colusa, California  
DENNIS F. HILL, JR. .... Los Angeles Refinery  
RICHARD D. McKUSICK ..... San Francisco  
JOHN G. MERTZ ..... Portland  
WILLIAM D. NORDLUND ..... Oakland, California  
H. DAVID TUPPER ..... Los Angeles Refinery  
CARL D. WERT ..... Cut Bank Refinery

## CORPORATE STAFF

### July 1964

#### 35 YEARS

JOHN A. LA FLEUR ..... Union Oil Center

#### 20 YEARS

ROBERT ABERCROMBIE ..... Research Center  
WILLIAM SHOWALTER ..... Research Center  
LOUISE E. STRACK ..... Union Oil Center

#### 15 YEARS

WILLIAM L. BEWLEY ..... Research Center  
HOWARD N. LA PIERRE ..... Union Oil Center  
W. C. LIEFFERS ..... Research Center

#### 10 YEARS

EVELYN BURNLEY ..... Union Oil Center  
MARGARET ESTRIN ..... Union Oil Center  
GEORGE KARAPETIAN ..... Union Oil Center  
RYDEN L. RICHARDSON ..... Research Center

### August 1964

#### 35 YEARS

N. G. ALLISON ..... Research Center  
GEORGE L. PORTER ..... Research Center

#### 30 YEARS

WILLIAM D. GENTLE ..... Research Center

#### 25 YEARS

WILLIAM R. CRAIG ..... Union Oil Center

*continued*



## SERVICE EMBLEMS

continued

### 20 YEARS

EDWARD C. DUGAN ..... Research Center  
FORREST O. WOOD ..... Research Center

### 10 YEARS

ROBERT H. HASS ..... Research Center  
WILLIAM H. METZGER ..... Union Oil Center

## DEALERS

### July 1964

#### 30 YEARS

J. A. AHO—April ..... Eureka, California  
G. W. CHRISTOFF ..... Downey, California

#### 20 YEARS

ROY BETCHART ..... Puyallup, Washington

#### 15 YEARS

WILLARD EDWARDS ..... Everson, Washington  
E. KELLER ..... Redondo Beach, California  
C. R. MUNDELL ..... Orting, Washington  
TROY TURLEY ..... Arvin, California

#### 10 YEARS

HARRY J. ACQUARELLI ..... Los Angeles  
BROWN CHEVROLET ..... Ramona, California  
FRANK CEV ..... Tacoma, Washington  
HOWARD GIGER ..... Canby, Oregon  
OKIE JOHNSON ..... Naselle, Washington  
DAN L. LANGLITZ ..... McMinnville, Oregon  
LEON D. LANGLITZ ..... McMinnville, Oregon  
NEW BROS. ..... Burbank, California  
CARL NIELSON ..... Cook, Washington  
PRESTON L. NOE ..... Oakland, California  
C. A. PURKETT ..... Bynum, Montana  
BESTSEY SANUI ..... Sacramento  
FRANK WHEELER ..... Ashwood, Oregon

#### 5 YEARS

TOM L. BAIRD ..... Jewell, Oregon  
OTIS BANKSTON ..... Chowchilla, California  
FRED BREWER ..... Crescent Lake, Oregon  
BUTLER CHEVROLET CO. .... Newberg, Oregon  
ARTHUR R. EDMONDS ..... Redmond, Oregon  
WILLIAM FAULKNER ..... Siletz, Oregon  
A. A. FAULKNER ..... Siletz, Oregon  
CLYDE W. GATES ..... Eugene, Oregon  
JACK HOEFER ..... Seattle  
KELLY & CRUZ ..... Anchorage, Alaska  
RAY LYNCH ..... Seaside, Oregon  
DONALD MILLER ..... West Covina, California  
MURRAY & HOLT MOTORS, INC. . . Bend, Oregon  
S & K AUTOMOTIVE ..... Toledo, Oregon  
A. A. SANDLIN ..... Drain, Oregon  
HAROLD P. SCHAFFER ..... Arch Cape, Oregon  
MARY SMITH ..... McDoel, California  
DON J. STAPELBERG ..... Lodi, California  
CLARA STONE ..... Grants Pass, Oregon  
DAVID S. VINLOVE ..... Taft, California  
WARREN W. WOODS ..... Chemawa, Oregon  
DONALD W. WRIGHT ..... Sonora, California  
RAY YONKERS ..... Belmont, California

### August 1964

#### 40 YEARS

W. E. PEYTON ..... Los Angeles

#### 30 YEARS

MRS. C. H. BRILES ..... Napa, California

#### 25 YEARS

C. M. STALKER ..... San Diego

#### 20 YEARS

SHELDON ELMER ..... Central, Arizona

#### 15 YEARS

WILLIAM BRYANT ..... Renton, Washington  
TED GRECO ..... Tacoma, Washington  
DALE E. McMULLIN ..... Cottage Grove, Oregon  
RAY ROSS ..... Cottage Grove, Oregon  
F. J. RILEY dba PINE TREE INN  
Ellensburg, Washington

#### 10 YEARS

HARRY DIMBERG ..... Turlock, California  
ALBERT KUBALL, JR. .... East Palo Alto, California  
RUSSELL E. MORRISON . . . Sun Valley, California  
RUSSELL SPARROW ..... Ulm, Montana  
W. A. WOOD ..... Santa Barbara, California

#### 5 YEARS

JACK H. ANDERSON ..... Oakland, California  
ECHART BOEDE ..... Eastsound, Washington  
W. J. BRATTON ..... Chester, California  
MORRIS BUCK ..... Los Angeles  
CHARLES CRESSEY ..... Lynnwood, Washington  
WALTER DIER ..... Pt. Angeles, Washington  
B. F. FERRANTI ..... Gilroy, California  
WARREN C. JOHNSON . . . Carmichael, California  
TOMEIO KAWATA ..... Palo Alto, California  
BEN KAWATA ..... Palo Alto, California  
AL J. KUCINSKI ..... Chula Vista, California  
DON R. LEE ..... Riverside, California  
NEWT G. LINEBERGER . . . Hood River, Oregon  
J. A. MATSON ..... Lynnwood, Washington  
GENE MORRIS ..... Glenoma, Washington  
McKNIGHT MOTORS ..... Cle Elum, Washington  
FRANK PADILLA ..... Rodeo, California  
MANUEL SHARNIN ..... Los Angeles  
C. KELLY SHEETS ..... Phoenix  
J. R. SORENSON ..... Chester, California  
ROBERT A. TINSLEY ..... Portland  
HENRY WAGNER ..... San Leandro, California  
IVERS WILEY ..... North Sacramento  
JOE M. WILKERSON ..... Terrebonne, Oregon  
EARL L. WORTHINGTON . . . West Linn, Oregon

## CONSIGNEES-DISTRIBUTORS

### July 1964

#### 35 YEARS

M. J. KING ..... Los Olivos, California

#### 30 YEARS

J. B. JONAS ..... Lower Lake, California

#### 20 YEARS

GORDON BRUCE—April . . . Olympia, Washington  
E. A. RUCKER ..... Barstow, California

#### 15 YEARS

CHESTER MARTIN . . . . . La Crosse, Washington

#### 10 YEARS

W. L. FELKER—November 1963 Gresham, Oregon  
OMAN SUPPLY CO.—June . . . . . Madison, Indiana  
TRI-POINT OIL CO.—April . . . . . Madison, Indiana

#### 5 YEARS

AUTOMOTIVE PARTS—May . . . Memphis, Tennessee  
MUSE BUICK ..... Richmond, Virginia  
MILES D. SUTHERLAND . . . Grass Valley, California  
MAX TONEY . . . . . Enumclaw, Washington  
FRED VAN BLARICOM . . . . . Hamilton, Montana

### August 1964

#### 40 YEARS

A. M. HANSON ..... Orland, California

#### 30 YEARS

RAY BONTEMPS ..... Wenatchee, Washington

#### 15 YEARS

ROBERT SCHOEN ..... Orcas, Washington

#### 10 YEARS

LYNN GREEN ..... Cedar City, Utah  
McLEAN AUTO SUPPLY  
Laurinburg, North Carolina

#### 5 YEARS

WILLIAM BESCH ..... Shelton, Washington  
BEVERLY MOTOR SALES CO., INC.  
Beverly, Massachusetts  
SCOTT OIL SALES INC. .... Scott, Louisiana

## RETIREMENTS

### June 1964

EUGENE E. CARTWRIGHT  
Oleum Refinery ..... August 16, 1926  
ETHEL P. FARNSWORTH  
Union Oil Center ..... March 1, 1927  
WILLIAM H. GRAHAM  
Union Oil Center ..... June 1, 1929  
HARVEY W. LEE  
Union Oil Center ..... September 10, 1935  
JOHN D. SAUNDERS  
Los Angeles Refinery ..... March 16, 1945

### July 1964

DONALD E. CARR  
Los Angeles ..... June 17, 1929  
WILLIAM F. CERINI  
Union Oil Center ..... May 26, 1928  
EARL W. EVERLY  
Los Angeles Refinery ..... March 21, 1928  
PERRY MARTIN  
Avila Beach, California . . . . . December 11, 1933  
ROY C. NICHOLS  
Berkeley, California ..... April 19, 1933  
EDWARD C. RAWSON  
Seattle ..... February 24, 1935  
ARTHUR N. TILSTON  
Bishop, California ..... May 16, 1925  
WILMA M. WILLS  
Los Angeles Refinery ..... July 2, 1945

## IN MEMORIAM

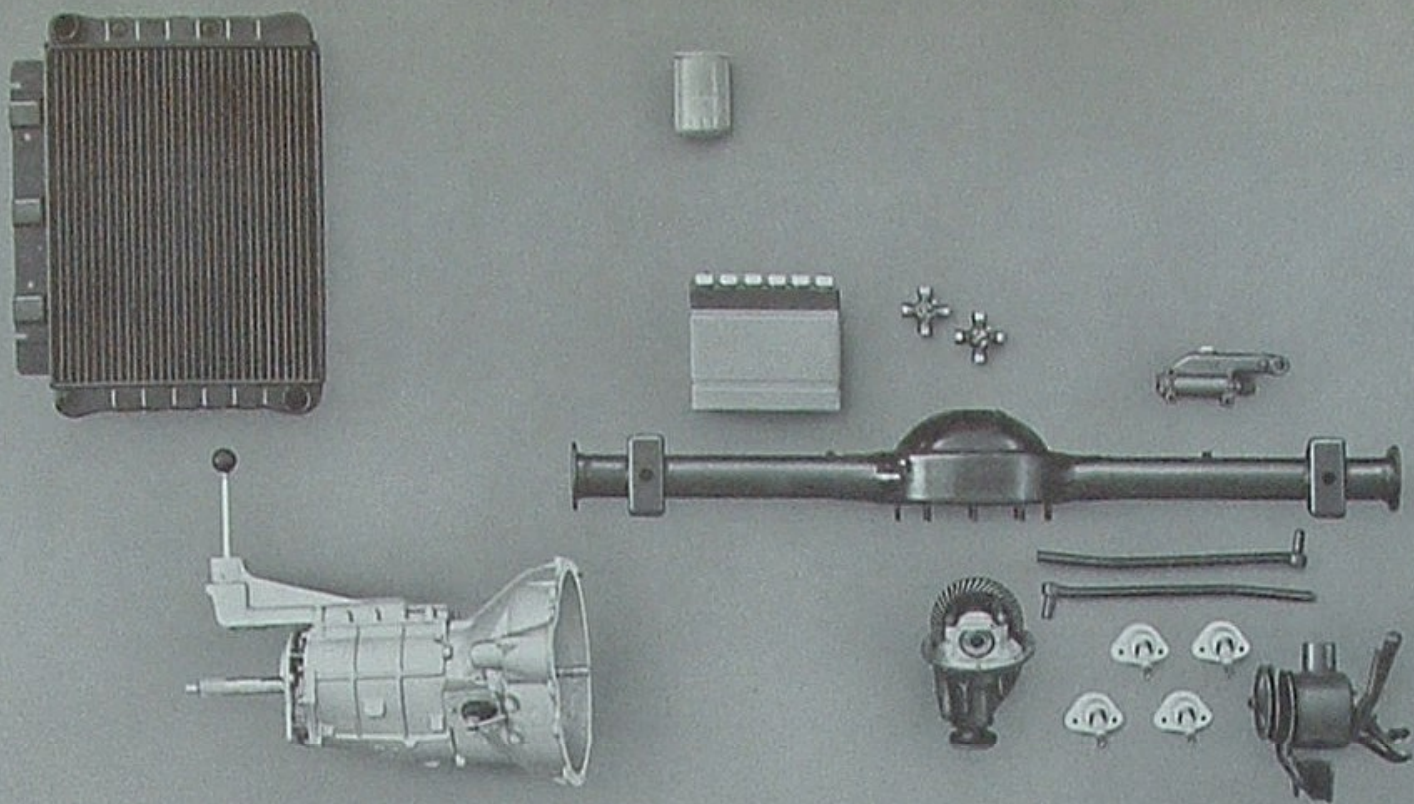
### Employees:

WALLACE G. CHANDLER  
Lakeside, California ..... June 10, 1964  
NOLAN N. DANE  
Torrance, California ..... May 13, 1964  
RUSSELL FOWLER  
Harbor City, California ..... June 13, 1964  
JOHN T. PETERSEN  
Shandon, California ..... May 31, 1964

### Retirees:

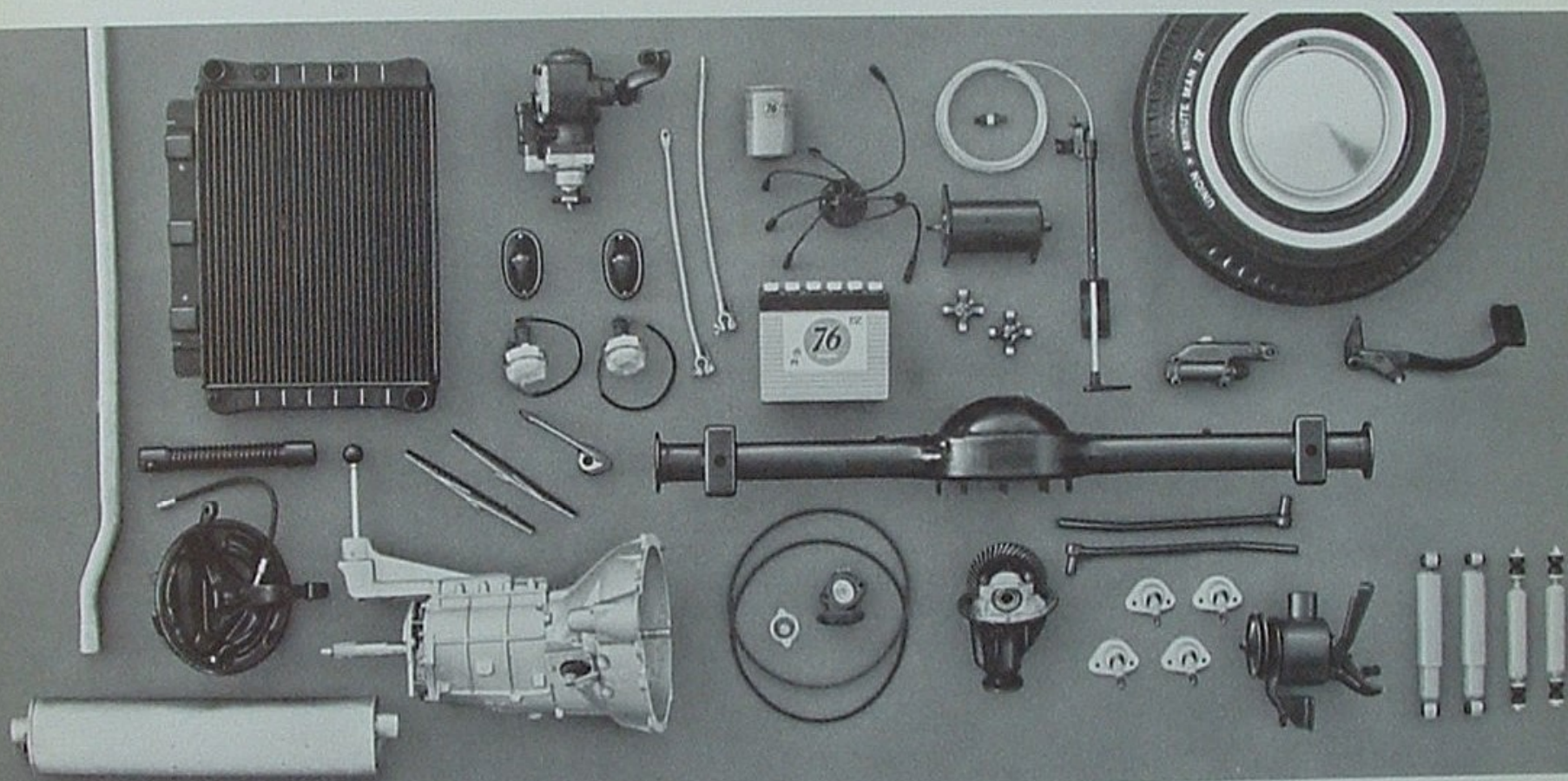
ALBERT G. BATEMAN  
Crockett, California ..... June 9, 1964  
CHARLES A. BROWN  
Bakersfield, California ..... May 26, 1964  
LEON E. DECKER  
Empire, Oregon ..... May 14, 1964  
THOMAS SAMUEL DOOLEY  
Torrance, California ..... May 15, 1964  
JOHN J. GLIMPSE  
Brea, California ..... April 25, 1964  
HARRISON H. HANNAH  
Kern City, California ..... June 9, 1964  
LEIGH E. McLAREN  
Arcadia, California ..... June 7, 1964  
ROY O. NELSON  
Oakland, California ..... April 21, 1964  
JAMES M. NIXON  
San Fernando, California ..... May 16, 1964  
LOUIS A. QUIGLEY  
Oakland, California ..... May 20, 1964  
HUGO S. WALTER  
Long Beach, California ..... May 15, 1964





**These parts of your car are checked and greased during an ordinary lubrication.** They include the battery,

radiator, oil filter, master cylinder fluid level, ball joints, tie rods, king pins, universal joints, differential and transmission.



**These parts of your car are inspected, tested, examined, scraped, oiled, measured, filled and lubricated during Union Oil's 76 Certified Car Condition Service.**

In the engine, we oil the generator and distributor, check for oil and water leaks, inspect the oil level, steering mechanism fluid, automotive V-belt, positive crankcase valve and manifold heat riser valve. Under the car, we inspect the transmission and differential fluid, mufflers and exhaust pipes, shock absorbers, ball joint seals. And, grease the fittings. On the brakes, we check hose for leaks, examine emergency brake, brake pedal and master cylinder fluid level and check stop light. Under the hood, we inspect radiator and heater hoses, test the pressure cap, inspect fluid level and inspect for rust and corrosion. We test

the battery, fill all cells to proper level, inspect cables and hold-down and scrape off corrosion. Tires we examine for nails, cuts and unusual wear, then inflate to proper pressure. In addition, we inspect directional and other lights, check and oil linkage, inspect door latches, examine all hydraulic reservoirs and windshield wiper blades. When we're through, we certify in writing that all this has been done and alert you to any trouble in the making.

76 Certified Car Condition Service keeps your car young and safe to drive. Smart drivers get it at least every two months from those Union Oil dealers who have been schooled to give it. You'll know them by this sign:



**UNION OIL COMPANY OF CALIFORNIA**





UNION OIL COMPANY OF CALIFORNIA  
P. O. Box 7600  
Los Angeles 54, California

## Where We Work...

Sunny skies bring vacation-season fun seekers out onto the roads and into the water for boating, water skiing, fishing, swimming, surfing, sight-seeing, camping and dozens of other summer activities. As motorists or boaters or both, Union Oil customers from Alaska to Mexico are assured of carefree driving and boating thanks to gasolines tailored to Western conditions—features described elsewhere in this issue. Further evidence that gasoline is the best buy of the season comes from this scene at J. C. Slaughter's Tonga 76 Marina on Balboa Bay in San Diego. The weather is great and so is the Minute Man service.

