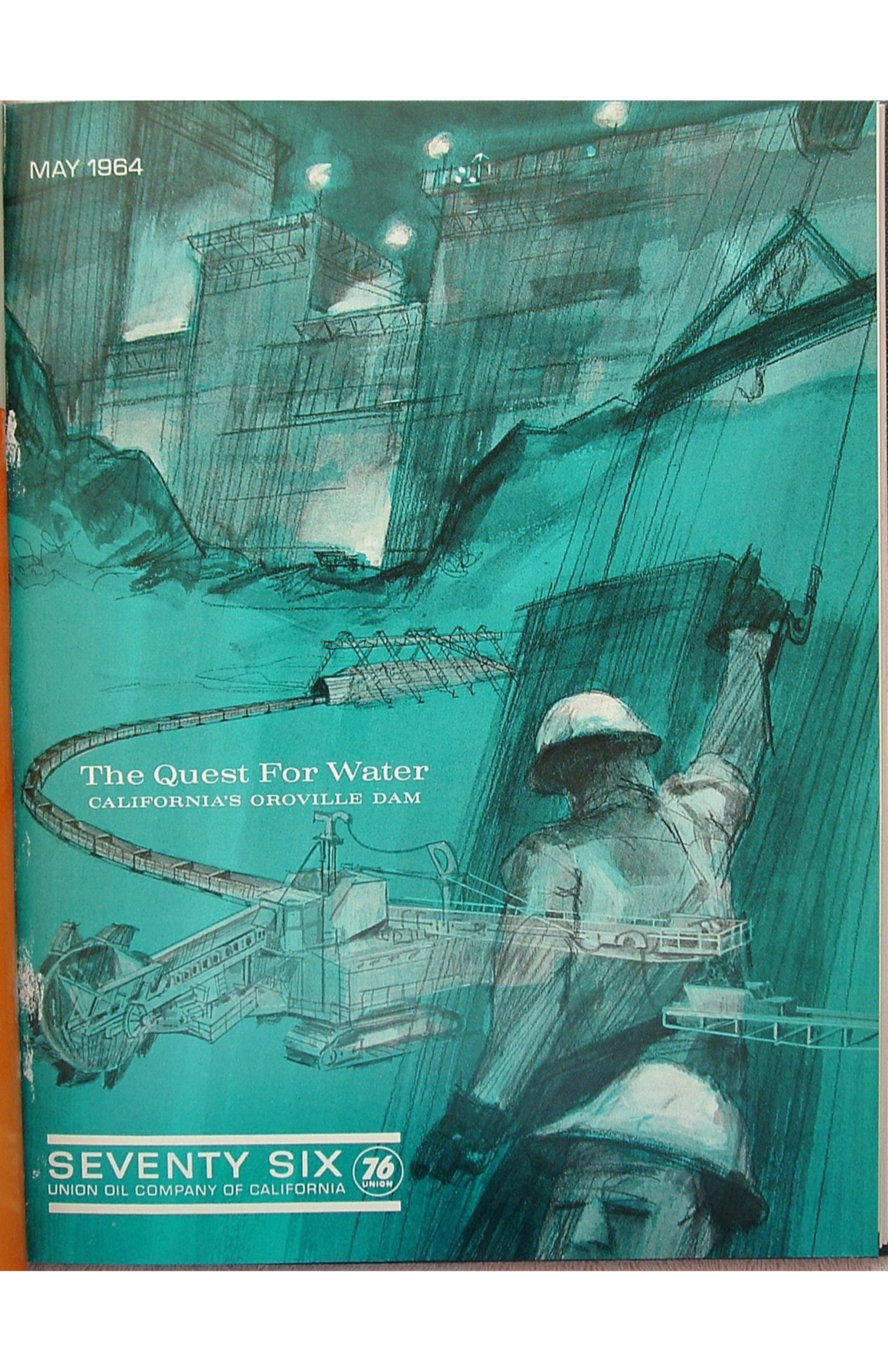
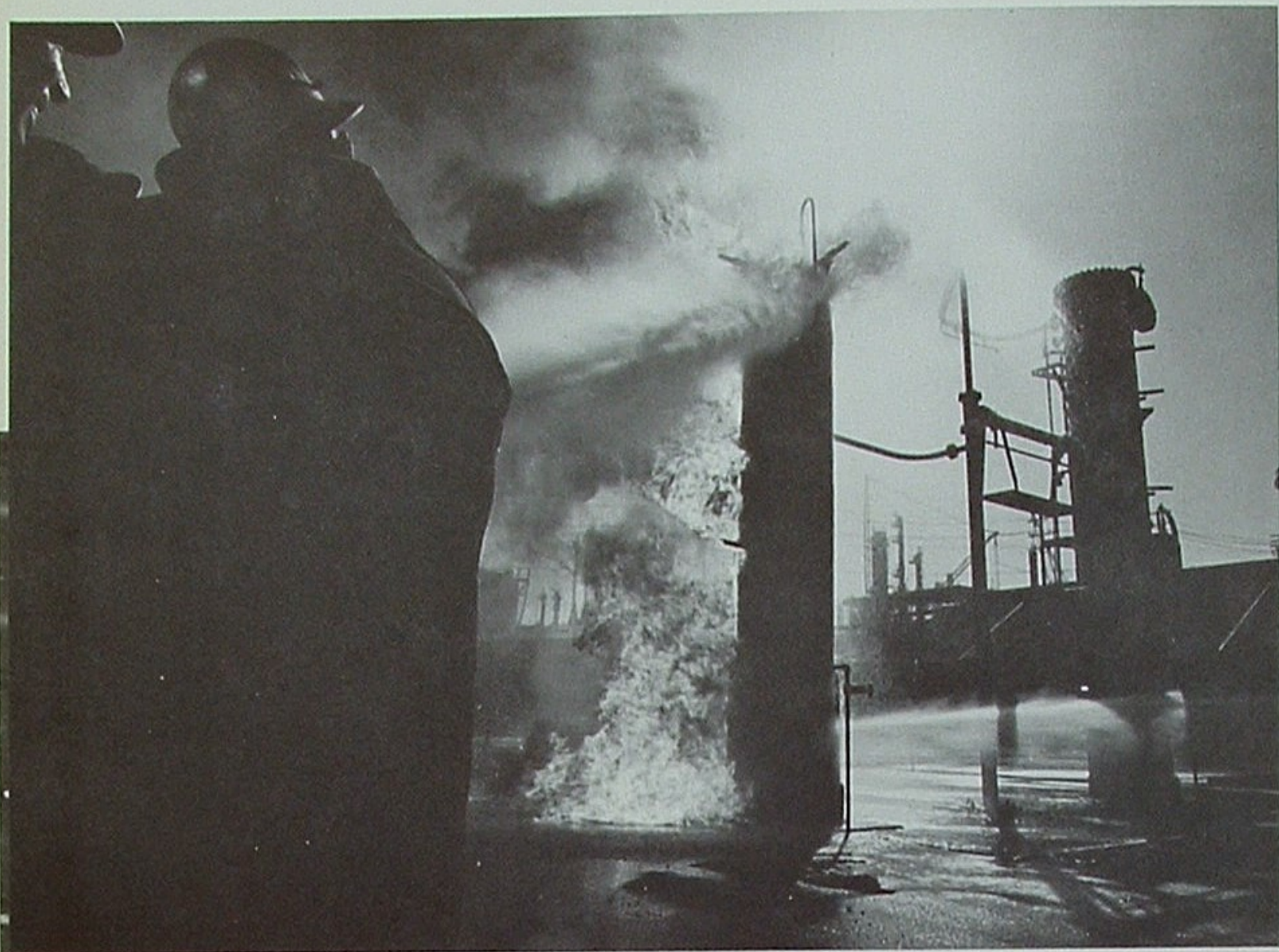


MAY 1964

The Quest For Water
CALIFORNIA'S OROVILLE DAM

SEVENTY SIX
UNION OIL COMPANY OF CALIFORNIA





At left, a Los Angeles Refinery fire fighting class aims a water spray at a dummy column doused with fuel oil. Flames burn at 2,000°F, but spray absorbs much of the heat.

Fire Fighters



Moving in for the kill: Mist spray diminishes heat and fire. It also cools valve handle so one man can close it—thus extinguishing the blaze. Fire is out in less than a minute.

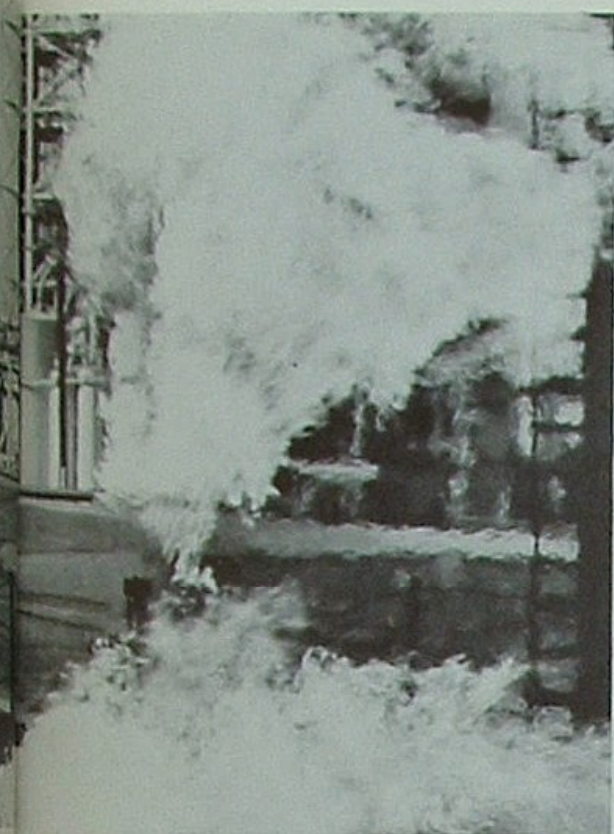
IF YOU WERE at an oil refinery and a fire started, chances are you'd run—as far away as possible. That's only natural. But firemen don't run. Despite the danger, they close in to stop the flames. Their courage comes from training, and one key to this courage is confidence.

"A man not only has to know what to do to control a fire," says Al Lohse, supervisor of fire and safety in the Refining and Marketing Division, "he has to feel deep down inside him that he can do it."

For this reason, Union Oilers at our refineries are periodically sent to fire fighting classes to study the chemistry of fire and to learn at first hand to stop little fires before they become big ones.

"After all," says Lohse, "if a man has put out a butane fire, he *knows it can be done*." The secret is to starve the blaze, to shut off the supply of fuel before the fire gets out of hand.

Because of this and other counter measures, Union Oil enjoys one of the lowest fire loss ratios in the industry. This means lower insurance premiums, higher profits and it has made Union Oil a safer place to work. Ⓜ



PHOTOGRAPHS BY TOM CARROLL-PI

Above left, team prepares water spray attack on butane fire. Above right, first team covers the second with water spray while latter moves toward valve to stop flow of fuel oil. This is the best way to halt fire.

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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, published monthly, mirrors industrial freedom through the thoughts, skills, accomplishments and appreciations of Union Oil people. We invite readers to participate with us in an exchange of ideas and information. Address correspondence to The Editor, SEVENTY-SIX, Union Oil Center, L.A. 17, Calif.

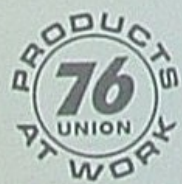
OUR COVER — Artist Wes Parlee's interpretive drawing of the Oroville dam project reveals a huge bucket-wheel excavator and a reclaim tunnel, two tools in this project. Story, P-2.

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PHOTOGRAPHS BY TOM CARROLL—PI



From every viewpoint, including Union Oil's, California's State Water Project is...



THE BIGGEST

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Working day and night, Oro Dam Constructors first poured an immense concrete core to block the Feather River. The earth-fill dam rising high above the core will begin history's biggest water project.

in the delta and chronic water shortages to the south.

Because nature goofed does not mean that Californians are helpless. Men with imagination, nerve, know-how, machines and petroleum are doing fantastic things these days. Here at Oroville, California, for example, they are not only moving a mountain, they are constructing one—a dam in the mouth of Feather River Canyon. Soon they will begin building a 444-mile river, traversing San Joaquin Valley in its uphill direction, and bringing surplus northern water as far south as San Diego.

The job now under way is called the California State Water Project. First off, it involves blocking the Feather River Canyon near Oroville with the highest earth-fill dam ever constructed. Then, waters stored in the mammoth Oroville Reservoir during rainy seasons (thereby minimizing flood danger) will be released in controlled volume, through power plants, to an extensive reservoir system, known as the Delta Project, near Sacramento.

Three large aqueducts will begin at the delta reservoirs. Two, called the North Bay and South Bay, will flow to watershed areas in Marin and Santa Clara counties. Third and most important of the delta outlets will be the California Aqueduct—actually a man-made river designed to receive its water supply through pumps. This aqueduct will reverse the natural slope of San Joaquin Valley by following an elevated course through western foothills. Entering tunnels and mountain reservoirs, it will supply vital water to such thirsty cities as Santa Barbara, Los Angeles and San Diego. Bonus benefits along its route will be streams and lakes adaptable to most types of water sports and recreation.

Oroville Dam is topped in sheer bulk only by the Oahe Dam on the Missouri River. More than 77 million cubic yards, 1½ million railway carloads, of earth and rock will be hauled about 11 miles and compacted into an embankment measuring some 3,600 feet in width at its base, extending 6,825 feet across the canyon at its crest, and rising to a record 735 feet in height. The world's tallest concrete barrier, Hoover Dam on the Colorado River, will be exceeded in height by nine feet. The earthmoving chore, based on weight of material and distance of haul, will be three-and-a-half times that of famed Gatun Dam in Panama.

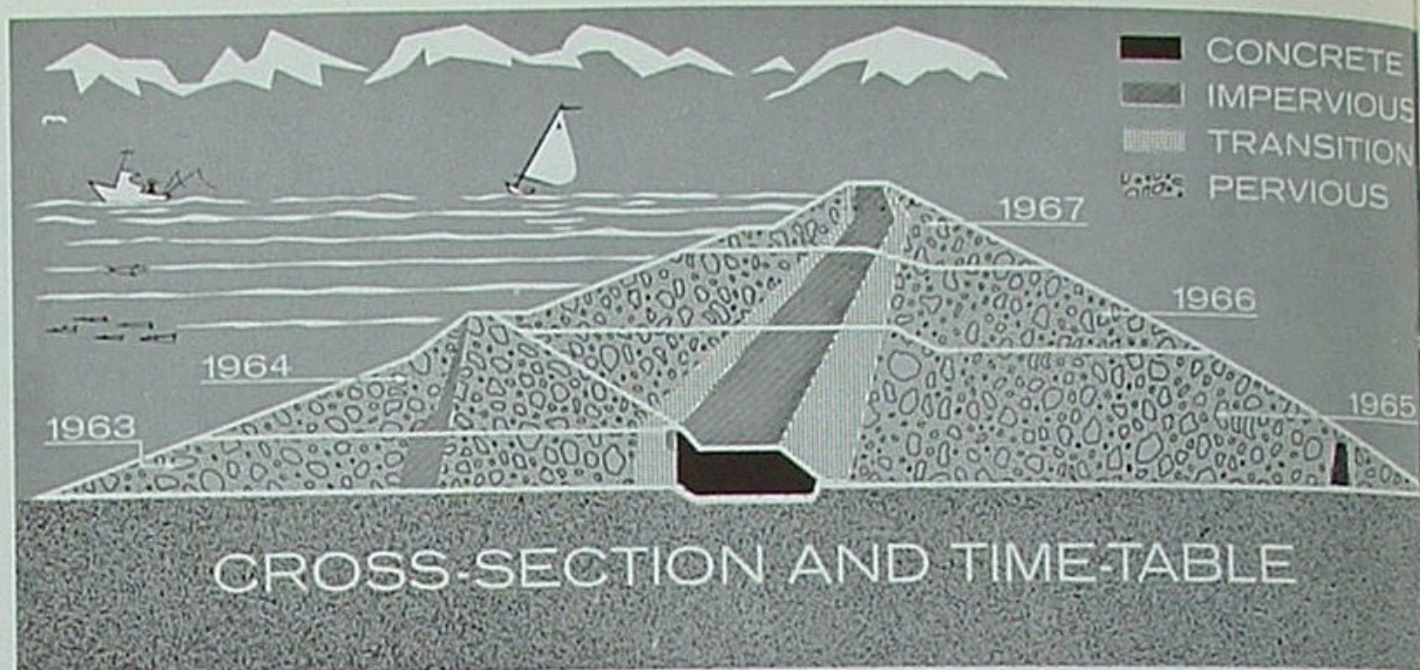
Engineering estimates for the key Oroville Dam construction phase of the project suggested a cost of \$130 million. Competitive bidding found a group of qualified contractors, Oro Dam Constructors, who pared the cost to \$120.8 million—the largest non-defense construction contract ever awarded competitively in the United States.

continued

OROVILLE, CALIFORNIA

A MAJOR PROBLEM here in fast-growing California is that about three-fourths of the water supply originates in the northern third of the state, while more than three-fourths of the water need exists in the southern two-thirds. Furthermore, most of the state's rivers, fed from the lofty Sierra Nevada mountain range, converge at a common delta and flow into northerly San Francisco Bay.

If nature had molded the terrain to bring just one of those big northern rivers down to southern California, the population would be far less concerned with annual floods



THE BIGGEST *continued*

Oroville Reservoir will store up to 3.48 million acre feet of Feather River water—create a 15,500 acre lake—etch 167 miles of new shoreline beside rugged mountains and beautiful forests—conserve enough water to supply all of California's household needs for one year—and, through its two power plants, provide 692,000 kilowatts of generating capacity, enough to meet the electric power requirements of a million people.

With completion of the dam in 1968 and most other portions of the project by 1972, California will have the

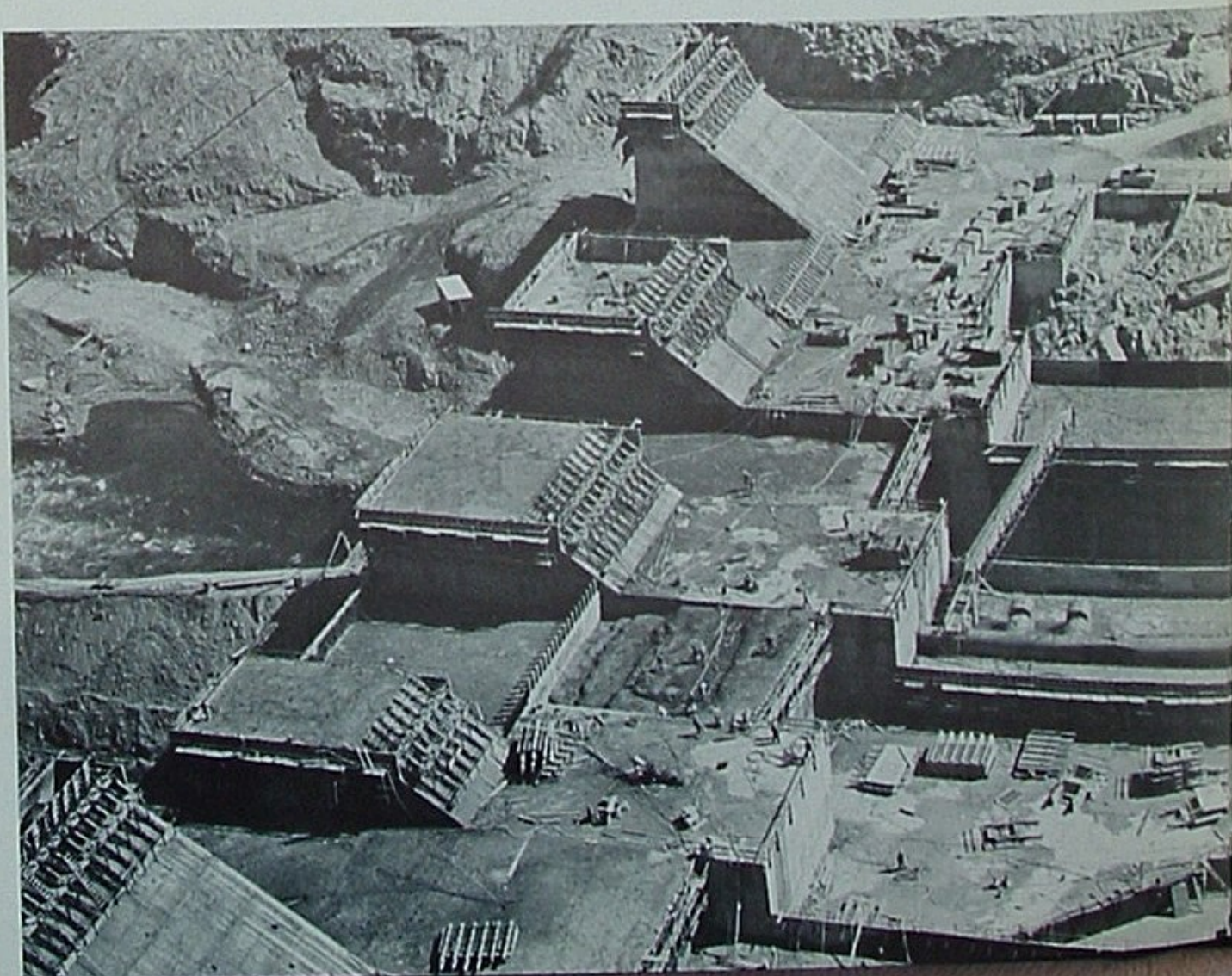
largest man-made water development in history, spanning practically the entire state. It will be financed largely by the people of this state, who voted \$1.75 billion in bonds for the purpose at a November election in 1960.

HOW TO BUILD A MOUNTAIN

Here briefly is how Oro Dam Constructors are doing the job at a figure nearly \$10 million under the state's estimate:

The dam begins at river bottom with a stout concrete core block, big enough itself to rank with the world's larger structures. Completely covering this anchoring core block and rising to the dam's crest will be a thick embankment of clay-type gravel, impervious, that when compacted will

Though of impressive bulk, this concrete core will be covered by a mountain of earth measuring 3,600 feet wide at its base and rising to a record 735 feet high. (Note drawing above.)





Materials for the earth fill are obtained from old gold-dredging deposits near Oroville. Under the railway stockpile, supplied by conveyor belts, a 40-car train can be loaded in about 14 minutes.

serve as a water-tight barrier to contain the reservoir. (See accompanying drawing). On both sides of this impervious embankment will be placed layers of "transition" material, which is semi-resistant to water. Finally, serving as retaining and protective embankments, immense shoulders of pervious cobbles and sand will slope nearly a half-mile upstream and downstream from the dam's crest. Vertical layers of impervious clay toward outer footings of the pervious material will serve as test zones to gauge the water-tightness of the central core.

The entire embankment will be monitored to instrument panels by a network of pressure tubing. These devices will constantly measure the pore water pressure, instantly detect any horizontal, vertical or surface movement of the embankment, and warn of any seepage. It is believed by the designing engineers—after exhaustive tests with models and materials—that Oroville will also be one of the world's safest and most durable dams.

Finding materials of the right kind and quantity proved to be no serious obstacle here. Last century and early in this one, lands adjoining the Feather River were extensively worked over by gold dredgers. The dredgers turned up and left on the surface great windrows of cobbles and sand, ideal aggregate for the dam's pervious shoulders. Nearby also are ample deposits of impervious gravel and clay. One of the most convenient barrow sites available was only about 11 miles from the dam location.

Oman Construction Company, Inc., of Tennessee is the sponsor for the joint venture group composing Oro Dam Constructors. Other members of the joint venture are Codell Construction Company, Inc., of Kentucky, R. P. Farnsworth & Company, Inc., of Louisiana, Hardaway Contracting Company, Inc., of Georgia, McDowell-Wellman Engineering Company of Ohio, Merritt-Chapman & Scott Corporation of New York, R. B. Potashnick of Missouri and Wright Contracting Company of Georgia.

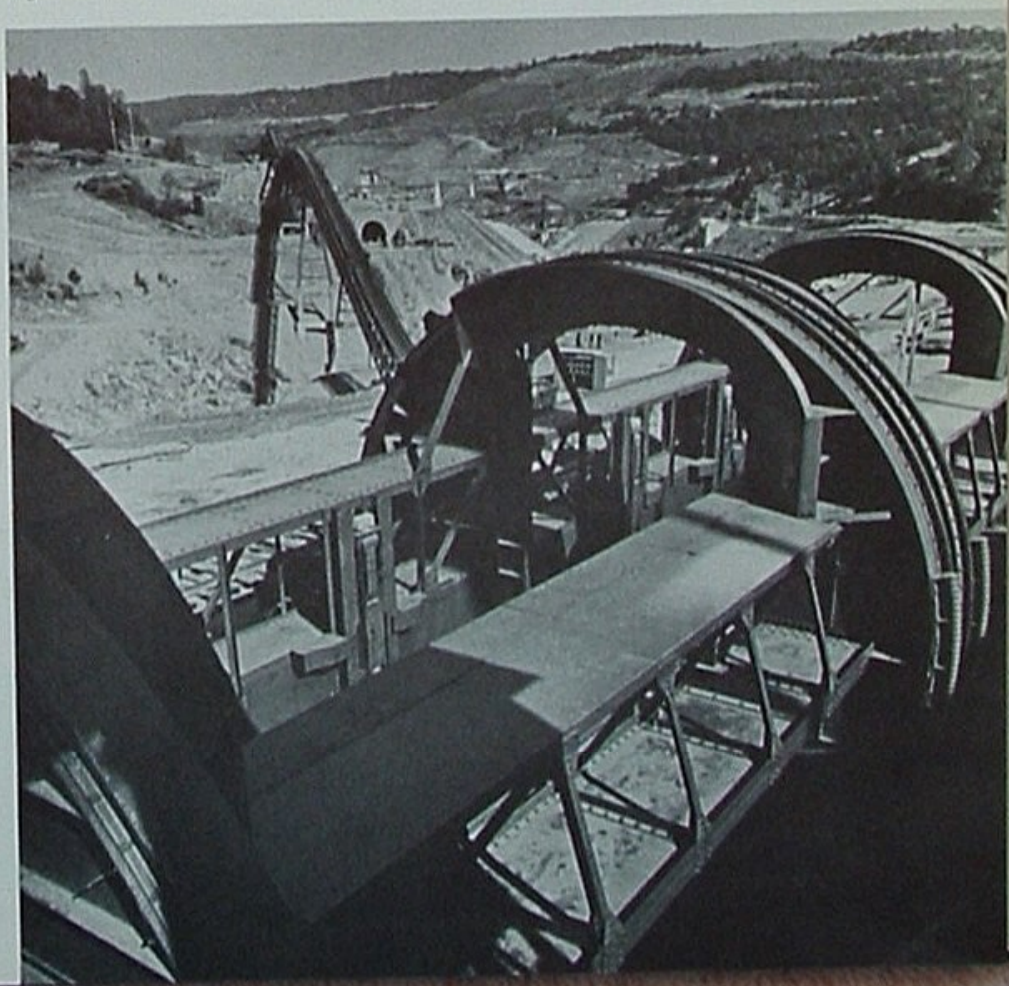
Combining some of the foremost construction talents and experience in the nation, they nevertheless are bidding for success upon a revolutionary system of materials

handling. Most of the pick-and-shovel work among the dredger piles will be done with a bucket-wheel excavator. (See sketch on cover.) Reaching anywhere across a 280-foot-wide area, it is capable of devouring ground at 6,800 tons per hour and discharging its diggings onto a series of endless-belt conveyors. The belt conveyors, some more than a mile long, move the material to a railway stockpile.

Specially designed gondola cars with rotary couplings enter a tunnel under the stockpile and are loaded semi-automatically at a rate of one trainload—40 cars—in approximately 14 minutes. Three such trains, powered by twin 2500-horsepower diesel-electric locomotives, depart for the dam at 20-minute intervals.

continued

At the damsite, cars are tipped over and emptied two at a time by this revolving unloader without being uncoupled from train.





J. Rodney Mims

THE BIGGEST *continued*

Automation also will handle more of the human burden than ever before in placing the embankment. A rotary dumping system tips two cars at a time upside-down without uncoupling them from the train. Emptying two cars in 72 seconds, it unloads the trains at a continuing rate of 10,000 tons an hour.

Conveyors then stockpile the earth over a reclaim tunnel, where it is precisely sorted, blended, sampled and weighed. Belt conveyors and 100-ton capacity rubber-tired wagons distribute materials to their assigned zones in the embankment. Impervious, transition and pervious varieties are deposited and compacted side by side to raise the dam.

THE BUILDERS

In contrast to the long lines of manual workers who still toil on similar projects elsewhere in the world, the Oroville scene is noteworthy for its American ingenuity. From a visitor's observation house high atop the canyon, men are nearly lost in the project's immensity. Visible only are the cableways, trains, conveyors, tractors and trucks—largest of their kind ever built, but none too big for the continuous five-year task they must complete.

Horsepower, not horses, provides the muscle behind these big earthmovers. And we of Union Oil can be proud that the products of our own energies and ingenuity are supplying practically all of the horsepower for this progressive undertaking. It is estimated that well over 16 million units of our gasolines, lubricants, Unifuel, etc., will go into the building of Oroville Dam.

If, in our enthusiasm for labor-saving and mountain-building machines, we have intimated that men are not important to the project, pardon us.

In charge of the job for Oro Dam Constructors is Project Manager J. Rodney Mims, to whom getting something done tomorrow is intolerable, getting it done today is too late, and getting it done yesterday is right on time. He places great confidence in four of his lieutenants, Construction Manager Robert Fowler, Superintendent of Equipment Frank R. Toles, Superintendent of Lubrication Hugh Stewart and Railroad Manager Claude Johnston, each of whom, Mims says, is the best man to be had for these specialties. Behind these leaders ride a seasoned battalion of cavalymen mounted on horsepower that literally moves the earth.

Representing Union Oil round the clock are Commercial Sales Manager J. S. Kent, Commercial Sales Engineer C. A. Goughnour, and Oroville Consignee John Conrad. They recommend and supply the finest of "76" products we manufacture today—always making certain that every order is delivered "yesterday."



Robert Fowler



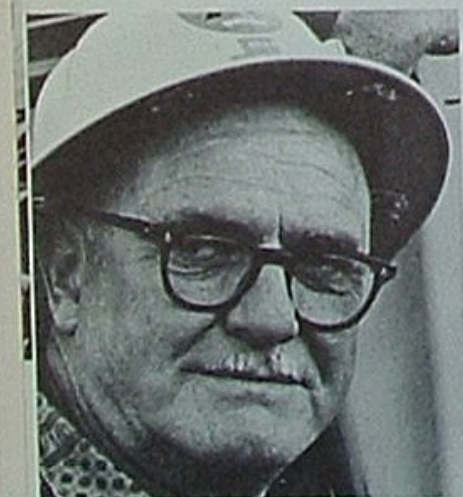
Frank R. Toles



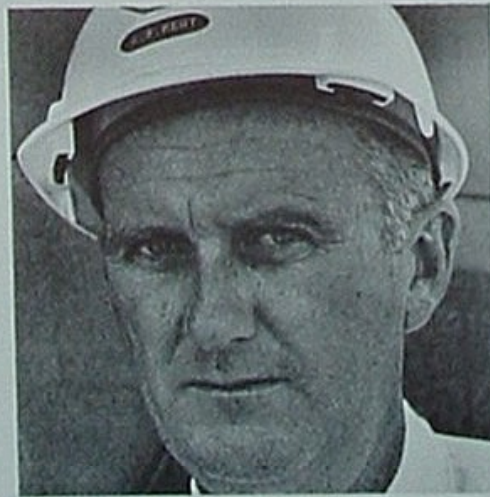
Claude Johnston



Hugh Stewart

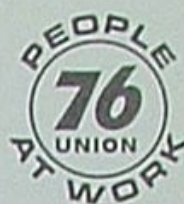


C. A. Goughnour



J. S. Kent

Now it can be told:
The secrecy wraps are off



PROJECT PUSHER

A FEW DAYS AGO, at a meeting of petroleum engineers in Wichita Falls, Texas, Union Oil Company and Dow Chemical Company took the secrecy wraps off a new process for getting oil out of the ground. The new process has been trademarked "Pusher." Pusher is a research breakthrough that potentially could have a major influence on the most important form of secondary oil recovery, water flooding.

The unique Pusher process involves the addition of water-soluble polymers to thicken water used for driving oil from underground formations. (Water-soluble polymers are man-made, very long-chain molecules.)

John Sherborne, manager of Union's Production Research Division, describes the effect this way: "As a driving force, pushing oil with ordinary water is like pushing it with a string. We've stiffened the water so it's more like pushing with a stick. The polymer solutions, however, give results far more beneficial than could be expected from merely 'thickening' the water."

The process has been evaluated successfully in two California oil fields: in a heavy oil reservoir at West Cat Canyon in Santa Barbara County, and in a light oil reservoir at Dominguez, south of Los Angeles.

Union Oil scientist Burton B. Sandiford, one of the inventors of the process, told the engineers at Wichita Falls that treated water gives substantial increases in oil recovery in two ways.

It not only increases the amount of oil obtained from the area swept by a water flood, Sandiford said, but it also increases the amount of swept area itself.

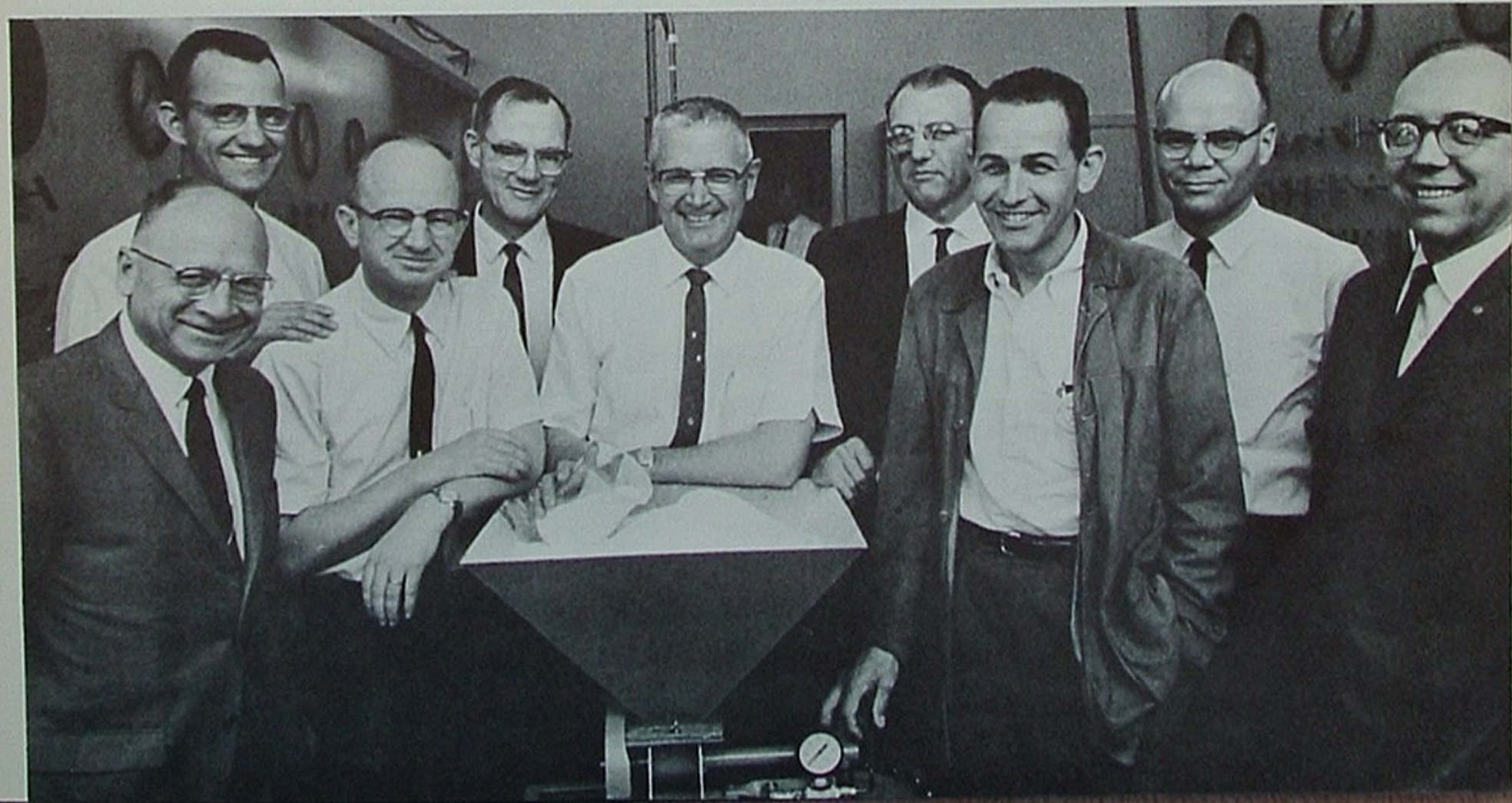
David J. Pye of Dow gave results of Pusher field pilot tests that recovered up to twice as much oil as comparative floods with untreated water.

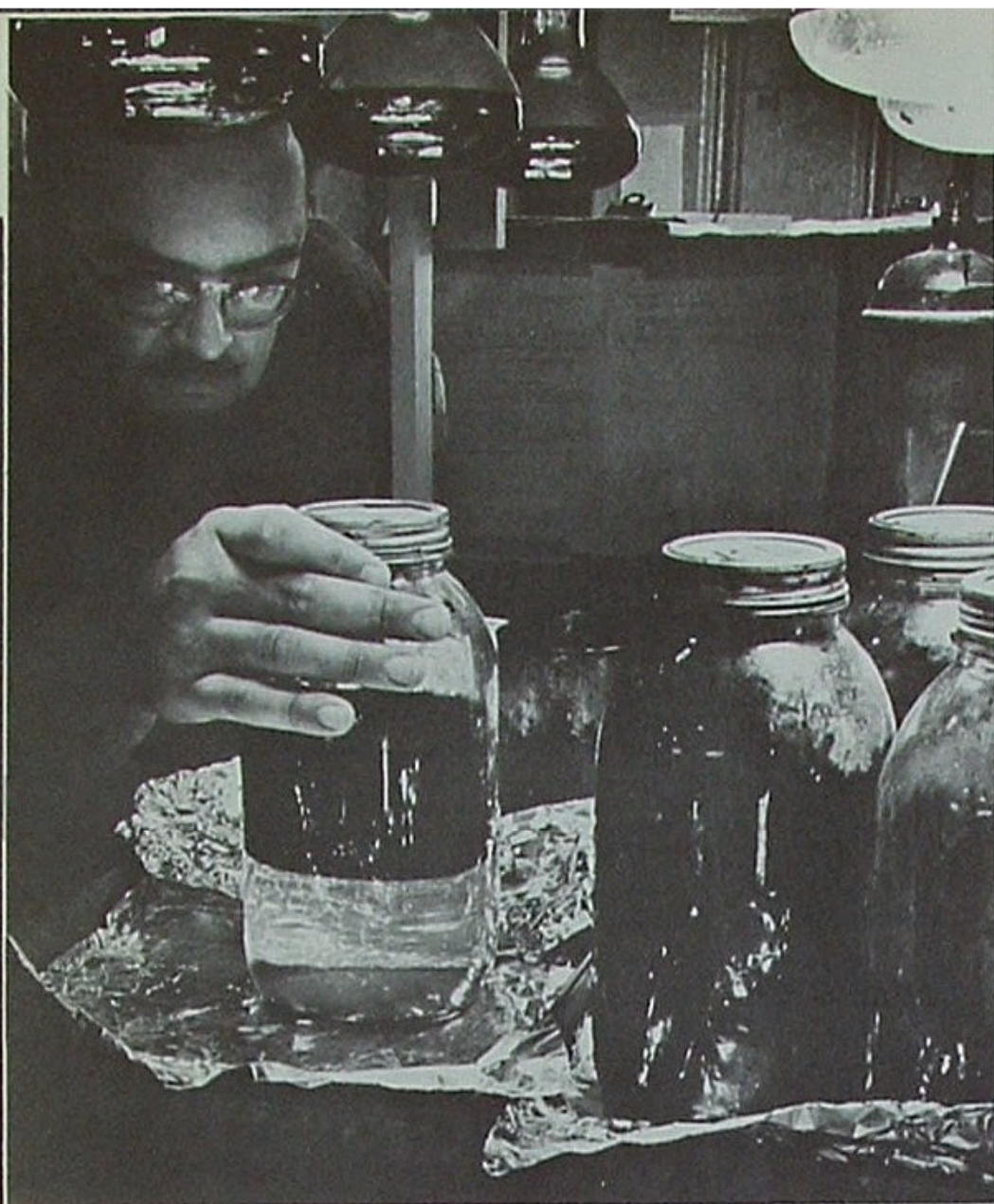
"Economic analyses based on pilot data indicate the method to be profitable," he concluded.

Pye's enthusiasm for the future of the process reflects the attitude of Union Oil and Dow research men. Early results from Pusher have been favorable, but both groups empha-

continued

At Research Center: Gathered around a funnel full of white Pusher chemical is part of the team of researchers (and one field engineer) who are working on Project Pusher. From left, John Sherborne, manager of Research's exploration and production division; Chemist Ken Knight, Senior Research Chemist Bert Sandiford (one of the inventors), Senior Section Leader Earl Amott, Technical Aide Ethan Schmidt, Research Engineer Eldon Showalter, Production Engineer E. E. Zinser, Research Chemist Virgil Josendal, and Supervisor of Reservoir Mechanics J. W. Wilson.





In the field: Tester John W. Cramer inspects samples of oil and water recovered from a Pusher project in California. Samples reveal that a smaller percentage of water is recovered using Pusher chemicals. Higher oil recovery is a result of greater sweep efficiency, described in the accompanying article.

Pusher *continued*

size that the process is still under development. "Each underground oil reservoir has its own peculiarities," they say. They aren't beating any drums until they analyze results from studies being made in oil fields scattered widely through the United States and Canada.

Even in its present stage of development, the Pusher process can be ranked as a true research breakthrough. The search for a thickened water, a more viscous water that could be used to increase recovery of oil, has been going on for years.

Union Oil's research into viscous water dates back well into the fifties. As our researchers' investigations progressed, they learned Dow was working along closely related lines. The research efforts of the two companies were then coordinated so the special resources, knowledge and skills of both staffs could be brought to bear on the problem.

The prize is worth the time and money that have been poured into research. About 60 per cent of the oil originally in place under the United States is locked in the underground rock, awaiting advanced secondary recovery methods.

Secondary recovery—especially water flooding—is of prime importance to Union Oil Company. Today, proved secondary recovery methods account for one out of every five barrels of crude oil Union has in its underground reserves. It accounts for one of seven barrels of oil we

produce. At the beginning of this year, we were participating in 111 secondary recovery projects.

To oil-deficient California, secondary recovery gives hope for the future—and in 1963 got much of the credit for the only increase in the state's annual production in nine years. Since Union Oil started the state's first experimental water flood in 1944, more than a billion barrels of water have been injected into the ground to force oil from California's fields.

Nationwide, secondary recovery water is flowing into reservoirs in every oil-producing state. In some states it's highly important. For example, in Illinois secondary recovery returns nearly 70 per cent of the oil production.

What effect will Pusher have on this vast secondary recovery effort? What effect will it have on oil-hungry California—and on Union Oil's own reserves?

Those questions were partially answered at West Cat Canyon and at Dominguez, where substantial quantities of *extra* oil were produced as a result of the Pusher process.

Both Union Oil and Dow are looking forward to more complete answers from additional tests being made today and from the results of full-scale operations each expects to initiate in the near future. 76

WHY is Pusher important?

TO UNDERSTAND Pusher's place in the scheme of things, let's take a look at how we get oil out of the ground. When we drill a well into an underground reservoir, oil either flows to the surface of its own accord or we pump it from the well. The oil we get at this stage is called primary recovery oil.

Primary recovery oil comes into the well because some kind of energy drives it from the reservoir rock. The energy may come from gas dissolved in the oil—just about as gas dissolved in ginger ale gives your drink its fizz. Or the oil may drain into the well by gravity. Or water under pressure may drive it from the rock.

Usually we in the industry do well to get 25 per cent of the oil out of a California field by primary recovery. As the field grows older, it loses much of its energy. Now comes secondary recovery: getting *extra* oil from the reservoir by supplying new energy. At present, secondary recovery methods bring us another 15 per cent of the original oil.

The purpose of the Pusher process is to get even *more* extra oil from reservoirs—by improving the most widely-used form of secondary recovery: water flooding. Here's how:

Top View

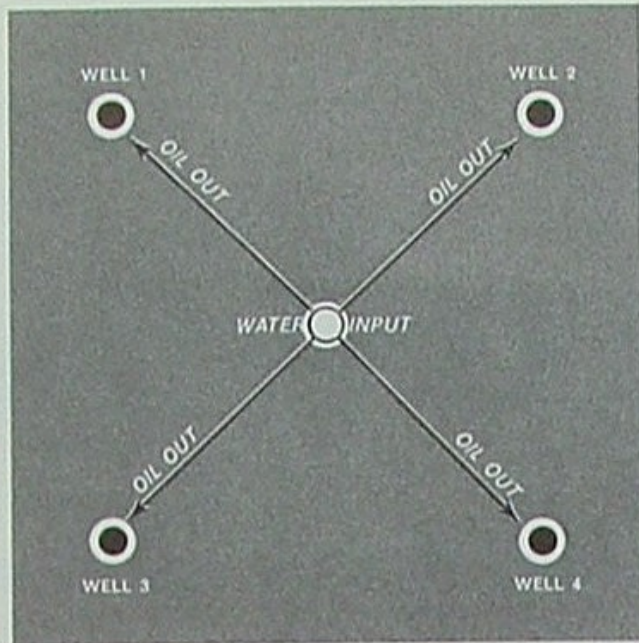


FIGURE 1

When we water flood a reservoir, the water is forced down into the oil zone through injection wells. Figure 1 shows the most common water flood pattern, the five-spot. Each injection well is surrounded by four producing wells; likewise, each producer is surrounded by four injectors.

The injected water rebuilds reservoir energy lost over the years. As it sweeps through the rock, it drives oil ahead of it to a production well. Reservoirs are not great hollow caves; they are generally zones of closely-packed sandstone.

When water is injected, it often follows the pattern shown in Figure 2. The water "fingers" through the thicker, more viscous oil. Fingers tend to grow rapidly because the water has greater mobility—it moves through the reservoir rock more easily than does the oil. A finger once started becomes the path of least resistance.

Notice the top drawing of Figure 2. Before it has contacted even half the reservoir, the water has already broken through to the producing well. Again, in the vertical slice of an oil zone, much of the reservoir hasn't been swept by water. Reservoir engineers call the behavior shown in these drawings poor sweep efficiency.

Top View

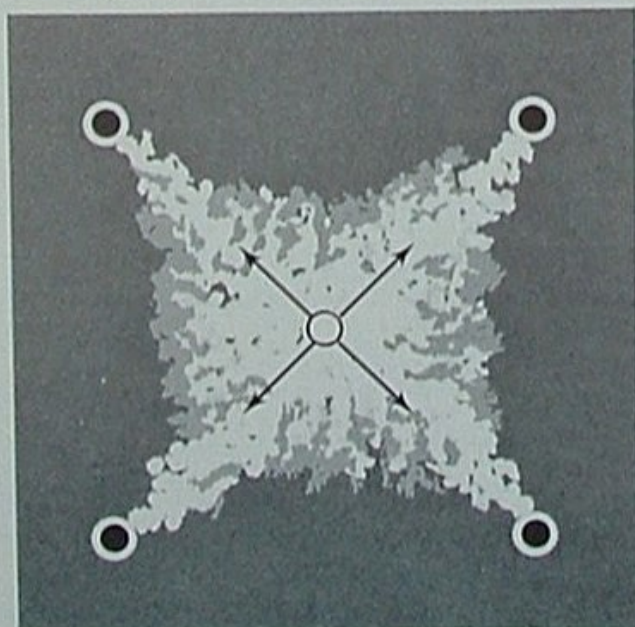
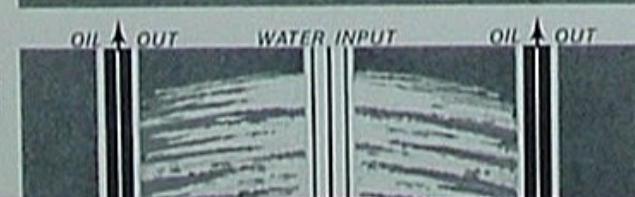


FIGURE 2

Cross Section



Top View

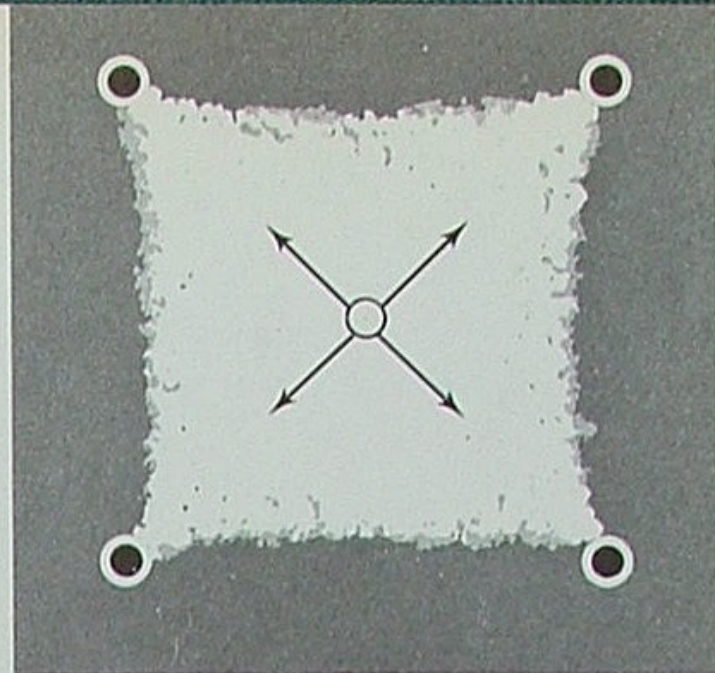


FIGURE 3

Cross Section

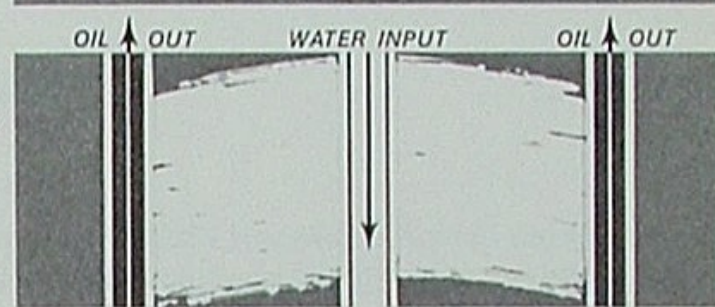


Figure 3 shows an important result of treating injection water with Pusher chemicals. Compare the smoother sweep pattern with the heavily fingered pattern made by untreated water. This smoother pattern leads to greater oil recovery—more of the reservoir is swept. The drawings are based on laboratory models in which the mobility of the water was made equal to that of the oil. With Pusher, we approach this nearly ideal behavior, this greater sweep efficiency.

Ordinary

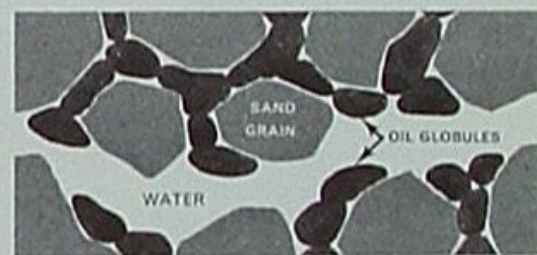
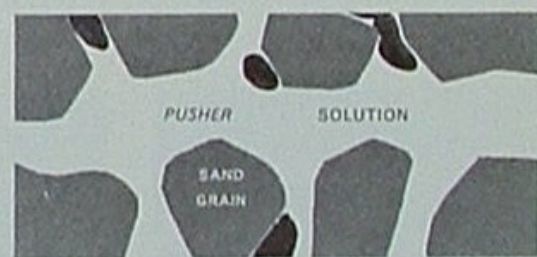


FIGURE 4

Pusher



Pusher is effective in another way. When a reservoir contains heavy oil, recovery—even in the areas swept by water—is rather poor. Laboratory studies under the microscope show that globules of oil are held by the sand particles and cannot be removed even by passing large volumes of water through the sand. The top drawing of Figure 4 shows this effect.

If we could get into a reservoir with a microscope after a Pusher solution had passed through, we'd see a situation resembling the second drawing. For, in addition to sweeping *more* of a reservoir, Pusher recovers *more* oil from the swept portion.



NEW from

... Super-Royal Triton, the all-weather oil

Now...from the laboratories of Union Oil—a motor oil so good it exceeds all car manufacturer's recommendations. It's new Super-Royal Triton...

* * *

"New from Union Oil: Buy any Minute Man IV or Minute Man III tire. If it fails due to normal road hazards any time during the first year or the first 10,000 miles (whichever occurs first) we will replace the tire—free."

This month, western motorists from Canada to Mexico are hearing these words on radio and television or reading them in newspapers as Union Oil announces its newest product, Super-Royal Triton, and, at the same time, an innovation in tire marketing: the first insured tire warranty.

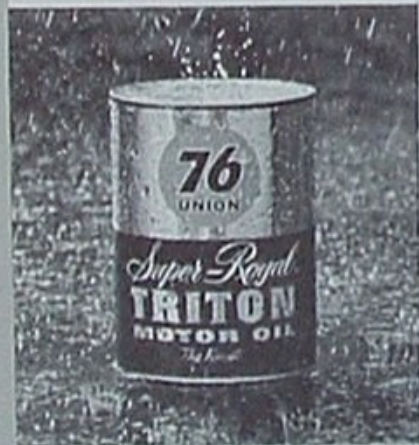
Bright, bold purple and gold cans of Super-Royal Triton are in Minute Man stations today. Planning for the introduction of the new oil began over a year ago; distribution was



When the going is cold your car needs a motor oil that won't thicken: Super-Royal Triton.



When the going is hot your car needs a motor oil that won't thin out: Super-Royal Triton.



When the going is wet your car needs a motor oil that prevents rust from forming in the engine: Super-Royal Triton.



When the going is stop-and-go your car needs a motor oil that keeps working to keep your engine clean: Super-Royal Triton.

New **SUPER-ROYAL TRITON**, the amazing purple motor oil. Now specially formulated by Union Oil to protect your engine under all driving conditions. It's so good it exceeds all car manufacturers' recommendations for oil. Your car needs it. You get it at the Sign of the 76. UNION OIL COMPANY OF CALIFORNIA 76

AMERICA'S FIRST INSURED TIRE WARRANTY



NEW FROM UNION OIL: Buy any Minute Man IV or Minute Man III tire. If it fails due to normal road hazards any time during the first year or the first 10,000 miles you drive (whichever occurs first), we will replace the tire free. The Minute Man IV is probably America's safest tire. It actually seals punctures as you drive. The Minute Man III is the Union Oil tire with more rubber in the shoulder, where there's more wear. Now you can buy either one with a warranty that is insured by an American Capital Stock Insurance Company. Never before have you had this kind of reassurance—that you will get a free tire if the tire you buy should fail

due to normal road hazards during the first year or 10,000 miles.

What's more, your Union Oil dealer is open seven days a week, ready with free follow-up service every mile you drive. His prices are competitive. You can pick your own terms. Up to 15 months to pay—no money down on approved credit.

If you're driving on thin rubber, drive in at the Sign of the 76 and drive out on warranty-insured Minute Man tires. It's a great feeling.

TWO MINUTE MAN III • \$4.85
6.70 x 14 NYLON TUBELESS WHITEWALLS
Including all taxes, service charges & applicable tires AS LOW AS 4 PER MONTH

UNION OIL COMPANY OF CALIFORNIA 76

Union Oil...

...the first insured tire warranty in the industry

scheduled to be completed with the first newspaper announcement advertisement on Sunday, April 26.

Picking up the advertising theme again: here's what we're telling the buying public about Super-Royal Triton:

"New Super-Royal Triton is specially formulated by Union Oil to protect your car's engine under all driving conditions—hot, cold, wet, or whatever the weather.

"New Super-Royal Triton won't thicken in the cold, won't thin out in the heat. When it's damp and wet, new Super-Royal Triton prevents rust from forming in your engine.

"Another thing: Super-Royal Triton keeps right on working to keep your engine clean... even in day-after-day stop-and-go traffic.

"New Super-Royal Triton is truly amazing."

And it *is* amazing—those claims don't exaggerate. Super-Royal Triton is the result of a lube oil research program that reaches 'way back through the years. The oil will do all we say it will—and more.

Compared to less advanced oils, it can give you better gasoline mileage, enable your car's engine to deliver youthful power longer, increase that engine's life span, and reduce wear and repair bills. Quoting the advertisement again, it's "the finest lubrication your car can get."

All-weather Super-Royal Triton replaces Royal Triton 10-30—now discontinued—as our highest quality oil. It sells for 75 cents a quart, and it's worth every penny of the price.

About the insured tire warranty:

Rubber companies have been making tires for more than a hundred years. Oil companies got into the act a good many years ago, too. But never before has anyone offered the buyer an out-and-out promise such as Union Oil Company is making for its Minute Man IV and III tires.

Tire industry practice is to adjust a damaged tire on the basis of the amount of tread left on it: if half the tread's gone, you get half the cost of the old tire toward a new one.

Union Oil's previous practice—and the practice still applies to Minute Man II and I tires—went the industry one better. Minute Man dealers adjusted the tires on the basis of the amount of time left on the guarantee. If your tire was guaranteed for 24 months and was damaged after 12

months, you got credit for half the cost of the old tire—no matter what the condition of the tread.

But on May 1, as far as Minute Man IV and III tires are concerned, most of the tread-depth-time rigmarole ended. Backing its confidence in quality—quality on a par with that of Super-Royal Triton and Royal 76—Union Oil began giving its customers an insurance policy with every tire. The gist of the policy:

"You get a brand-new tire absolutely free—no complicated adjustments, no measuring tread depth, no problems—if a Minute Man IV or III tire fails due to normal road hazards any time during the first year or the first 10,000 miles you drive it, whichever occurs first." The warranty is insured by an American capital stock insurance company.

(After the first year, Union Oil's superior road hazard and construction warranties go into effect.)

Both advances being announced this month—Super-Royal Triton and the new Minute Man tire warranty—serve a very definite purpose: they give us a greater lead over our competition.

Leadership in the marketing end of our business comes close to being synonymous with money... and with higher sales, with greater stability for the dealer, greater security for the employee, and with a dependable return to the company's owners on their money invested in Union Oil.

New Super-Royal Triton and the new tire warranty have the qualities of true leadership: they offer the customer value *plus* for his patronage.

No other oil offers more protection—*plus* an honest price—than does Super-Royal Triton.

No other tires offer more protection for a driver's car *plus* protection for his pocketbook than do the Minute Man IV and III with their insured warranty. 76

To see how Union Oil introduced Super-Royal Triton motor oil and the insured Minute Man tire to Union Oil dealers, see next page.



Show opens with "It's Union Oil day at the County Fair." Pictured: Elaine Nelson, Cathy Stuart, Shirley Mills and Bernardine Kent.

COUNTY FAIR

MINUTE MAN DEALERS throughout the West learned of Union Oil Company's new Super-Royal Triton motor oil and the insured Minute Man tire warranty at the annual Dealer Show. Like dealer shows in the past, the 1964 spectacle toured the West from San Diego to Spokane. Unlike shows in the past, this one had a new twist. Instead of a simple show, the company this year brought out an entire County Fair. Sideshow barkers urged dealers to visit the booths featuring displays of tires, batteries and accessories. It was a hit with most dealers. But the hour-long, live, stage show remained the feature attraction. The plot centered around mythical Minute Man Charlie Teedtire who woos and wins his lady love. At the finale, the lovers discuss marriage plans and agree to name their first-born son Warren Teedtire.

Innovation in 1964 dealer revue was use of County Fair theme with sideshow barkers and tire, battery and accessory booths.





Cathy Stuart as glamorous Minette Mann.

Young lovers Bernardine Kent and Brian Avery meet Minute Man Charlie Teedtire (Ernie Newton).



PHOTOGRAPHS BY RICHARD TOLBERT



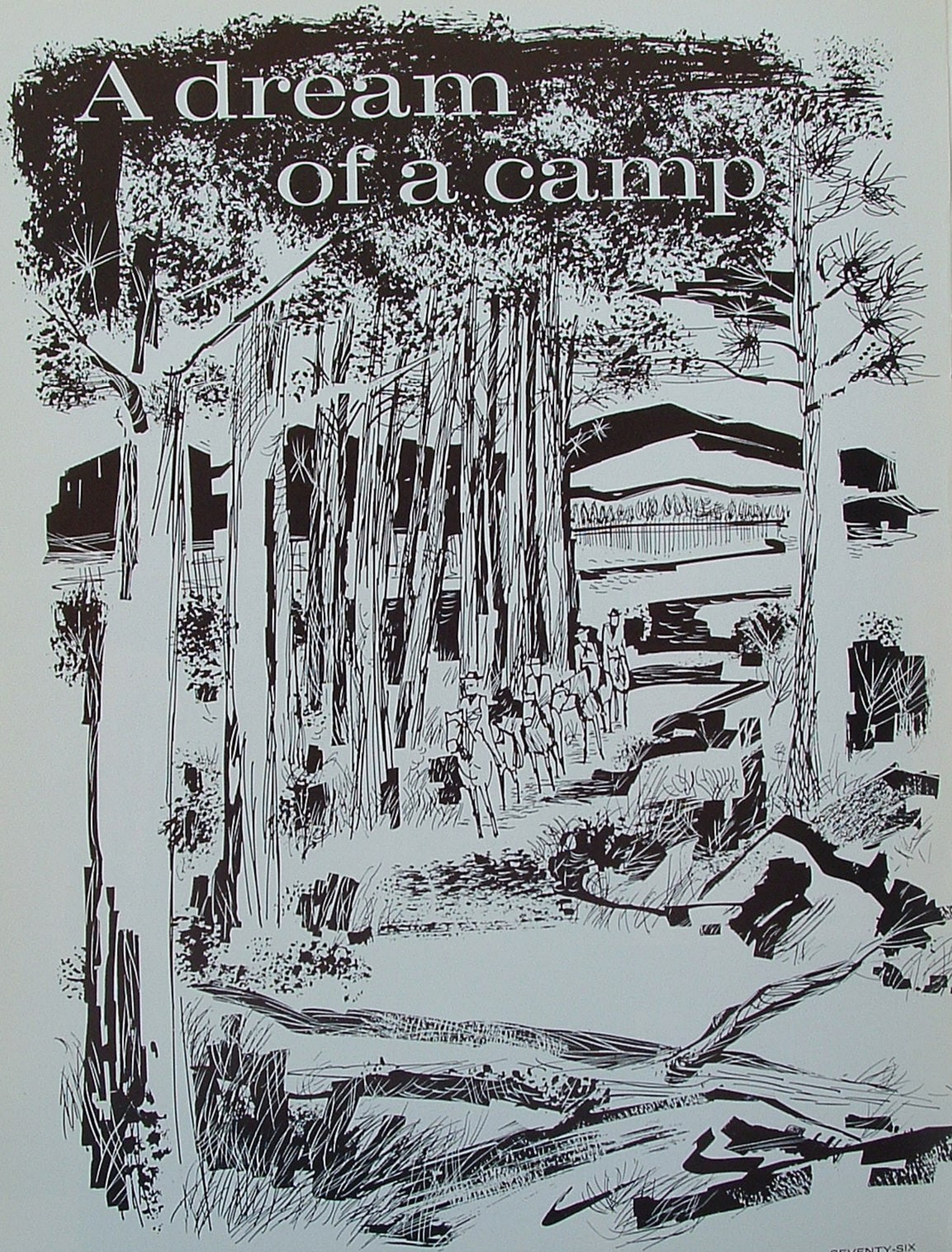
Producer Stacy Keach also has made 18 movie shorts for Union



Shirley Mills as Helen Wheels sings of Super-Royal Triton in "Getting to Know You."



A dream of a camp



SEVENTY-SIX

The story of a heart-warming program for boys

By William Rintoul

Reprinted with permission from *Petroleum Today*.

THIRTEEN-YEAR-OLD Madison "Skip" Hinchman narrowed his hazel eyes apprehensively as the chartered bus left the flat farm country on the east side of California's fertile San Joaquin Valley and began a winding climb into the foothills of the Sierras. The bus was carrying Skip and 15 other boys he had never seen before to summer camp.

It had been a year of heartache for the seventh-grader and his family. His father had died, and there had been several months when Skip himself was confined to bed with rheumatic fever. His mother had gone to work as a waitress to support her four children.

When the dean of boys at Visalia Junior High had asked him if he would like to go to camp, Skip had jumped at the chance. Thirteen days with everything free—it was more than he could believe. But now, as familiar country fell behind, Skip began to have second thoughts. He had visions of working long hours at backbreaking tasks, miles from home.

At Rutherford Pack Station in the Sierras, two hours and 90 miles from Visalia, the bus stopped. The camp director announced that the boys would have to hike six miles to reach camp; there was no road. And two hours later Skip, now more hungry than apprehensive, saw two canvas-topped wooden buildings and some tents: the R. M. Pyles Boys Camp.

When Skip Hinchman first saw the camp in 1954, it was in its sixth season. And though Skip didn't realize it when he arrived, the camp had been tailor made for him by a man who understood better than most men the problems that can beset a boy.

Bob Pyles was 16 when he went to work in the oilfields around Bakersfield, California, in 1908. Later he managed operations for an oil company in Huntington Beach. In both communities his house was always open to troubled boys, providing meals and often a second home.

Within the oil industry, too, Bob Pyles earned a reputation as a friend in need. During the depression royalties from equipment he had invented helped tide many an oilman over the crisis.

Bob had always dreamed of establishing a camp where boys who lacked financial means might enjoy the experience of a summer in the mountains. In 1949 a group of his oil industry friends decided to help him make the dream come true. On April 19 of that year the State of California granted a charter to the nonprofit R. M. Pyles Boys Camp;

it would be located high in the Sierras, where Bob had himself often camped.

No road reached the site, a 5,500-foot elevation in the Sequoia National Forest. Bob and his friends packed necessary building materials to the campside on mules. They built a tank and laid pipe to furnish water. They set up a generator to provide electricity.

In the summer of 1949 the nonsectarian Pyles Boys Camp welcomed its first boys, chosen then—as now—from oil-producing areas of California. The camp was dedicated, in the words of its founders, "to the task of building healthier and happier generations of Americans firmly endowed with the ideals and principles of our freedom-loving country."

IN 1954, WHEN Skip Hinchman arrived, the camp facilities were not elaborate. The boys could play softball or volleyball. They could enjoy a dip in the Little Kern River or try their hand at fishing. There was something very special, though, about the manner in which the camp was run.

If Skip had something to say, his counselor encouraged him to get it off his chest. The counselor didn't try to push him around. And when there was a question as to how Skip's "crew" of eight boys would spend the day, the counselor would take a vote. Majority ruled.

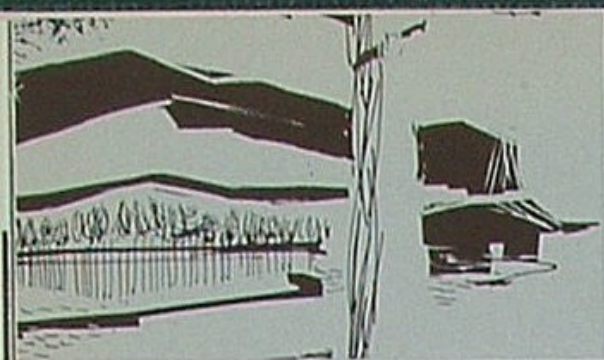
Some lessons, though, had to be learned the hard way. Skip went on a hike or two without telling anyone. He quarreled and fought with another camper. When his crew went for an overnight hike, he got in a more serious kind of trouble. A counselor asked the crew to gather rocks, which were needed to build a small chapel. Instead, Skip and several other boys climbed a hill and started landslides. Several rocks narrowly missed the camp.

The near-misses, more than the counselor's reprimand, caused Skip to do some thinking. It occurred to him that gathering rocks might be a good way to help repay whoever had made the camp possible.

Before long, Skip found himself concentrating on more important things than causing trouble. There were awards to be earned. He decided he'd like some to sew on the T-shirt he'd get at the final campfire. They'd look good with the emblem on the T-shirt: a scene of pines and mountains around which was lettered "R. M. Pyles Boys Camp."

There were many kinds of awards to be won. The con-

continued



A dream of a camp *continued*

ervation award, for example, involved thinning a too-thick growth of young trees or saving a tiny trout—too small to keep—by wetting your hands and gently removing the hook so that the fish would survive when put back in water. To earn a hiking award, you had to display good trail manners by not littering the trail or taking short cuts. You also had to take a special hike, one long enough to represent a challenge; and you had to finish it.

By the night of the final campfire Skip had qualified for all but one award. He hadn't been able to stand still long enough to catch five fish. But he and his crew had earned a more important award: They were designated the camp's honor crew. They burned their names with a wood-burning set on the honor log, which would be kept for future campers to see.

The final campfire began in the dusk with the singing of such favorites as *Bill Grogan's Goat* and *Johnny Rebeck*. As the fire burned bright, each camper took a small twig and placed it in the fire. Long after fire had died, a sample of ashes would be taken from it. These ashes, and those from the final campfires of other groups, would be placed in the first fire of next year's camping season.

As each camper's turn came to place a twig in the fire, he could, if he desired, say anything he wanted about what camp had meant to him. After Skip dropped his twig in the fire, he turned to the semicircle of campers and counselors. "I had a good time," he said. "I enjoyed it." Perhaps smoke got in his eyes. He began to cry. There was one more thing he had to say, and he managed to get the words out before he stumbled back to his seat. "I want to come back."

TODAY SKIP HINCHMAN, a husky six-footer with 197 pounds—mostly muscle—on his frame, is back at Pyles Camp. At 23, he is camp director. How does he feel about it? "Nine feet tall," he says. The year after he started as a camper, he came back to work as a cook's helper; and he has returned every year since except one when he was working full time to help pay for college. He has served as a wrangler, a junior counselor, a senior counselor, and as assistant camp director.

As director, Skip is in charge of a much bigger camp than the one he first saw. There are seven permanent buildings for the campers—no more canvas roofs—plus a large messhall, a cook's cabin, and four staff and guest cabins. There are eight showers instead of two, and indoor plumbing. The staff is bigger: seven counselors, a wrangler, two cooks, two dishwashers, and at least three other helpers. And there are more boys—432 of them, 12 to 16 years old, 54 for each of the 10-day periods. By the time the three-month season ends, the all-time total of boys who have attended the camp will stand at more than 5,000.

Occasionally visitors come to camp, perhaps a member or two of the Sierra Club, a leading conservation organization. Its members are high in praise of the clean campsites and trails left by the boys. Maybe someone from the Forest Service visits; they too are boosters of the camp. They like the precautions taken with fire, and they're proud of the way the boys clean up camps left littered by others.

A special visitor is Bob Pyles. Now 71 and retired from his oil company job, Bob devotes full time, without pay, to the camp. A plain-spoken, physically strong man who might easily be mistaken for a cowboy, Bob talks with the boys and gets to know them. He also visits the horses, whose names he knows as well as any boy who ever earned a horsemanship award.

Bob's visits to camp are only a small part of his contribution. He's an indefatigable fund raiser who helps stage the annual drives to raise money for the camp. With the camp budget currently running \$41,000 a year, fund raising is a big job. Contributions come entirely from men and women in the oil industry and allied services.

(Editor's note: Many of Union's officers and employees make contributions, and you may also want to do so.)

Bob also visits sheriffs and school officials, probation officers and youth workers who select the boys who go to camp. He listens with quiet pride when men like Sheriff LeRoy F. Galyen of Kern County tell him that Pyles Boys Camp builds better citizens. Or when Merlin D. Winter, chief probation officer for Tulare County, comments: "All of us feel that this is without question the finest program we have anything to do with. I don't know of a boy we've sent who hasn't gained from the experience. We're extremely grateful." And he meets with the 30-man board of directors, representing a who's who of the California oil industry, busy men who volunteer time to see that the camp prospers.

Occasionally someone may ask Bob what his reward has been for the years he has devoted to the camp. He doesn't mention the honors that have come to him—Huntington Beach Chamber of Commerce "Man of the Year" award, Outstanding Citizen Award from Orange Coast College, Outstanding Service Certificate from the Los Angeles Police Department, special tributes from the boards of supervisors in Orange and Los Angeles Counties, praise from officials of Kern, Tulare, and Ventura Counties, a school named after him in Anaheim's Magnolia School District. Instead, if he has his briefcase handy, he'll bring out a letter, like one received from an ex-camper who is serving with the U.S. Army in Vietnam.

"As many old campers, I'm sure," the young soldier wrote, "one of my fondest dreams is to return to the camp for a visit. I do wish to express my deepest thanks for the opportunity to have been one of the campers at your fine camp. It is men and women like you that build a better America in which to live."

Business



Highlights



ARMY DESERT MANEUVERS TO RUN ON THE FINEST PRODUCTS

On the 17th of this month will begin the largest American military field exercise to be held in 1964. It is called Exercise Desert Strike, and will be conducted on a 13 million acre site encompassing parts of Southern California, Arizona and Nevada.

More than 100,000 soldiers and airmen will take part in the military maneuver, according to Lt. Gen. Frederic J. Brown, commander of the U. S. Sixth Army. Moreover, some 10,000 Army National Guard and Reserve soldiers will join in.

Supplying part of the petroleum requirements for the trucks, tanks and airplanes that make up this peace-time military exercise will be Union Oil Company. For example, a 440 truck Army convoy traveling from Fort Lewis, Washington, will be fueled enroute with Royal 76 gasoline. At the maneuver site, headquartered at Needles, California, Union Oil Company will be on the scene providing gasoline and other petroleum requirements for the training servicemen.

TRITON 'FAMILY' OF OILS BEARS LOOK-ALIKE DESIGN

Ever see a family where the children had similar personalities? We doubt it, but probably they bore a family resemblance.

Like people, members of our

family of motor oils are all different. Until recently they were all nice appearing, but they looked like step-children.

Our various oils are still different, but now the handsome new container designs give them a striking family resemblance. Even the latest



addition, Super-Royal Triton, looks like other members—with its appearance enhanced by a generous band of gold, symbolizing its superb quality.

Container design changes pose problems for the Purchasing Department. First of all, Purchasing must "run out" of the old labels by the time we start using the new design.

(A label is a can in the flat; it be-

comes a can when it is molded into a cylindrical shape.)

Changeovers would be simple were we using only one label and one supplier. But we're using eight different labels, supplied from many sources. Purchasing began planning for the changeover last October—with the requirement for strict secrecy complicating matters. Previous motor oil cans had a maximum of three colors. The new Super-Royal Triton can boasts six.

Also involved in the changeover are the big brothers to the one-quart cans—specifically the five-pound grease can, the five-gallon square can, the five-gallon utility pail, the five-gallon thirty-five pound pail, the quarter barrel and the 55-gallon lithographed drum.

Eventually our growing family of auto accessories will undergo similar package design changes. When this becomes a reality, we believe our product line will not only be the finest performing, but also the finest appearing auto products on the market.

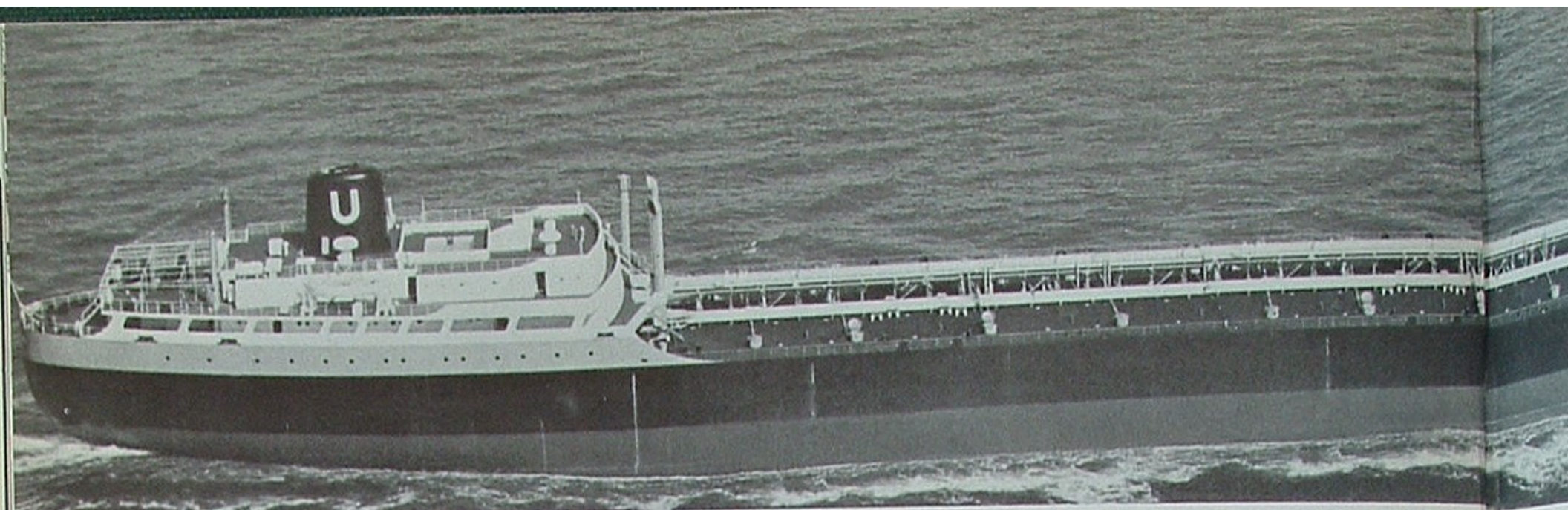
TRUCIAL COAST STATE GRANTS UNION A BIG CONCESSION

An oil concession covering both onshore and offshore lands of the Trucial Coast state of Ras al Khaimah has been granted to Union Oil and Southern Natural Gas Co.

Ras al Khaimah is one of seven Trucial (pronounced True-shall) Coast states along the Persian Gulf. It is situated west of Muscat and north of Oman on the Arabian peninsula.

The agreement was signed in London on March 3 by His Highness Shaikh Saqar Bin Mohammed Bin Salim al Qasbi, ruler of Ras al Khaimah, and by Ray A. Burke, vice president of Union Oil, and W. E. Winn, vice president of Southern Natural Gas. Technically the contract is with Union Oil Exploration and Production Co., a wholly owned subsidiary of Union Oil. The explor-

continued



Early in March plans were revealed for the jumboizing of the supertankers Lake Palourde and Torrey Canyon, making them the longest cargo vessels in the world. The retouched photograph across the top of this page suggests what they will look like once they are lengthened, by 165 feet, to make them 975 feet long. At 117,000 tons each, they will be second in weight only to the 132,000 ton Japanese tanker Nissho Maru. Both Union-chartered ships bring crude oil from the Persian Gulf to Union's Los Angeles Refinery. As a relative indication of the tanker's future size, this caption is about a city block long.

Business Highlights *continued*

ation and production division of Southern Natural Gas is located in Houston, Texas.

The oil concession covers all petroleum rights both offshore and onshore on 1,150,000 acres. About two-thirds of the concession lies in Persian Gulf waters. Union holds an 80 per cent interest and Southern

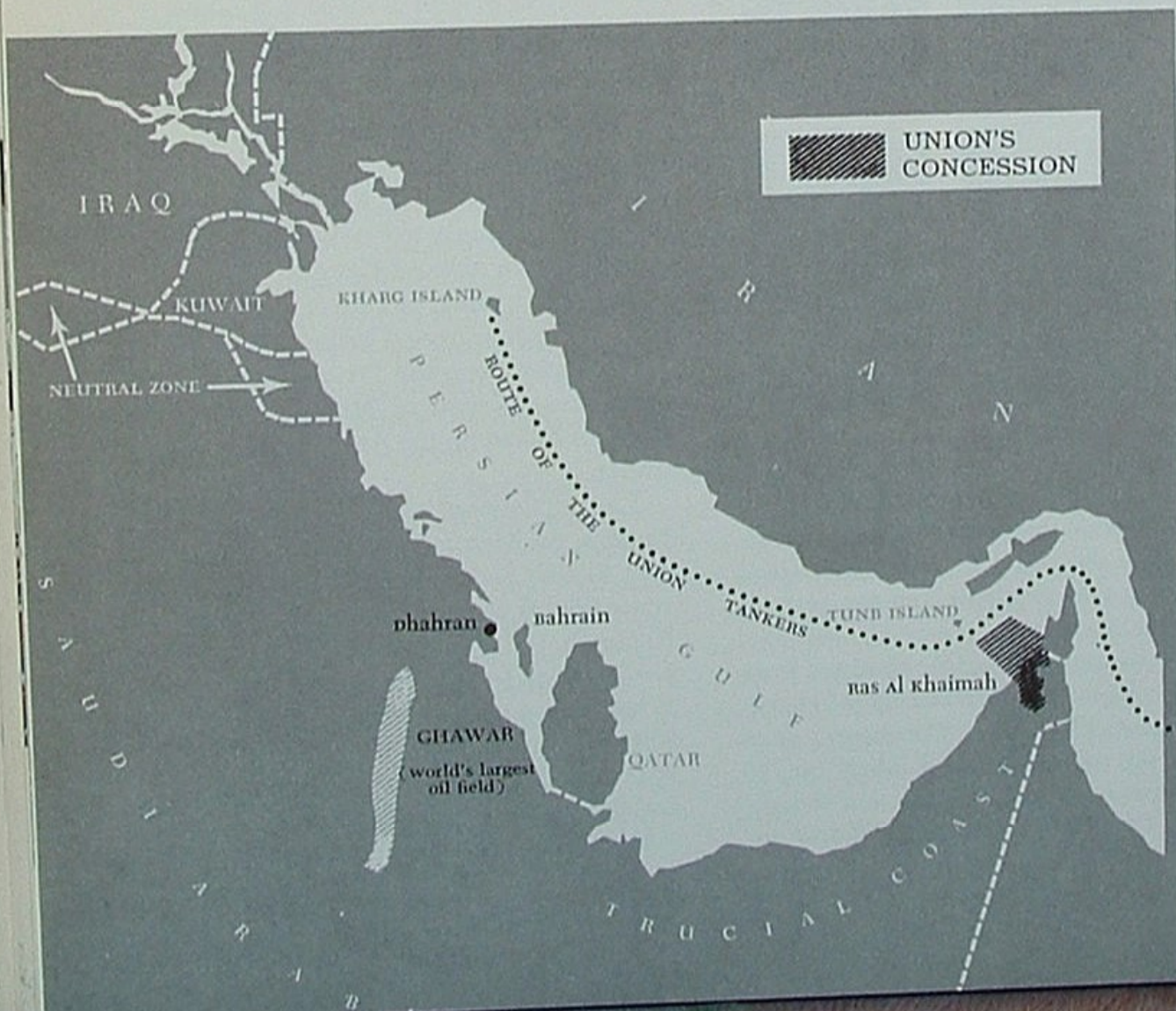
Natural a 20 per cent interest in the concession.

Geophysical work on the new concession is expected to start within a few months.

Also present from Union at the signing ceremonies in London but not pictured were Lewis Lawrence, manager of taxes; John Sloat, man-

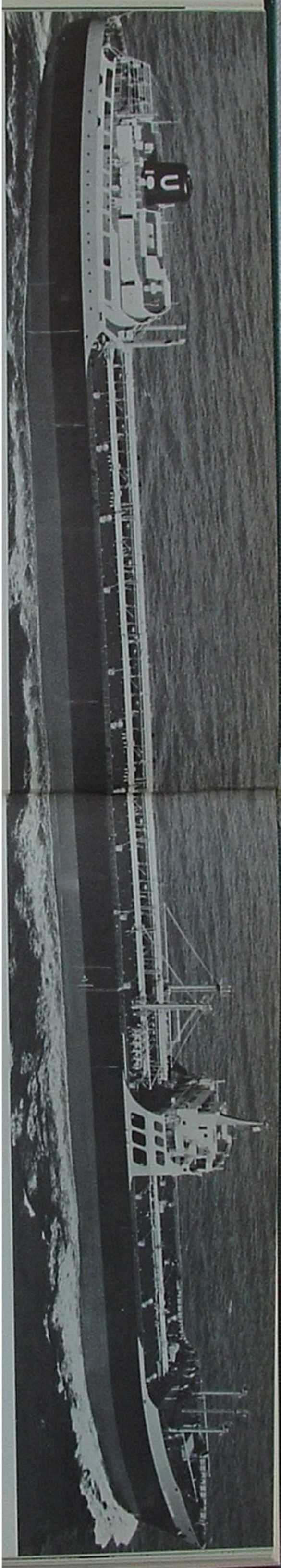
ager of foreign operations, and Henry Brandon, foreign division representative. Brandon was named honorary shaikh of Tunb Island, offshore from Ras al Khaimah.

(A note on names. In Arabic, "bin" means "son of," "al" means "the." Moslem Arabs have at least three given names—their own, their father's and their grandfather's—followed by a family surname. Thus, the name of the ruler of Ras al Khaimah is Shaikh (ruler) Saqar son of Mohammed son of Salim of the Qasmi family.)



Signing an oil concession document in London on March 3 were (seated, l-r) Ray A. Burke, vice president for exploration and production of Union Oil; Shaikh Saqar Bin Mohammed Bin Salim al Qasmi, ruler of Ras al Khaimah, and W. E. Winn, vice president of Southern Natural Gas; (standing, l-r) David Skory, American legal consultant from Rome representing Union-Southern, and Prof. Shavarsh Toriguian of the American University in Beirut, the shaikh's attorney. See story for details.







DEFENSE JET FUEL ORDER WOULD FILL 38 MILE TRAIN

The company has been awarded a contract by the Defense Fuel Supply Center in Washington, D. C., for 38,430,000 gallons of jet fuel (JP-4) for delivery from Oleum Refinery during the period April 1 through September 30.

If this volume were delivered in a single lot in 10,000 gallon tank cars, the length of the freight train would be 38 miles.

COALINGA NOSE PASSES 1/3 OF BILLION BBL. MARK

Recent drilling of a routine development well by the company in the Coalinga Nose area, North San Joaquin Valley District, brings to mind the anything-but-routine history of this remarkable field. Coalinga Nose holds the distinction of being the site of some of California's biggest producing wells.

The original discovery well, drilled by a group of companies, was completed on July 1, 1938. Initial production was 7,900 barrels a day.

In 1950, this area was unitized. Union Oil, entering the picture through its acquisition of the Los Nietos Company, has been the unit operator during this entire period.

During the early fifties, daily production reached a peak of more than 45,000 barrels a day. The 78 producing wells still are delivering an aver-

age of more than 350 barrels a day per well.

In 25 years of life, the Coalinga Nose Field has given up approximately 360 million barrels of oil. As a comment on how this stacks up with other fields, oil men generally consider that production of 100 million barrels constitutes a major field. On this basis, Coalinga Nose can take credit for qualifying as a major field—thrice over.

continued

Roy Curnow, area superintendent for the Coalinga Nose Unit, surveys the 25-year old field from the door of his office. Coalinga Nose covers five-and-a-half square miles, has delivered more than a third of a billion barrels of oil. The field is situated in the San Joaquin Valley near Highway 33 about 45 miles southwest of Fresno.



NEW OLEUM UNIFINER UNIT TO CLEAN MID-BARREL STOCKS

A \$780,000 Unifiner unit has been placed on stream at Oleum Refinery to sweeten mid-barrel products.

The new installation is known as Midbarrel Unifining Unit 229.

It will upgrade low-value, high-sulfur-content stocks that formerly were blended into fuel oil. The new sweet stocks will be used to make higher value, mid-barrel products such as arctic diesel, jet fuels and such.

This project continues the trend of reducing fuel oil yields from crude oil in the refineries.

COMMERCIAL SALES ENGINEERS HELP BOOST CUSTOMER SALES

In this modern world of marketing, such things as service and technical assistance may be as important in securing a sale as the product itself. In the Marketing Department, a corps of technical specialists are active toward this end in support of our commercial sales efforts.

Cases often occur where these experts may be of help by providing the know-how for proper application of our products to best meet the customer's needs. For instance, what kind of grease should be used in a certain eccentric gear in a cannery? Or should a lube oil be used?

To do this work, we have highly trained men in our sales divisions with the title of commercial sales engineer. These men cover the commercial market.

But that doesn't solve all the problems. Other experts work on special markets such as trucking, aviation, steamship, packaging and asphalt accounts. Results of this work have been particularly interesting in the development of markets for our wax used to impregnate cardboard and paper containers. For a number of reasons, the application of Unowax holds a bright future in the packaging industry, and we are fully prepared to exploit these opportunities.

REPORT \$4 MILLION DAMAGES IN ALASKA EARTHQUAKE, FIRE

The Alaska earthquake of March 27 occurred just as SEVENTY-SIX was going to press. Here is a rundown.

None of the 50 Union Oilers or their families in Alaska lost their lives. None was seriously injured. Several lost homes, but fellow employees threw open their doors until new housing could be found.

There was no damage reported at Union's big Kenai Gas Field, which supplies natural gas to Anchorage. Union's marketing facilities at Anchorage, Valdez and Whittier suffered the main damage. At Whittier, the dock, terminal, storage tanks and offices were destroyed by fire. At Valdez, a wharf, storage tanks, warehouse and office burned. At Anchorage, the marketing station, warehouse and tankage were damaged. All but the tanks were condemned and were being replaced. At Kodiak,

a tidal wave struck, but the company office and warehouse were not seriously damaged.

It was estimated that the replacement cost of facilities and products lost in the earthquake, tidal wave and fire will approximate \$4 million, a portion of which—not yet determined—will be covered by insurance.

Union Oilers were quickly on the job. Home deliveries of heating oil were being made in Anchorage within 48 hours, and service stations, although damaged, were operating.

Effects of a tidal wave that followed the quake were felt as far away as Los Angeles, where the "76" marina at Playa del Rey was severely damaged. It was back in business on Sunday, however, one day after the tidal wave struck. In Crescent City, California, scene of major damage from the sea, Union Oil facilities escaped with minor damage.

*A message from
the Treasury of a free people*

**HOW TO PUT YOUR NAME
ON A FREEDOM DOCUMENT**

The 56 men who signed the Declaration of Independence didn't have an exclusive on endorsing freedom.

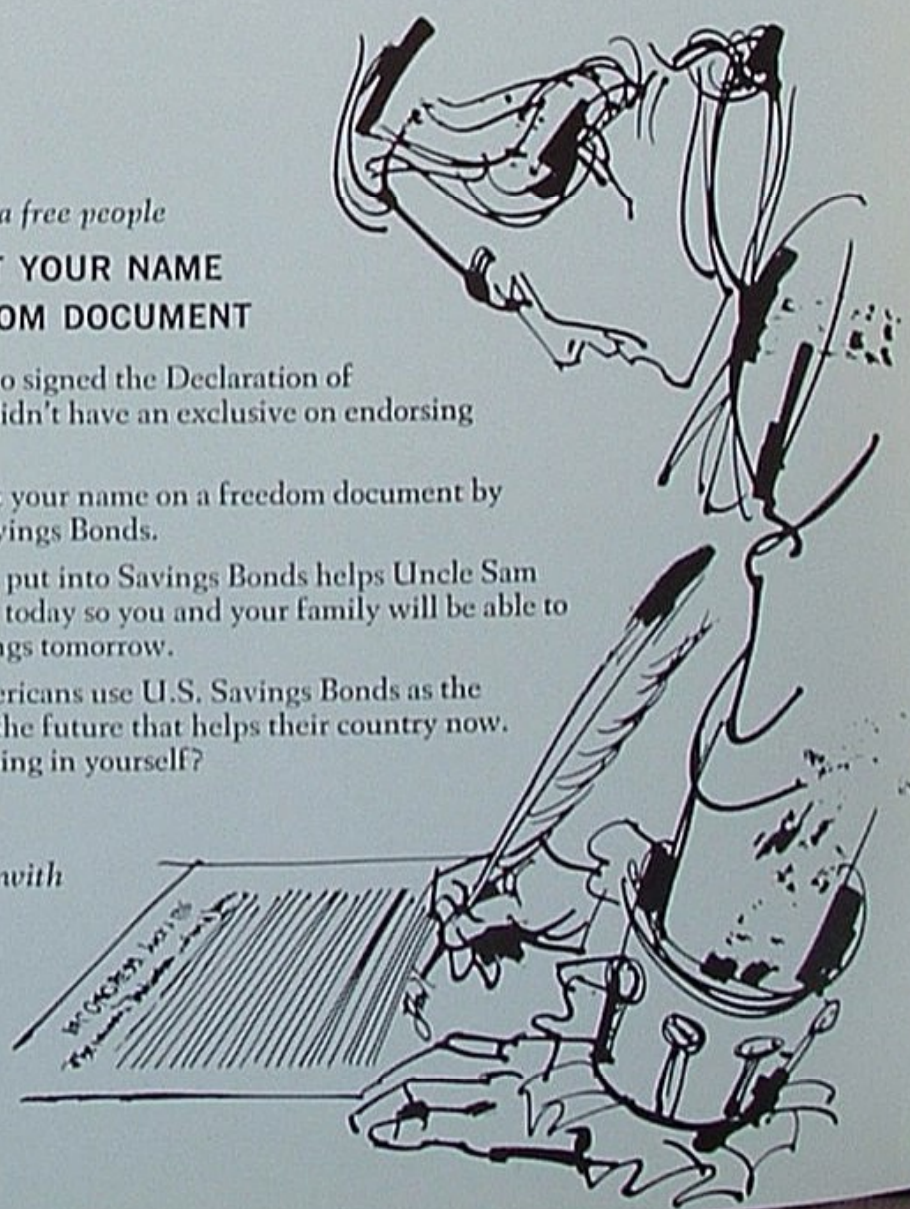
You can still put your name on a freedom document by buying U.S. Savings Bonds.

The money you put into Savings Bonds helps Uncle Sam defend freedom today so you and your family will be able to enjoy your savings tomorrow.

Millions of Americans use U.S. Savings Bonds as the way to save for the future that helps their country now. How about signing in yourself?

*Keep freedom
in your future with*

**U. S.
SAVINGS
BONDS**



ALASKA EARTHQUAKE

PICTURES TELL more eloquently than words the destruction visited upon Alaska by the March 27 earthquake and fire. These pictures, taken after the fire died out five days later, reveal dramatically the extent of the damage.



Turnagain section of Anchorage: a series of fissures



Area Sales Manager Frank Kerth stands in fissure at Portage, Alaska



Port of Whittier Terminal burned. Army's Buckner Barracks escaped

Tank at Whittier appears as if giant had stepped on it. Glaciated peaks in background are Chugach Mountains



Aftermath of fire at Whittier, situated by Prince William Sound



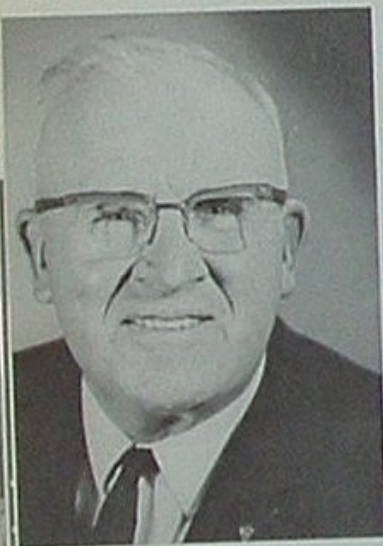


The exact population center of California, according to Conrad C. Jamison, vice president and economist for Security First National Bank, is the intersection of Sherman Way and Fulton Avenue in Van Nuys of Los Angeles County. In other words, the state's 17,675,000 population is equally distributed east, west, north and south of that busy intersection. So George Hoover (seen in photo), owner of a 76 car wash on the spot, wasn't exaggerating a bit when he told Helen Darelen, secretary, "You're the center of attraction of America's most populous state!"

Dealer Vernon Mills, at left, of Redmond, Washington, is a knight in shining armor to the Seattle Guilds for Retarded Children. The children own a steer in Snoqualmie but lacked a means of transporting the animal to Auburn, where, later this year, it will be auctioned to raise money for their clinic. Dealer Mills promptly stepped forward with the offer of a truck. Prettiest among those to thank the Union Oiler was Seafair Queen Arlene Hinderlie, seen with Seafair Commodore Chet Valley.



Most improved truck fleet on the island of Oahu is the fine distinction won by Union Oilers during a recent competition involving 20 large fleet owners. Holding the trophy presented Union personnel at Queen's Surf, Waikiki Beach, by Mayor Neal S. Blaisdell, right, of Honolulu are, from left, Harold Moriyama, Herbert Meyer, George Sonoda and Wayne Buckert, terminal superintendent.



MIKE WARD



ADOLPH BERTELSON

Mike Ward and Adolph Bertelson were given front-page recognition by the Cut Bank Pioneer Press on their recent retirement from Union Oil jobs in Montana. Both had long experience with Glacier Production Company when that company was purchased by Union 20 years ago. They are characterized by their local newspaper as outstanding boosters of their employer and community. Ward migrated from England's shipyards to a career in America's heavy industry, including 31 years in the oil fields. Bertelson, a highly skilled plant mechanic, is widely known in the northwest for his prowess in designing and building prize-winning boats.

from D. Y. Wilson, Jr.





AWARDS

EXPLORATION & PRODUCTION

May 1964

35 YEARS

RUTH E. MILLER . . . Santa Fe Springs, California

30 YEARS

SAMUEL M. DYER . . . Richfield, California
 JAMES W. FLANIGAN . . . Sansinena, California
 ARTHUR HAWES . . . Bakersfield, California
 FRANCIS L. HOLMGREN . . . Las Cienegas, California
 RALPH M. MCGEE . . . Sansinena, California
 DALE V. PORTERFIELD . . . Dominguez, California

25 YEARS

WILLIAM CHRISTIANSEN . . . Cut Bank, Montana

20 YEARS

W. P. McWILLIAMS . . . Santa Maria, California
 HORACE SIMON . . . Vinton, Louisiana

15 YEARS

THEROLD R. RAMSEY . . . Bakersfield, California
 CHARLES M. SCHWARTZ . . . Houston, Texas

10 YEARS

RALPH L. BLACK . . . Coalinga Nose, California
 GEORGIA F. CAPELL . . . Union Oil Center
 V. L. CUMMINGS . . . Bakersfield, California
 B. J. OLIVIER, JR. . . . Houma, Louisiana
 J. G. SCHAEFFER, JR. . . . Las Cienegas, California
 ELMA H. SLOAN . . . Midland, Texas
 EUGENE D. SMITH . . . Richfield, California
 VANE E. SUTER . . . Midland, Texas

EXECUTIVE

May 1964

25 YEARS

FRED L. HARTLEY . . . Union Oil Center

CORPORATE STAFF

May 1964

25 YEARS

FRED M. ANDERSON . . . Union Oil Center
 E. R. HAGEMAN, JR. . . . Research Center

20 YEARS

THOMAS R. JONES . . . Research Center
 PAUL G. NAHIN . . . Research Center
 LUELLA M. STICKLER . . . Research Center

15 YEARS

MARIE BRECKENRIDGE . . . Union Oil Center
 ROBERT L. JAMES . . . Union Oil Center

10 YEARS

DAVID F. COX, JR. . . . Union Oil Center
 DONALD W. STEWART . . . San Francisco

REFINING & MARKETING

May 1964

35 YEARS

LELAND M. DOTY . . . Junction Station, California
 MERRILL S. IMES . . . Richmond, California

30 YEARS

HUGH S. BAIMBRIDGE . . . Los Angeles
 ALVIN A. BIXLER . . . Los Angeles Refinery
 IVAN W. COFFMAN . . . Santa Margarita Station, California

ALBERT FIGONE . . . Richmond, California
 ARTHUR E. HAMBLIN . . . Los Angeles Refinery
 WILLIAM J. HARBERT . . . Los Angeles Refinery
 LESTER K. HICKLIN . . . Oleum Refinery
 MARY E. MACLEOD . . . San Francisco
 KARL M. RAINES . . . Los Angeles Refinery
 CHALMER L. RANSOM . . . Los Angeles Refinery
 HOWARD L. REEVE . . . Los Angeles
 VERLIN E. ROBINSON . . . Long Beach, California
 CHARLES L. SHERWOOD . . . Oleum Refinery
 ANDREW J. TURNER . . . Los Angeles Refinery
 ALBERT F. VAN NEST . . . San Diego
 WILLIAM F. WALDREN . . . Oleum Refinery

25 YEARS

HOWARD L. BIRCH . . . Cut Bank Refinery
 RALPH O. CLARK . . . Union Oil Center
 HAROLD S. MARTIN . . . Edmonds, Washington

20 YEARS

RALPH IRVING ASAY . . . Stockton, California
 WALTER L. COX . . . Santa Paula Dist., California
 ALBERT A. JONES . . . Los Angeles Refinery
 DANIEL MCGOLDRICK . . . Los Angeles Refinery
 WILLIAM R. ORVIS . . . Santa Maria, California
 MILDRED W. REDMOND . . . Seattle

15 YEARS

FRANCIS L. BANNER . . . Union Oil Center
 WILLIAM KARLAK . . . Avila Station, California
 J. R. MORTENSON . . . Los Angeles Refinery
 WILLIAM F. ORR . . . Long Beach, California
 MILDRED A. SCHOCHER . . . San Francisco

10 YEARS

JACK L. BOURDON . . . Los Angeles Refinery
 JACK CALDWELL . . . Sacramento

E. P. COPELAND . . . Oleum Refinery
 THOS. O. CROZIER . . . Los Angeles
 HARRY L. GORDON . . . Yakima, Washington
 RICHARD T. GREEN . . . San Francisco
 ROBERT R. JARRETT . . . San Francisco
 GORDON J. JENNINGS . . . Union Oil Center
 E. F. LESMEISTER . . . Richmond, California
 WILLIAM W. LOUGH . . . Union Oil Center

DEALERS

May 1964

35 YEARS

STEPHEN DONAHUE . . . Watsonville, California

25 YEARS

ANTHONY FRIAS . . . Newman, California
 E. F. JACOBUS . . . Downey, California

15 YEARS

GEORGE BAUER . . . Gladstone, Oregon
 H. D. GREER . . . San Diego
 MARION S. KITCHEL . . . Potter Valley, California
 J. B. WHITE . . . Petersburg, Alaska

10 YEARS

CHARLES BOUNDS . . . Ashland, Oregon
 COOPER BLDG. GARAGE . . . Los Angeles
 ROBERT FAWCETT . . . Los Angeles
 W. L. FELKER (Nov. 1963) . . . Gresham, Oregon
 ROCCO FERRARO . . . Los Angeles
 J. T. GRIFFIN . . . Van Nuys, California
 L. JACOBS . . . Ashland, Oregon
 JULIUS LIBERMAN . . . Los Angeles
 E. K. SHERER . . . Canby, Oregon
 R. E. SHERER . . . Canby, Oregon
 HARRY E. STUBBS . . . Los Angeles

5 YEARS

WESLEY ALLEN . . . Wickersham, Washington
 JAMES BEHRENS . . . El Monte, California
 BERNARD CLEAVENGER . . . Prosser, Washington
 BERNARD A. CRAWFORD . . . Oxnard, California
 JOHN FREY, JR. . . Los Gatos, California
 LUTHER HADLEY . . . Los Angeles
 HAROLD A. HEGLIN . . . Santa Susana, California
 PERCY HODGINS . . . Greenbanks, Washington
 LOUIS W. LINDQUIST . . . Bandon, Oregon
 CARL MARINO . . . Concord, California
 JACK MASON . . . Juneau, Alaska
 OASIS SERVICE #8844 . . . Tumacacori, Arizona
 CHARLES PRINCE . . . Colfax, California
 ED L. SPARKS . . . Sacramento
 H. H. STEWART . . . Canyon Dam
 G. L. TRUITT . . . Sutherlin, Oregon
 ALVIN WEBER . . . Roseville, California
 J. L. WILLIAM . . . Sacramento

SERVICE EMBLEM AWARDS
continued

CONSIGNEES-DISTRIBUTORS

May 1964

35 YEARS

P. H. ENOCH Madera, California
R. R. ROWE Baker, Oregon

30 YEARS

J. C. SCOTT Linden, California

25 YEARS

J. T. IRELAND Culver City, California

10 YEARS

TRI-POINT OIL COMPANY Madison, Indiana
HOSETH AUTO ELECTRIC COMPANY
Rapid City, South Dakota

5 YEARS

ROYAL TRITON DISTRIBUTOR ... Mogadore, Ohio
AUTOMOTIVE PARTS CO. ... Memphis, Tennessee

RETIREMENTS

April 1964

JOHN R. BEESON
Los Angeles Refinery July 18, 1927
ROMEO J. CALIGARI
Orcutt Refinery February 3, 1947
EDWARD M. CHAPIN
Los Angeles Refinery September 3, 1926
LOYD V. DUDGEON
Oleum Refinery January 5, 1945
EDWIN GILBERTSON
Orcutt Refinery April 1, 1946
MARJORIE H. HAUSWIRTH
Union Oil Center May 1, 1926
ELIAS H. HOLSTINE
Orcutt Refinery February 19, 1947
MARGARET W. KETTERINGHAM
Research Center November 1, 1948
WILLIAM M. KETTERINGHAM
Research Center August 17, 1923
BRYON A. McPHERSON
Oleum Refinery May 21, 1930
ARCHIBALD L. PLASKETT
Bakersfield, California July 18, 1951
DONALD A. ROGERS
Los Angeles Refinery October 12, 1948
MARY R. SHERIDAN
San Francisco March 23, 1942
FRANCIS P. WENTWORTH
Oleum Refinery April 3, 1925
ARTHUR B. YARNELL
Yorba Linda, California January 2, 1923

IN MEMORIAM

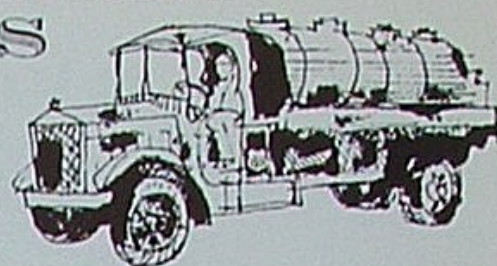
Employee:

LLOYD H. ANDERSON
Los Angeles Refinery February 18, 1964

Retirees:

JOHN E. REED
Santa Maria, California March 13, 1964
JOSEPH SCHLEGEL
Paso Robles, California February 22, 1964
RILEY T. STONE
Seattle March 14, 1964
JOHN W. TRAYLOR
Minden, Louisiana January 21, 1964
HARRY WINCHEL
Brea, California February 4, 1964
WILLIE B. ZUMWALT
Pomona, California February 28, 1964

**TURNING BACK
THE PAGES**



THE PANAMA PIPELINE

WHEN U. S. ARMY engineers arrived in Balboa in 1905 to begin work on the Panama Canal, they were practically met at dockside by salesmen from Union Oil Company. This upstart California oil firm announced it was prepared to supply fuel oil in limitless quantity.

Not only that, the salesmen boasted, Union Oil was prepared to deliver the oil right to the construction site. Astonished by this brash claim, the Army bid the company to do just that: deliver the oil to the jungles. And for nearly a decade, Union Oil supplied all the fuel oil used to build the Big Ditch. Deliveries averaged upwards of 75,000 barrels a month. Before it was over, Union oil was used to power locomotives, tugs, electric plants, compressor plants, water stations—in fact anything that could be converted from coal.

* * *

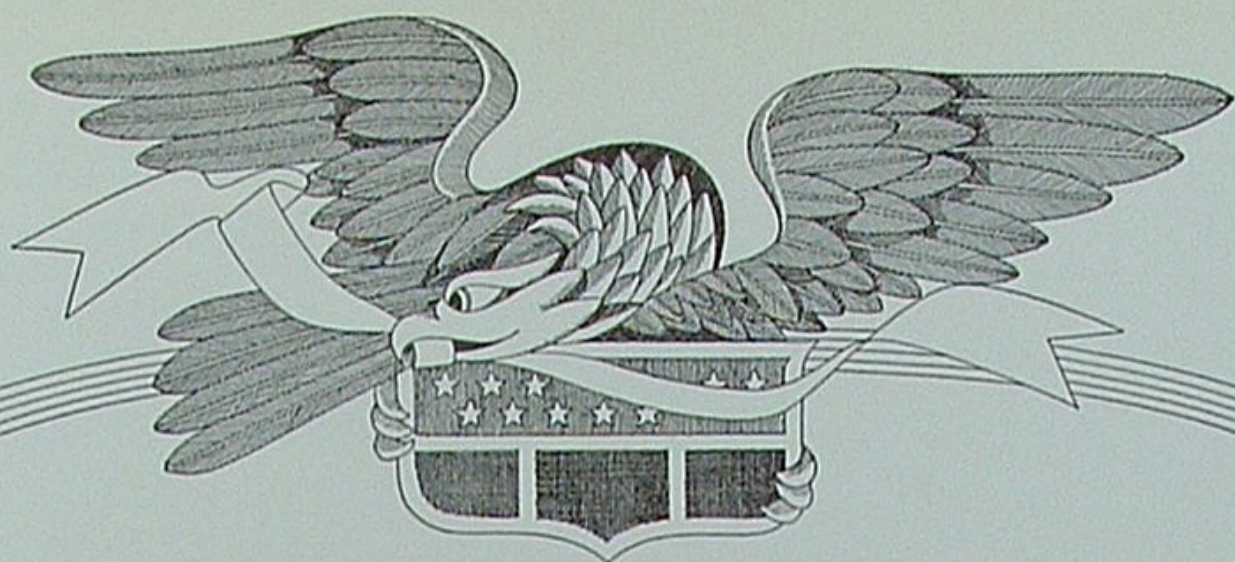
How WAS THIS infant western oil company prepared to offer front-door delivery in the jungles of Panama? Tankers brought it to Balboa; that was easy. From there the oil was shipped by a Union pipeline that traversed the isthmus of Panama. To all but a few, the pipeline was unknown.

Credit for the pipeline goes to an extraordinary salesman named John Baker Jr. Decades before the jet airliner gave wings to modern salesmen, Johnnie Baker was traveling 50,000 miles a year selling oil. As an indicator of his ability, the company had been forced to acquire six new tankers merely to keep up with his sales orders.

Among other places, Baker was selling huge quantities of oil on the East Coast. For some time he had been casting around for a way to shorten the long ocean voyage around the Horn. When President Theodore Roosevelt suggested completing the Panama Canal, which the French had abandoned, Baker hit on the idea of a pipeline across the isthmus. Thus, on his next eastern trip, Baker dropped in at the White House. T. R. thought the idea bully. By 1905, the pipeline was completed. The salesmen had their secret weapon.

* * *

ONCE THE CANAL was done, the government issued an order forbidding the pipeline from competing with the canal itself. The edict was unnecessary. Discovery of oil fields in Texas and South America made the pipeline uneconomical. Much of the pipeline was salvaged and shipped back to California where for years it served as a crude oil line for Los Angeles Refinery. But not before it helped supply energy for what was then the largest construction project in the world.



The Fundamental Freedom

Without it, all your other freedoms are in jeopardy

Every schoolboy in America is familiar with the freedoms guaranteed by our Bill of Rights — Freedom of Worship, Freedom of Speech, Freedom of Assembly, etc. But there is one more freedom without which all of our other freedoms would be put in serious jeopardy.

That freedom is ECONOMIC FREEDOM — the right of private citizens to own property; to buy and sell their goods and services on the free market; and to enjoy the rewards of their economic efforts as they see fit — all without undue restraint or control by our government.

If a government assumes a dominant role in the economic activity of a country — as it does under socialism or communism or dictatorships — it immediately gains the power to grant or withhold from the individual citizen the basic

economic requirements of food, clothing and shelter.

For such a government can tell you *what* work you will do, *where* you will do it, and *how much* you will be paid. In fact, it must do so in order to implement its national economic planning. Once a government has this economic control, it can control every other aspect of your life. And history proves that sooner or later it does so.

Consequently, there can be no enduring liberty and freedom for the individual without a reasonably free economy. That is, a society in which the bulk of the economic activity is carried on by private enterprise operating in a free market. A free economy is a *fundamental* freedom. Without it most, if not all, of the other freedoms granted by our Bill of Rights would eventually be taken from us.

UNION OIL COMPANY OF CALIFORNIA 

Refiners of the West's most powerful gasolines

This advertisement appeared in Look, U.S. News & World Report, Farm Journal, Arizona Farmer Ranchman, California Farmer, California Farm Bureau Monthly, Oregon Farmer, Washington Farmer and other selected publications.

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



How We Work...

When President Johnson signed into law a bill reducing our federal income tax, some persons foresaw a mountain of paperwork for payroll department employees. Not so, according to payroll tab operator Andre Lesperance of Union Oil Center, and he has a smile to prove it. Moments after this picture was taken, Andre placed that single IBM punch card on the stack of employee payroll cards and automatically reduced every Union Oiler's income tax deduction from 18 to 14 per cent.