



APRIL 1963

SEVENTY SIX 
UNION OIL COMPANY OF CALIFORNIA



NOW EVERY MILE YOU DRIVE
NEW ROYAL 76 GASOLINE
GIVES YOUR ENGINE A
**CHEMICAL
TUNE-UP**

***The West's most powerful premium now
continuously tunes your engine 3 different ways.***

1. Every mile you drive, new Royal 76 tunes your engine chemically, minimizes the formation of varnish and sludge deposits on pistons and valves.
2. Every mile you drive, new Royal 76 tunes your engine chemically, prevents pre-ignition knock and assures better timing of combustion for greater power and performance.
3. Every mile you drive, new Royal 76 tunes your engine chemically, cleans your carburetor and keeps it clean.

The results of this continuous chemical tune-up: your engine operates more efficiently, far longer. Your maintenance costs are reduced. And every mile you drive, you enjoy the perform-

ance of the West's most powerful premium. Change to new Royal 76 today, the gasoline that is so different it exclusively wears U.S. Patent No. 3,011,879. Drive in at the Sign of the 76, where you always get The Finest values in products and services.

You also get the West's most powerful regular gasoline (REGULAR 76) at the Sign of the 76.

We've changed the name and improved the product. It's still the West's most powerful regular. And now it cleans your carburetor and keeps it clean. You pay no more for Regular 76 than for other regular gasolines of major quality.

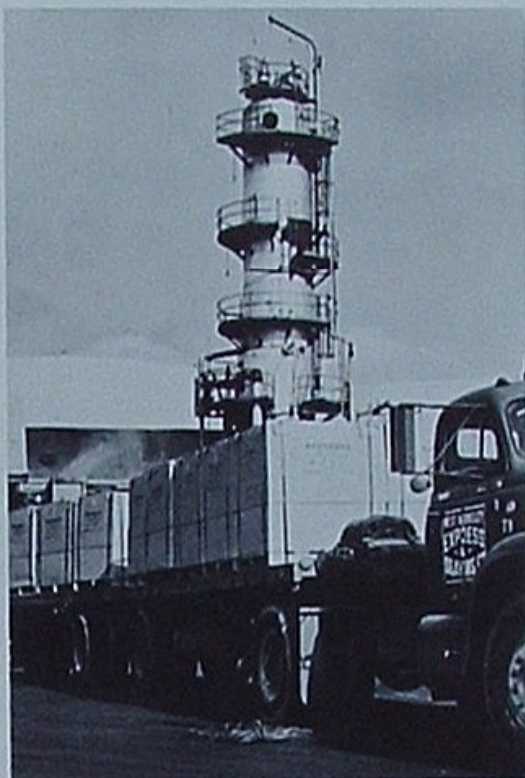
UNION OIL COMPANY OF CALIFORNIA



Snow Flies in Anchorage



Has Stability, Travels



Letter from Hong Kong



Secondary Recovery

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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, Los Angeles 17, California.

COVER: Mt. Alyeska, near Anchorage, offers the *Finest* and longest skiing season on earth—365 days a year. Enjoying the snow is Melinda Read, daughter of Union Oiler W. R. Read. Story begins on page 2.

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*Business and Pleasure
as Usual*

When snow

Facts and photos by Hugh Ackroyd

Only two years having passed since my last visit to Anchorage, I'm overwhelmed at the changes:

Blazing neon signs and street lamps give the main *drag* a nighttime resemblance to Times Square—beginning at 3 p.m. sunset these late winter afternoons. Imagine parking meters so far north, and every space at the curb occupied by a snow-dusted sedan! A dozen new office and business buildings include a fine, big J. C. Penney store. Modern shopping centers grace the suburbs, one of them boasting Alaska's first escalator. Schools are new, big, handsome.

Of course the out-of-town visitor misses those suburban moose who used to maintain their right-of-way across the city. But the Anchorage zoo has retreated only to the edge of town and is certainly the most genuine you'll find anywhere.

In one progressive respect at least, this land of the mid-day moon is ahead of wintry New York. The discovery by Union Oil on Kenai Peninsula of ample natural gas brought

to town both a new heating fuel and a new idea. Merchants installed a few heating outlets over their display windows as a means of discouraging frost. Pedestrians immediately felt the downpour of warmth and thought, "How nice of the merchants!" So, Anchorage has the first winter window-shopper warmers I've ever encountered.

But the people here insist Alaska winters are not severe. The man-about-town often goes hatless. His wife, if she wears a fur parka, is concerned less with warmth than with style. They shiver only at newspaper reports about the bitter cold in Chicago.

"But it's 21 degrees below zero right here, right now!" I pointed out to one of the hatless men-about-town. He turned out to be Lew Ellsworth, Jr.—Union Oil's commercial salesman at Anchorage—and co-chairman of an American Legion-Lions' Club baseball project now embracing 260 Little League teams from all over the state.

"Don't misunderstand us," he replied a few minutes later

Nobody hibernates at Anchorage in winter. As elsewhere in America, neon signs dispel darkness and parking places are hard to find. The stores offer something new—overhead warmers for window shoppers.

Practically the whole state is a winter playground where skiers from Europe, America and even Tahiti convene in large numbers each year to enjoy snow conditions at their longest and finest.

In style among the city's women is Alaska's famous fur coat—the parka.



flies in Anchorage

while sitting on snow-padded bleachers and wistfully throwing out the first ball (snowball) of oncoming spring. "This is the place where winters are born. Alaska is just as cold as ever. The snow flies. Turnagain Arm freezes over from shore to shore. If the oil barge is in when the thermometer drops, she's apt to stay for the duration. Over at our Union Oil marketing station, frost lines on the storage tanks tell us at a glance how much fuel we have left in storage.

"But winter's really a state of mind. Nobody here suffers. We crowd the bowling alleys and our fine curling rink just like you would down south. Basketball and indoor tennis keep the athletes in shape. And skiing? You oughta meet Russ Read!"

Soon I did meet Russ Read, Union Oil Exploration Department accountant, who currently is also chairman of the National Alpine Ski Championships and Olympic Games tryouts. Said Russ: "We're hosting the finest skiers in Eur-

ope and 84 competitors from every part of the United States.

"On Mt. Alyeska (Aleut word for Alaska) within an hour's drive of Anchorage, we have one of the greatest skiing resorts on earth—a giant slalom course second to none. A 2600-foot chair lift takes you upstairs from close to sea level. Besides a number of private cabins, we are completing a lodge to accommodate 100 overnight guests.

"Funny thing about that chair lift, when the parts arrived from Europe, local dock workers assumed they were oilfield equipment and sent 'em along to Kenai. It took weeks to round up some of the missing parts.

"One of the beauties about Mt. Alyeska is that it offers skiing the year around. When long summer days melt snow on the outer slopes, skiers just move into the shaded bowls. A big glacial bowl at the top has such marvelous acoustics you can hear a person talk a mile away. Beautiful scenery! Why not come up to my cabin and do some skiing this weekend?"

continued

WHEN SNOW FLIES IN ANCHORAGE *continued*

No hypnotist could have worked on me faster. Again the changing pace in Alaska was amazing. Read's cabin, inside and out, was a skier's dream. His wife, Jo Ann, kept the oil fire burning while Russ and his two young daughters, Cynthia and Melinda, headed for powdersnow on the ski slopes. The arctic sun, setting on a mountain rim over Turnagain Arm, lingered until four appetites were razor sharp. Never pity the poor Eskimo.

When Frank Kerth, Union's sales manager at Anchorage, wished me a happy flight home to Portland the next morning, I found the International Airport worthy of its name. Many of the big airliners flying over the top of the world stop at Anchorage to re-fuel before proceeding another big step across the world. In the hours that it took, 50 years ago, for a dog team to reach the next settlement, these swift jets

can carry a Tahitian ski team to Mt. Alyeska, fly a Norwegian consul to Japan, zip an Alaskan *sourdough* to Waikiki Beach, and some day perhaps bring the world to the Winter Olympics.

Behind much of this phenomenal development, it dawned on me, is petroleum. Not only jet fuel for the jets, gasoline for the snow-cruised sedans, natural gas for the homeowners and window-shoppers, asphalt for city streets and fuel oil for the ski resorts, but petroleum jobs for hundreds of people who have followed the Black Gold rush to Alaska.

Oil is where you find it, they say. But while you try to find it, a whole city can evolve.

Oddly, when my wife met me at Portland and spoke of going to Palm Springs to soak up the sun, I echoed Lew Ellsworth, Jr.: "Winter's really a state of mind!"



At dock side on Turnagain Arm, a barge, used to bring Union products from Seattle, is icebound.

But Arctic winters aren't cold, insists Union Oiler Lew Ellsworth, Jr., tossing out first pitch of spring.



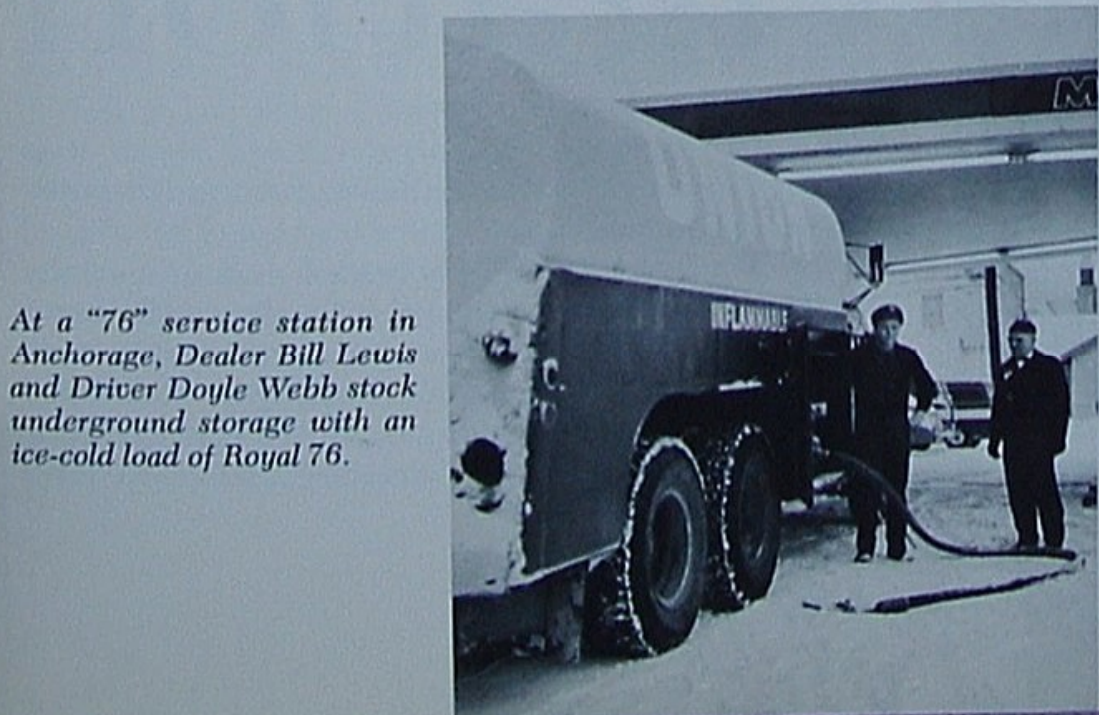


The Russ Reed family of Union's Exploration Dept. spend most weekends outside their oil-heated winter cabin on Mt. Alyeska trail.

Alaskans, like Canadians, enjoy ice inside as well as out. Seen curling is Duncan Robinson, a seismologist in our Exploration group assigned to Alaska.

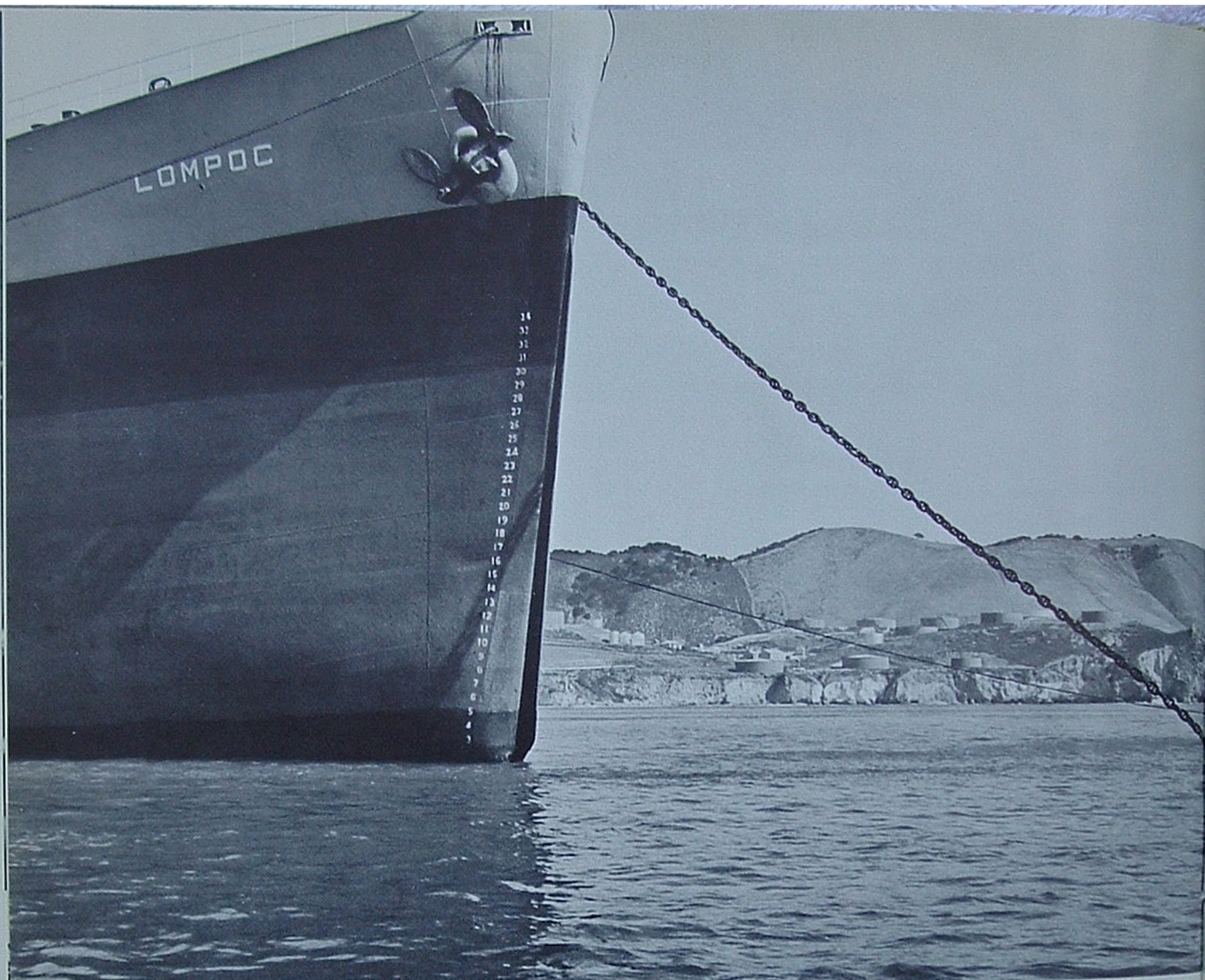


Winter flying was pioneered by the North's famous bush pilots. Union encourages the tradition.



At a "76" service station in Anchorage, Dealer Bill Lewis and Driver Doyle Webb stock underground storage with an ice-cold load of Royal 76.





*Increased Storage
at Coos Bay
and Eureka Prompts*

A neat trick in navigation

The navigational problem we tease you with today is this: If a loaded tankship requires a 35-foot deep channel, how can you use her regularly to carry "76" products into a 25-foot bay?

No, it isn't necessary to use barges, submarine pipeline, or wait for an exceptionally high tide. The tankship moves right alongside our Eureka Terminal pier to unload.

Generally speaking, the larger the tankship or the greater

its oil-carrying capacity, the lower the transportation charge.

But the size of tankships is limited — not so much by structural problems in the ships themselves as by water depths and docking accommodations in the harbors they must enter. Even the inner port of Los Angeles has a water depth of only 35 feet, which necessitated our building a wharf in the outer harbor's 50-foot depth to receive fully

At least 35 feet of channel depth is needed by our tankship Lompoc to enter Pacific Coast rivers and ports fully laden with Union Oil products. How then would you use her efficiently in a 25-foot bay?

loaded supertankers of the *Barracuda* class. The supers also require wider channels and larger turning basins.

This suggests why the larger vessels are not used in coastwise trade. Few bays and river channels are deep enough.

When colorful Humboldt Bay in northern California was first used by pioneering schooners from San Francisco in the 1850's, many a boat came to grief. A huge sandbar, rising to within a few feet of the ocean's surface, blocked the entrance. Large boats went aground on the reef, others capsized in the raging surf. It has taken a century of jetty construction and dredging to provide and maintain the present 25-foot channel leading through Humboldt Bay to Eureka.

Coos Bay, farther north in Oregon, presented a less inhospitable welcome to its discoverers and pioneers, but has been the scene of an equally long battle against the tides. Here, industry's big lumber freighters and tankers can depend on a 35-foot shipping channel.

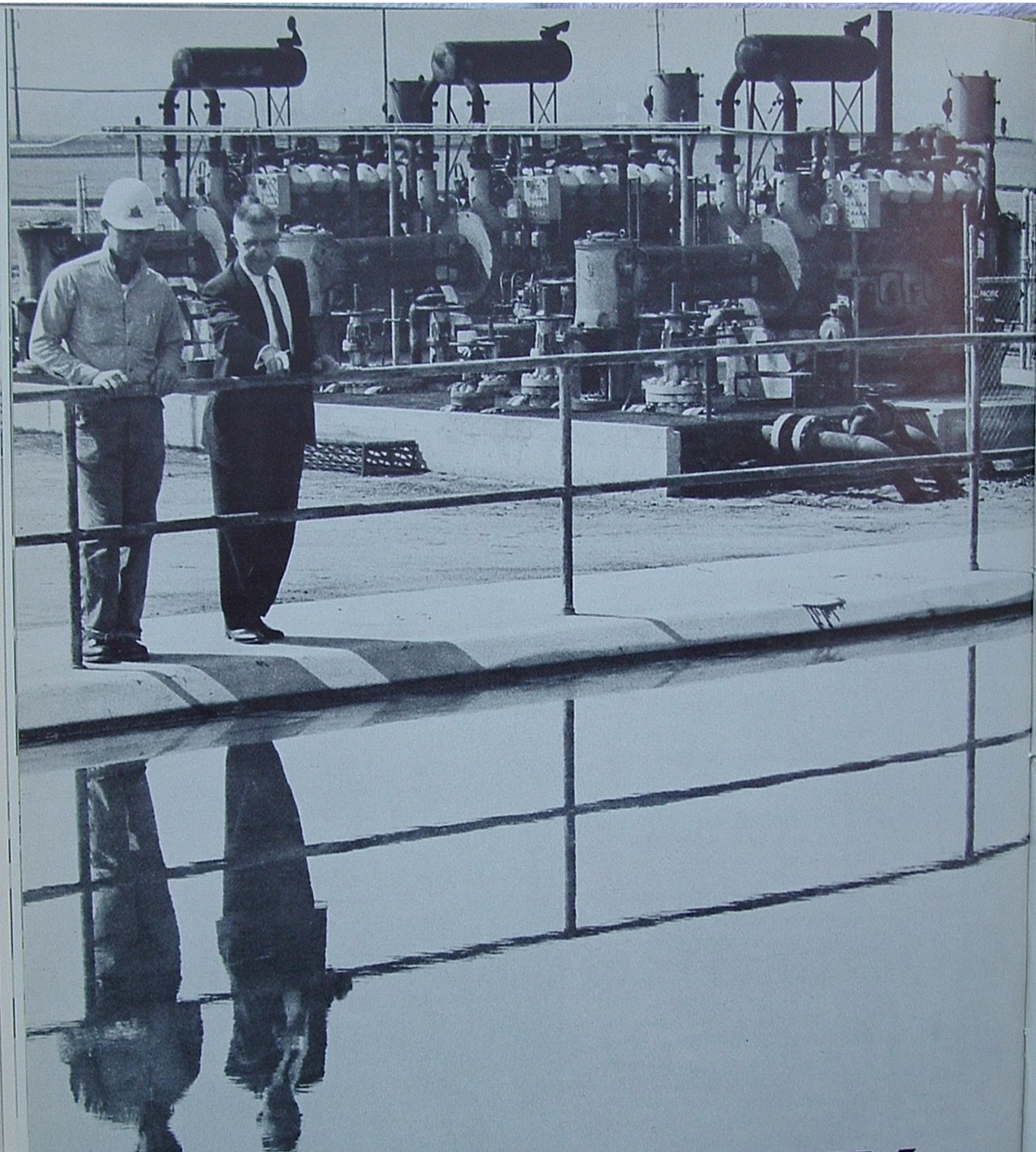
We mention Humboldt and Coos Bay in particular because both have important Union Oil marketing terminals and are involved in our Marine Department's tricky delivery scheme.

Union Oil's chartered tankship *Lompoc* was approved by Marine Manager "Cap" Povey and his mates as about ideal for coastwise trade. Fully loaded, she'd clear the muds of Carquinez Straits, Willamette River, Puget Sound and Coos Bay with two or three feet of clearance to spare. But what about the 25-foot limitation of Humboldt Bay?

Well, if you haven't already solved it, the solution is quite simple. The *Lompoc* serves both points on a single voyage. On the way north from Oleum Refinery, fully loaded, she bypasses the first delivery point, Eureka, and discharges half or more of her "76" cargo at Coos Bay. On the return trip she rides high enough in the water to enter Humboldt Bay and empty her cargo tanks. Since tankships usually return to their supply ports empty or in ballast anyway, little or nothing is lost by carrying the Eureka cargo an extra few hundred miles.



California's Humboldt Bay is growing in commercial importance as the city of Eureka expands. The Lompoc uses a 25-ft. channel here regularly to supply "76" markets in the Redwood Empire.



SECONDARY RECOVERY

Operator Ben Siler and Secondary Recovery Coordinator W. F. "Bill" Cerini are reflected in a pool of treated brine water at Dominguez oil field near Los Angeles. High pressure pumps in background force the water through oil-bearing formations. Water injection is one of the three secondary recovery methods described in this article.

How production and research men work together to keep new oil fields young, bring old fields to life again

On southeast New Mexico's Mescalero Ridge, there's an oil field called the Caprock Queen. The Caprock Queen was a pretty good oil field when it was drilled in the early nineteen-forties; but by 1961 production in the southern part of the field had declined to about 700 barrels a day.

Today, the old Queen is springing back to life; she's in her second childhood.

During this month of April 1963, the Caprock Queen will produce around 2,500 barrels of oil a day. Before long, subject to the rules of the New Mexico Oil Conservation Committee, production will more than double.

Oil fields don't have a second childhood like the Caprock Queen's if they're left to their own devices. They start out young, healthy, and full of energy. First thing you know, they begin getting tired. They lose their energy and down goes the production, never to return.

Yet what happened to the Queen in New Mexico is happening to other California, Texas, and Montana oil fields Union Oil is interested in.

Behind this amazing rejuvenation of oil fields—and the equally amazing way young fields are being kept young—is a program called "secondary recovery." The program is adding millions of barrels to our storehouse of oil. In years past, that oil would have stayed in the ground, lost forever.

Union Oil Company's net proved reserves of crude oil total about 500 million barrels. Nearly 100 million barrels of these reserves are the result of secondary recovery.

Right now, we're producing 10,000 barrels of oil a day through secondary recovery—one out of every 10 barrels we bring to the surface. No single oil field, not even the largest we own or have an interest in, brings us as much oil each day as we get from secondary recovery.

In spite of this return, our experts say, we've only begun to capitalize on the potential of secondary recovery.

Two of these experts, W. D. Owens and J. E. Sherborne, guide the operations and the research ends of the Company's secondary recovery activities. Owens is director of secondary recovery; Sherborne is manager of production research. Each likes everything about secondary recovery except its name. They claim the term is misleading.

"We ought to call it 'optimum recovery,'" says Owens. "Secondary recovery sounds like something you try after you've tried everything else."

"Call it 'increasing recovery efficiency,'" says Sherborne. "The sooner we apply it to an oil field the better."

Considering the way Union Oil handles its oil fields these days, both men are right. Calling what we do "secondary recovery" is misleading. We use the term because it's accepted industry-wide; but here's what it means in Union Oil Company.

We discover a new field, a reservoir of oil deep down in the earth's rock. We drill a well into the reservoir and oil starts coming into the hole. The oil either flows to the surface of its own accord or we pump it out of the well.

Oil comes into the well because the reservoir is under pressure, because it has energy. In some fields the energy comes from natural gas dissolved in the oil. When you poke a hole into the reservoir, expanding gas forces oil from the rock into the hole.

Or oil may drain into the well by gravity. Or water under pressure may push the oil out of the rock.

Whatever its source, a field's original energy seldom lasts long enough to force *all* the oil from the reservoir. On the average, you'll do pretty good to get 25 per cent primary recovery—leaving 75 per cent of the original oil sitting there in the rock. It's that 75 per cent our secondary recovery people are after.

So far they've learned how to get, on the average, another 15 per cent of the original oil—and that's just like finding a whole lot of new oil fields.

At Dominguez, a 40-year-oil field near Los Angeles, we expect to recover 35 million barrels instead of the 25 million originally estimated for the field. We'll get that extra oil because of secondary recovery.

In the Moss Unit of the South Cowden Field in west Texas, we're producing about 700 *extra* barrels of oil a day because of a secondary recovery program started in 1961. We expect to get many millions of barrels of additional oil from this field.

Union Oil Company of Canada is going into secondary

continued

SECONDARY RECOVERY *continued*

recovery in a big way in its Milligan Creek Field, British Columbia. It was estimated Milligan Creek would produce 14 million barrels, if we used the most efficient "primary" recovery methods. But water flooding has been started, and now the total production estimate has been doubled.

We go after the extra oil in two ways.

In new fields, our people try to maintain the reservoir's initial energy as long as they can. They return natural gas to it or perhaps force water into it to keep the pressure up.

Coalinga Nose, a field Union Oil operates in central California, is a prime example of pressure maintenance. The Coalinga Nose field produces more oil from each well each day than any other field in California—because we were able to go to secondary recovery methods while the field was relatively young. It is expected to have one of the most productive lives of any California oil field.

In the older fields, we add *new* energy. The most common method is water flooding, pushing trapped oil out of the sands with water. In some fields they get the push with propane or natural gas. They even use such exotic methods as setting fire to a portion of the oil in the reservoir. The burning oil builds up pressures which force more oil from the rock.

The Moonie field in Australia and the Orcutt field in California are examples of our approach to the very new and the very old oil fields.

As this is written, we've drilled 11 producible wells at Moonie. But we can't open up any of them until late this year when a pipeline will be completed to Brisbane.

While we wait, our engineers and research men are studying the field, figuring out how it should be produced. By the time that pipeline is laid and the oil begins to flow from the ground, they'll have put together a lifetime plan for Moonie: the most efficient way to get the most oil out of the ground.

Orcutt, on the other hand, was a big field when Union Oil was in its 'teens. The Company's first well there was Graciosa No. 2, completed in 1902. Now, after 61 years, Orcutt's natural energy is gone.

Here, our secondary recovery people are renewing the field's energy with a massive "pattern-type" water flood. And massive is the word. For every producing well, there'll be an injection well, approximately 65 of them all told. And for every barrel of secondary recovery oil we get from Orcutt, we'll pump about 10 barrels of water into the ground!

Look at "massive" another way:

Union Oil pioneered water flooding in California on its

Richfield property east of Los Angeles. That was back in 1944. Owens estimates at least a million-and-a-half barrels of EXTRA oil will be produced from Richfield because of water flooding. Multiplying it out, 630 million gallons of water will be pumped into the ground.

(In case you're water-conscious, as most people in the West are, water used for water flooding isn't the same as that used for irrigation and drinking. We use waste water produced along with oil or brackish water from shallow formations.)

Union Oil has been practicing secondary recovery in one form or another ever since that pioneer flood two decades ago. Today, we operate 33 secondary recovery projects and we participate in 47 more with others. Both these figures will go up in 1963; this will be our most active year to date.

"Our engineers and research scientists are surveying every field the Company's interested in to decide the best way to handle it," Owens says. "We're following a three-point program:

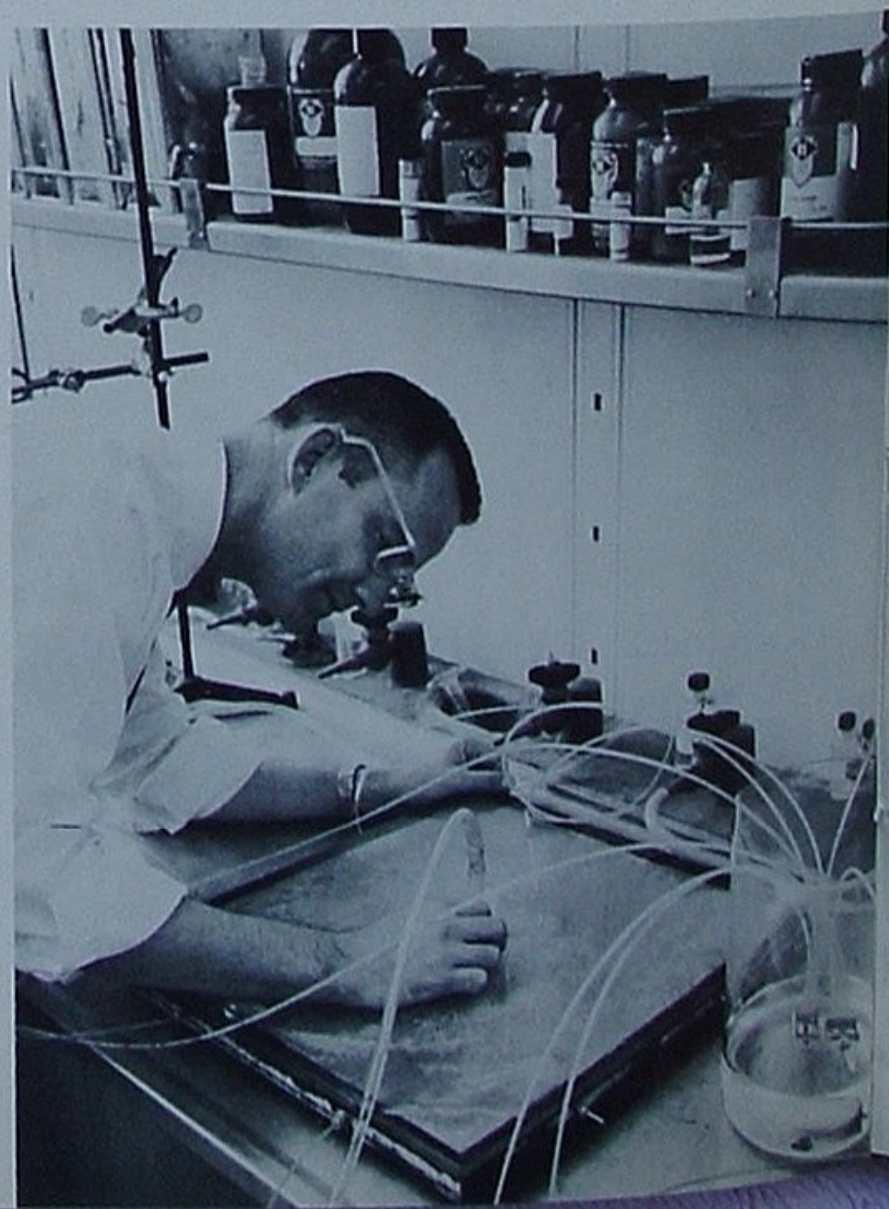
"First we're studying our existing projects to see what we can do to improve our methods;

"Then, we plan to start new secondary recovery projects, to do everything we already know HOW to do to get extra oil out of the ground;

"Finally, we're looking for new ways to go after the oil. We're trying to find ways of doing things we don't know how to do yet."

This last, developing new approaches, is the job of the men in Sherborne's Production Research Division. Their target is the 60 per cent of the original oil we must now leave in the ground.

Scientists at Union Oil's Research Center search for ways to improve secondary recovery methods. Chemist R. K. Knight is working out a problem with a model of an oil field. Model is made of crushed glass held between two solid panes of glass. Liquids flow from "injection wells" (tubes along edge of model) to "oil well" in center just as they would in underground rock.



According to Sherborne, Research attacks the project from all directions.

"Two things determine how much oil we get out of the ground. Number one is the energy we supply. We're learning all we can about our oil fields so we'll know how best to attack them, how to preserve or add energy.

"Number two is the efficiency of the wells themselves. The holes we drill occupy only a small fraction of the area of an oil field. They're like straws in a giant ice cream soda. We try to make every well the most efficient receiver of oil—or the most efficient injector—we can."

Union Oil has been doing production research for more than 30 years. Since 1949, the production research staff has grown from five or six men to 65. The sum of everything they've learned in those years is being focused on secondary recovery.

Research's interest starts with the drilling of the actual well itself.

Quoting Sherborne again, "When we drill a well, inevitably we do some damage to the formation, something to prevent the well from being a perfect receiver for oil. Even the ions, the electrically charged particles in the water we use, have some effect on our production. But we're finding out how to do a minimum of damage."

Drilling fluids developed at Research are used throughout the world. Research methods for completing wells—for converting them from holes in the ground to producing oil wells—enable us to lengthen their life substantially.

Such far-out studies as the effect of bacteria are helping us produce more oil. Bacterial growth builds slimes and speeds corrosion of metals. Both the slimes and the corrosion products can plug oil sands and slow the flow of oil.

Our research men have techniques for determining exactly how fast energy-building water should be pumped into the ground and how fast oil should be taken out to get the maximum recovery. They study such mechanical matters as the size of the pores between the grains of sand in a reservoir and the chemistry of the oil, gas, water, and minerals it contains.

Both the Exploration and Production men and the researchers are carrying an educational program into the field.

Owens and Sherborne agree: everyone connected with secondary recovery—field operator, engineer, superintendent—must know exactly what we're doing and why we're doing it.

"It is a team effort," says Owens. "Only the closest cooperation between research, engineering, and operations will make the program succeed as well as it can, and produce the most profit for Union Oil Co."

Actually, the study of the chemistry and physics of oil field production is so vast even the entire industry, working together, hasn't been able to solve all the problems. Most operators are anxious to publish what they learn and to see others carry their work further ahead.



This is one of nine water wells supplying the waterflooding project at the South Caprock Queen Unit in southeastern New Mexico. (L-R) Area Foreman Don Bell, Unit Foreman Gene Walker, and Unit Engineer Dick Butler.

There's cooperation from another standpoint.

Few operators own entire oil fields; usually, many people have interests. So before you start stuffing water down one of your wells, you better consult your neighbor. He may get all the oil—or all the water.

Take the Caprock Queen field again. It's operated as a voluntary unit—as though it had only one owner. This field, and the secondary recovery activity, involves the cooperation of 33 operators, plus the State of New Mexico, the United States Geological Survey, and a host of private landowners!

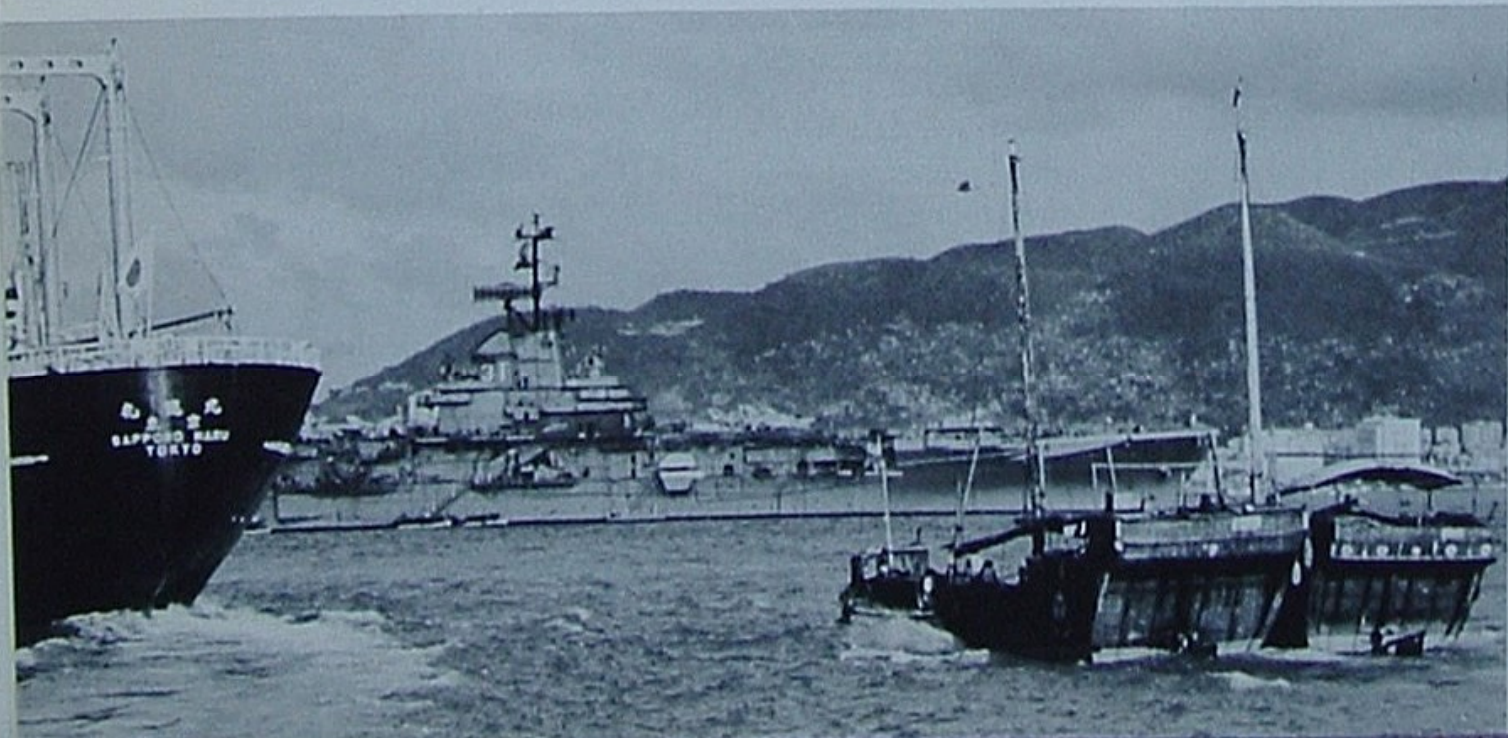
Getting cooperation is really no insurmountable problem, according to Owens. "Most people are eager to help," he says, "because the returns from secondary recovery are so great."

They are great. Our secondary recovery men are playing for high stakes.

Union Oil Company, as we said, owes one out of every ten barrels of its production to secondary recovery *today*. Tomorrow? Our future prospects seem unlimited: technological advances, more fields being brought into our program, more money being spent . . . in the experts' opinion we're just getting started.

When they look at the 12½ billion barrels of oil already produced by California fields, and knowing more than twice that amount still remains for those resourceful enough to figure ways of bringing it from the ground . . . they get stars in their eyes!

In the thick of Hong Kong's traffic, at right, are five executives of Unoco Limited: Bill Nero, Steve Nosler, President "Kem" Cadwell, Frank Culling and Jim McGee. The accompanying story tells of their orientation.



Nearly as crowded as the land is the great natural harbor separating Hong Kong Island from mainland China. Junks like the two under tow ruled these waters before the world's great naval and merchant fleets were imagined.

Recently, F. K. "Kem" Cadwell, president of Union Oil's foreign marketing subsidiary, Unoco Limited, was in Los Angeles for a brief visit. We told him we'd like to have a story about his people and how they adapted themselves to life in the Orient. Kem returned to Hong Kong, and shortly after, we received the letter reprinted below.

LETTER FROM HONG KONG

by Mike Harkins

In January, 1962, following a year-long appraisal of the territory, F. K. Cadwell, William C. Nero and their families arrived in Hong Kong to set up a business and to commence housekeeping in the Orient. They were welcomed by several already well-oriented residents of the Far East: Mr. and Mrs. James H. McGee and Mr. and Mrs. Frank Culling. Shortly afterwards Steve Nosler (from the Home Office in Los Angeles) and his wife joined the group.

Kem Cadwell, president of Unoco, a seasoned sales campaigner for the Company since 1929, was already aware of the many problems facing him. He had been to Hong Kong several times previously. Bill Nero, fresh from 25 years of accounting in the Comptroller's Department, was new to the area as was Nosler.

The job all five men faced was to establish Union Oil's new subsidiary, Unoco Limited, on a sound and profitable basis. (The term "limited" is hardly appropriate to the corporate entity. It is "limited" only in terms of the world outside the United States, Canada, and Mexico.)

The views and reactions of the five families, one year later, add another fascinating chapter to the story of Union Oil.

Here, in Hong Kong, just to find a place to live or park a car proved almost more difficult than conducting a business. Living accommodations presented the first of many problems. Houses in Hong Kong are virtually unobtainable; apartments suitable for occupation by people in the middle and upper income brackets are anything but inexpensive. Indeed, this matter of apartment rentals is probably the most acute of all problems in Hong Kong, where landlords expect to recover the cost of building within a very few years.

Kem Cadwell and his family elected to live out of town, at Deep Water Bay. Bill Nero, Jim McGee, Frank Culling, and Steve Nosler rented apartments in the area known as "Mid-Levels," that is, half-way up the Peak, the island's highest mountain.

From this vantage point, they look down over the business center of Hong Kong towards one of the world's most beautiful harbors, where huge ocean liners and cruise ships lie at anchor among the Chinese junks and small sampans that are the home of Hong Kong's population of water dwellers. It came as a surprise to the Unoco people to learn that 120,000 of Hong Kong's teeming millions live out their lives, generation after generation, on these junks and sampans without sleeping a single night on dry land.

Then, there was the problem of servants. Few Americans or Europeans in Hong Kong can do without servants. And servants are not too easy to find. Once found, they are cherished as jewels of great price. The servants, in return, quickly develop a loyalty that is rarely met with elsewhere.

Marketing presents no problem to the Unoco wives. While there are no supermarkets in the American sense, there are large grocery stores that stock foodstuffs imported from all over the world to satisfy the demands of a truly cosmopolitan community. Once the family servants learn the preferences of the Unoco household—and they do so with amazing speed—little supervision is needed in the matter of providing food.

As for Kem Cadwell and his men, the initial problem of obtaining office accommodations and the employment of local staff proved a bigger headache than they could ever have imagined. Office space in Hong Kong is even more difficult to find than living accommodations. But, eventually, Unoco Limited was housed in one of the city's tallest skyscrapers: Takshing House, in the heart of the downtown business district.

It is always difficult for newcomers to the Orient to solve the problem of recruiting a staff that must, of necessity, consist almost entirely of Orientals. Their approach to work differs in many respects from that of the Occidental. The period of adjustment sometimes produces painful and puzzling experiences.

Unoco Limited has been fortunate because, like many

continued



The city as seen from ferryboats crossing to Kowloon reveals modern office buildings and fine homes on "Peak."

President F. K. Cadwell and staff have "taken their coats off" to get Unoco Limited established on a sound basis.



LETTER FROM HONG KONG *continued*

American concerns, it offers more congenial working conditions than those afforded by many of the older-established business houses. This fact, allied with a patient approach to the problem of adjustment, has resulted in a working accord between Unoco executives and their staff unusual in so short a space of time.

One of the more bewildering features of life in Hong Kong that confronted our people on their arrival was the apparently chaotic motoring conditions. There are 60,000 motor vehicles registered in Hong Kong and only a few hundred miles of highway. The frustrations attendant upon getting to the office and home again during rush hours were enough to try the patience of a saint; but our people have the consolation of knowing conditions are nothing like or as bad as those of say, Tokyo or Osaka.

Although there are still many problems to be solved in a community so predominantly Chinese, the process of adjustment becomes easier with experience.

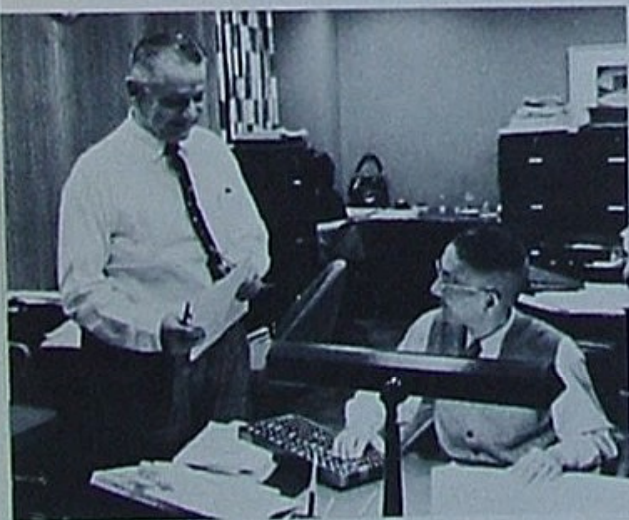
Cadwell says, "To hear us tell it, one might think that

Hong Kong is nothing but chaos, but this isn't true. It is strictly a matter of adjustment to a pattern of business practice and personal existence that has no counterpart in any other part of the world.

"The adjustment is a slow and sometimes difficult process. But we are pleased to say the process becomes progressively simpler as time goes on and as we learn to appreciate the customs and the attitudes of the Orientals among whom we live and with whom we do business."

All the Union Oilers agree that being "foreigners" in this showplace of human freedom places obligations on their shoulders they never sensed at home. The feeling of being such a tiny minority among millions of keenly observant Orientals impels the typical American businessman to represent his people and his country and his company well.

Unoco's Frank Culling and Accountant A. Y. Ling affirm that East and West have met.



Unoco Limited's realm of business activity includes all the world outside North America. Here, at Bangkok, Thailand, Bill Nero and Jim McGee are checking on the first delivery of T5X lubricating oil to Distributor John K. C. Ting and his Marketing Manager Samuel K. Szeto of North Malaya.



business highlights

- Union Drillers Eye Philippines
- High Cost of the Finest Oils
- Meter Prover Checks Oil Shipments
- New Union Oil Station Design
- Problems of Storing Crudes for Asphalt
- Getting Our Name Before the Public

LUZON IS NEXT TARGET FOR UNION OIL DRILLERS

Union Oil Company has begun an extensive program of exploration on the island of Luzon with the Philippine Oil Development Company, Inc., and the San Jose Oil Company, Inc.

The area involved amounts to approximately 2,000,000 acres, about half of which is located in the central Luzon valley sedimentary basin. Geological and seismic work has revealed the presence of several large untested structures within the concession area.

Under the agreements, Union will drill a minimum of 40,000 feet of hole on at least three structures, with the first well expected to start operations in June of this year at a location approximately 60 miles north of the city of Manila. All operations will be conducted by Union Oil Company of the Philippines, a wholly owned Union Oil Company of California subsidiary.

THE HIGH COST OF PRODUCING THE FINEST OILS

Ever wonder why the refining of crude oil was such a complex operation—a job requiring the addition of costly new facilities every three to five years? Looking back, many Union Oilers can remember the Lube Oil Plant revisions at Oleum Refinery in 1948. In 1951, there were the Refining Program 104 facilities

at Los Angeles Refinery. Four years later came the Manufacturing Plan 30 facilities at Santa Maria and Oleum. In 1957 there were the Uni-finer and Platformer additions at LAR. And in 1961 we saw the Product Quality Improvement Program.

Each of these revisions in our refining scheme was required for good reason: To keep pace and anticipate the public's requirement for finer and finer petroleum products, and to meet the exacting demand of new automobiles and machinery. Then, too, there was the reason most obvious to our stockholders and employees: to produce quality products at the least cost.

A long time ago, the raw materials from which our products were made came exclusively from California crudes. As late as 1950, we were making about 41 per cent of our crude into residual fuel oil. But the day of the heavy fuel oil user is passing. No longer do the big locomotives huff and puff over the face of our western United States. Now smoothly operating diesel locomotives pull bigger loads more economically. In the air, more and more passengers are flying to their destinations via the power of kerosene-type fuels.

This means a shift in the products we market. This also means we must be able to take the crudes that are available to us and convert them into the products that will satisfy the needs of the public we serve. Today we get our crudes from many places in the world in addition to Califor-

nia. Some of our crudes, like those from the Santa Maria area, are so "like-molasses-in-January" that a diluent must be pumped into the ground to dilute them. On the other hand, some crudes have less than four per cent residual material.

With more modern refining tools, our production of fuel oil has dropped from about 41 per cent to about 18 per cent of the crude run. When Unicracking facilities are in operation late in 1964, we anticipate this will be reduced to 16 per cent.

That's progress, and that's why we need new facilities.

from John W. Towler

'METER-PROVER' CHECKS ACCURACY OF OIL SHIPMENTS

From the time oil leaves its hiding place thousands of feet down in the earth until it enters a customer's tank as Royal 76, it rarely, if ever, sees daylight. Raw material and finished products live in a world of steel pipelines, tanks and refining units.

This closed system creates a problem. How do you measure the quantity or flow of a material you never see?

The Pipeline Department is the first to meet this problem as crude oil from the fields moves through its 1500 miles of pipelines.

The accepted method of measuring oil has been to put it in a calibrated tank and measure the oil's depth with a steel measuring tape. For each tank, there's a table of figures showing just how much oil it

continued

business highlights *continued*

contains for each fraction-of-an-inch of height. In gauging, you read the oil measurement off your tape in feet and inches, then refer to the table for the equivalent figure in gallons or barrels.

Tank gauging is still an accepted method of measuring a volume of oil. But in recent years, the industry has also begun using meters to find out how much oil it buys, sells or moves through a pipeline. The meters work similarly to those that deliver Royal 76 to your car.

Accuracy is the key word when you measure volumes of crude oil. So, as with tanks, meters must be calibrated or "proved." Proving relates the true volume of oil passing through the meter to the numbers shown on its counter.

During the early days of metering, meters were proved in the same way service station meters are proved by the state. Oil was passed through the meter and collected in an accurately calibrated tank. If any difference occurred between the two

measurements, the meter had to be adjusted and rechecked.

Now when they prove a meter, men in the Pipeline Department use a device called, logically, a "meter prover." In the accompanying picture, you can see one of the trailer-mounted gadgets being used by District Gauger Clarence Truesdale in our Guadalupe Field.

The meter prover consists of a smooth-walled section of pipe with electronic switches at each end, plus a piston that travels in the pipe. The volume of the pipe, between the switches, is determined with U.S. Bureau of Weights and Measures calibration equipment.

In use, the meter prover is connected into a pipeline in such manner that the oil will flow through it after passing through the meter being checked.

An electronic digital counter is wired to the meter counter mechanism. Each number displayed on the electronic counter represents a precise fraction of the meter counter

units of measurement.

Oil goes into the prover and shoves the piston through the pipe cylinder. Starting into the calibrated pipe segment, the piston trips a switch that starts the electronic counter. Leaving the segment, it trips a second switch to stop the counter. The "readout" on the counter is then compared with the known volume of oil in the section of pipe. A correction factor can then be computed.

The "electronic-volumetric" method is much more accurate than comparing meter readings to tank gauges, and takes only one-fourth the time.

Our Pipeline Department takes no chances with its meters. Those measuring oil shipped or sold to others are proved every month.

from J. W. White

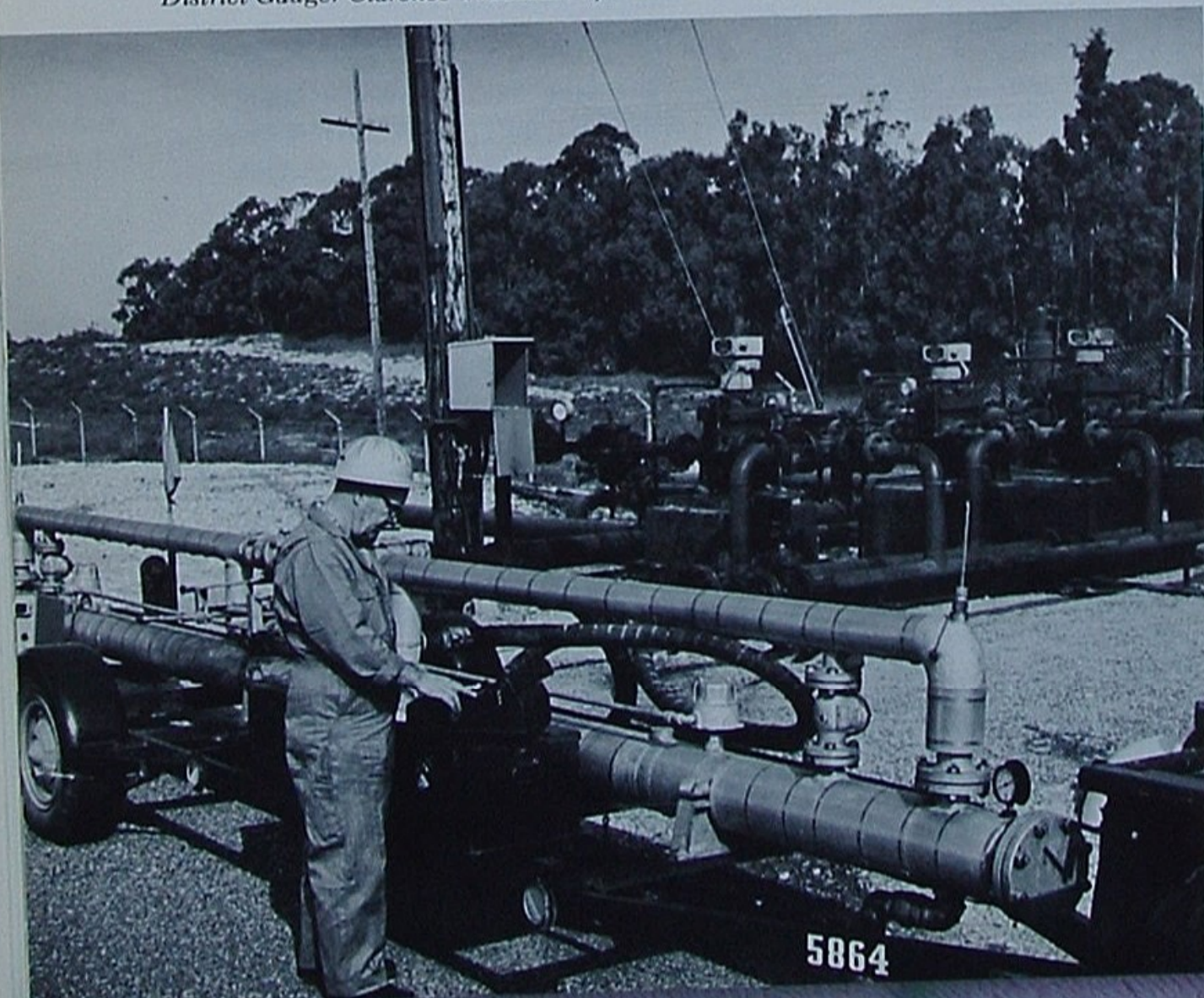
A DEALER SHOW, NEW STATION DESIGN AND MINUTE MAN PRIZES

CURTAIN GOING UP: The annual Union Oil dealer meeting and show has been touring our sales divisions to bring dealers a report of the new promotions and plans for the coming year. The show, by the title of "Curtain Going Up," featured an excellent cast and proved to be one of the most outstanding of our dealer shows.

NEW STATION DESIGN: The latest in modern, attractive service station design has been built into a "76" retail unit at Century Blvd. and Prairie in Los Angeles. This modified Type "300" station, on the route to Los Angeles International Airport, includes changes aimed at the ultimate in customer appeal and comfort as well as dealer utility. It includes improved styling of sales room, rest rooms and office space.

THE ATOMIC AGE: An insight into the peaceful uses of atomic energy was afforded recently by our delivery of 6,500 gallons of Guardol

District Gauger Clarence Truesdale operates a meter prover in the Guadalupe Field.



Motor Oil to the General Electric Company at the Hanford Atomic Energy Works in Richland, Washington. The General Electric Company, operating in an area the size of Rhode Island, is the primary contractor for the Atomic Energy Commission. Here research is conducted on the uses of nuclear energy to create and distribute electrical energy for the western states. This project employs approximately 8,500 people.

Our sale of Guardol is only one of the opportunities Union Oil Company has had to participate in the work conducted at this location.

BATTERY PROMOTION: Sparking Minute Man sales at the moment is our "Powerful Value Promotion" that affords dealers and their employees the opportunity of winning merchandise prizes for selling Minute Man batteries. Included in the prizes are color TV's, stereo hi-fi consoles, wrist watches and other valuable merchandise awards. The interest generated in this promotion is evidenced by the large volume of stubs forwarded to our manager of TBA for drawings for prizes during the months of March and April.

from C. E. Rathbone

NEEDED: MANY SHARP MINDS AND PENCILS

Having the right Union Oil product at the right place at the right time takes some sharp thinking and pencil work. For instance, take the production of asphalt products at our Oleum and Orcutt refineries. In the winter, during the rainy season, not only do you retreat to the shelter of a snug room, so do the people who build and repair our highways. Net result: Asphalt demand drops.

But when the weather is warm, out come the road builders. They then demand asphalt by the carload. In fact, consumption is greater than the daily production rate of the spe-

cial crude used to make asphalt. So it's necessary to hoard the crude during cold months, to assure a sufficient supply for asphalt production during the warm months. This requirement is tempered by another important facet: At the end of the annual cycle, the tank inventory of crude should be at a minimum so unnecessary crude inventories won't be carried forward.

To accomplish this requires the combined efforts of the Crude Oil Supply staff, the Marketing specialists who estimate asphalt sales, and the Refining Planning staffs who plan the crude runs.

from John W. Towler

FINEST MARINE TERMINAL USES FINEST PRODUCTS

Los Angeles' newest marine gateway to the Orient is a \$16 million ship terminal sprawling over 50 acres of waterfront real estate at San Pedro harbor.

Dedicated as the *Finest* marine terminal anywhere—also the costliest—it is capable of handling five ocean vessels simultaneously and will accommodate the largest passenger ships afloat.

The terminal is owned by the City of Los Angeles and operated by Consolidated Marine, Inc., a subsidiary of the three steamship firms that will use the terminal, American President Lines, American Mail Line and Pacific Far East Line. First passenger ship to use the docking facilities after dedication on March 20 was APL's *President Cleveland*, newly ship-shape after its own \$2.5 million face lifting.

In keeping with its claim as the *Finest* marine terminal anywhere, the sign of the 76 wasn't far away. A substantial portion of the bunker fuel used by the American President Lines is supplied by Union Oil Company.



Dianne Nelson approves

TURNING IRON INTO SIGNS—THE FAST WAY

By now nearly everyone has heard of our two new gasolines, Royal 76 and Regular 76. Getting the new names before the public was a big job. One typical problem: How to get four miles of enameling iron transformed into attractive pump emblems, get them installed on 32,000 pumps, and do it in 45 days instead of the usual three or four months.

Advertising, Merchandising, Marketing Engineering and Purchasing combined forces to plan the design, choose the colors, set production, coordinate transportation and oversee installation throughout our retail marketing areas.

Suppliers, working around-the-clock, averaged 2,000 emblems a day. Painting contractors worked overtime to complete the installation for "unveiling" March 25.

The new pump emblems are a three-dimensional porcelain sign with concealed fastenings. Together with the new hues of orange and blue enamel, they place us up front in eye-appealing product identification.

from C. S. Perkins



Oleum Refinery's

Paraffin Wax

'Has stability,

If asked to name the most widely distributed product refined by Union Oil Company, you'd probably think first of gasoline, bunker fuel, or lubricants. They do serve quite an extensive marketing area.

But what about paraffin wax—produced at Oleum Refinery under the trade name of Aristowax?

To walk through Oleum's new Wax Warehouse and examine the stenciled addresses on cartons awaiting shipment is a surprising study in geography. The steel-strapped containers are destined for Europe, the Far East, South America, Mexico, Central America and elsewhere. Besides shipping wax slabs throughout most of the United States, Oleum dispatches molten wax via insulated transports and tankers to buyers as far distant as Connecticut and Florida.

Why such extensive distribution of a material most people associate only with museum figures and candles?

Well, paraffin wax, like paraffin-base oils, has unique qualities. Chemically speaking, its long-chain molecules are extremely stable—they have little tendency to break up and combine chemically with other substances. So wax, unless it is kindled by a burning wick (as in a candle), does not oxidize or deteriorate. Neither will it dissolve at normal atmospheric temperatures in the presence of moist or acid substances. Yet it readily can be melted and applied as a moisture-proof coating to papers, fabrics, woods, metals and countless other substances that are subject to damage by air or water.

Its uses are legion. Candlemakers on all continents buy it by the ton. Paper manufacturers use it by the carload

An interesting thing about the one-ton carton of Aristowax Joe McCormick and Taik Young Lee are preparing to ship from Oleum Refinery is its destination, "Torino via Genoa," Italy. This by-product of lube oil refining enjoys world-wide demand. Below, Foreman John Rose of Oleum's Wax Warehouse displays a cooled slab of the "100% pure paraffin." In trays, foreground, molten wax is entering the refinery's Continuous Wax Molder.



travels'

as a means of waterproofing and strengthening wrapping papers, milk cartons, and countless other food containers. It's an important component of floor polishes, pencils, carbon paper and rubber products.

The stability of wax makes it ideal as a sealant for any manufactured item that has to retain moisture or exclude it. Machine parts are packaged in waxed containers. So are explosives, dry powders, acids and many other types of chemicals. Additional applications are being invented or perfected by the score. Hence, Oleum's most stable product is a world traveler.

Our reason for being in the wax business is that we obtain these paraffinic solids as by-products of premium motor oil refining. Or to say it as the oil-can labels do, Royal Triton, Triton, T5X and our other premium lubricants are

"100% Pure Paraffin Base"—they're refined from special waxy crudes whose tough molecules best withstand the heat, pressure and chemical forces encountered in an internal-combustion engine.

But only a carefully selected fraction of the waxy crude is suitable for lubricants. Gases and the lighter liquids are distilled out. The heavy solids—paraffin waxes—are removed from lube oil stocks by chilling the oil to a temperature of 40 degrees below zero. The wax molecules crystallize and are strained from the oil stream by means of filters. Through a Union Oil patented process, called de-oiling, final remnants of oil are removed, leaving the white crystalline paraffin wax.

At Oleum Refinery, where all Union Oil lubricants are refined, the wax is distilled into five basic stocks, each stock having a different melting range. The lightest has a melting point of 130 degrees F., while the heaviest melts at about 165 degrees. From the five base stocks, Oleum blends a dozen or more finished waxes to match practically any in-between melting point specified. It also blends the wax with plastics for sale as Unowax.

Of added interest, this refinery produces one of the highest melting-point paraffin waxes found anywhere. Its stability at high temperature gives it premium value in several lines of manufacturing.

Although Oleum has been producing wax for many years, improvements in plant and product continue to take place. The most recent innovations are a Continuous Wax Molder and a new Wax Warehouse.

The Wax Molder is a machine that continuously measures out molten wax into shallow trays, transports them through refrigerating equipment, and discharges hardened slabs of wax onto a conveyor packaging system. The machine is easily adjusted to produce any specified grade of product in slabs weighing a uniform 11 pounds each. The packing of slabs into either 55-pound packages or one-ton cartons requires the human touch only to push a few control buttons.

Oleum's new Wax Warehouse, where the product is slabbed, packaged and stored, would please the most fastidious housewife. Kept clean as a kitchen, all rooms are pressurized with an incoming flow of filtered air. Shipping doors are supplemented by "air curtains" to keep out dust and odors.

But the wax little more than pauses in this favorable environment. As soon as a full shipment is accumulated, it *travels*—to the paper mill, the powder plant, the candle-maker, the carton manufacturer—to London, Genoa, Brisbane, Hong Kong—and from those manufacturing points to everywhere.

SENIOR 'WHEELS'



AT SHANDON

The always-fascinating sight of an old flywheel pump working at Union Oil's Shandon Pump Station, not far from Paso Robles, sparked our conversation with the man in charge, Senior Engineer Robert H. Fleig.

Bob smiled almost boyishly when we remarked that the unit looked as spic-and-span as if just installed. He replied, "The old Jeansville is still a good pump. It was installed in 1911, two years after the Company started building Shandon Pump Station.

"I'd like to have all the oil it's pumped since that time. Figure it out—a half-barrel to the stroke—1060 barrels an hour—for most of 52 years.

"Of course it isn't as busy as it used to be. Newer equipment has taken over the lion's share of the pumping chore. But about 10 days every month, when heavy crude oil has to be moved to Avila, we steam up the old Jeansville. Besides running the pump, steam heats the crude enough to make it flow through the line."

"Reckon 1911 was a little before your time," we queried, guessing that Bob wasn't much over fifty.

He nodded affirmatively: "My father, Joe Fleig, worked here for Union from 1906 until he retired in about 1931. But I didn't come to work until 1918. I remember, though, when they built the station and installed the Jeansville. I was about twelve then. Sight of the big flywheel turning sorta gave me oil fever."

"You mean you're past sixty?" we marveled.

"Quite a bit past it," he laughed. "I'll reach sixty-five—retirement age—in 1964."

"Have you worked here at Shandon all those years?"

"No," said Bob Fleig. "My first job with the Company, in 1918, was *walking pipeline*. Y'understand, we used threaded pipe in those days, which had a tendency to leak where the lengths were screwed together. Since the pipeline followed almost a direct route through the mountains and valleys, at some distance from the farm roads, we had to inspect it afoot or on horseback. In the flat areas around Junction, some of our line walkers enjoyed the luxury of a horse and buggy.

"Union Oil gave me a saddle horse, a pick and shovel, and several days of schooling with the man I replaced. Then the horse and I were on our own.

"Lucky for me, the horse knew the job better than I did at first. All I had to do was give him his head. He followed the buried pipeline as if it was a beaten trail to the barn.

"He even knew when not to follow it. For instance, the line at one point went through a farmer's grain field. The farmer, naturally, didn't want any livestock tramping down his crop. So the horse would always stop to let me off at the edge, then walk around the field and meet me on the opposite side.

"Pipeline walking wasn't a bad job for a young man. I'd average about 14 miles a day—the first day from Creston to Shandon—the second from Shandon to Antelope—the third from Antelope to Junction. Then I'd turn around and reverse the three-day march back home. We always had a day a week to rest up.

"In those days the Company maintained boarding houses at several of the pumping stations. So we never lacked for good food to eat or a place to sleep.

"As I remember it, we used to spot an average of about two pipeline leaks a day. The leak would appear to be a darkened area, as if someone had poured a little oil on the ground. That called for some pick-and-shovel work—to bare the pipe and locate the trouble. Usually the line walker could hammer some calking material into the break to patch things up until the maintenance crew arrived with *saddle clamps* or new pipe.

"But if the break was a bad one, you rode as fast as you could to the nearest pump station and called for help. The line walker waited 'til the repair crew arrived, then led 'em to the trouble spot—even if it took all night. We never worried about hours or overtime, just leaks.

"They tell some great stories about us line walkers, especially the buggy riders:

"One of 'em fell asleep one day as his buggy rolled along. When he awoke, the buggy had stopped and the horse refused to move. Jumping down to investigate, the line walker found himself standing right over a pipeline leak. At least the horse hadn't been asleep. Guess that's where the expression *common horseshesense* came from.

"Another line walker we had in the horse-and buggy class was Pete the Greek. One day, the boys at a Company boarding house reversed the wheels on his buggy, putting the small ones behind and the large ones up front. Pete spent most of the day wondering why the old route seemed all uphill. It wasn't until he tried to apply the buggy brake that he caught on.

"There aren't many wheels of our kind left in the oil business—here at Shandon just two of us old timers, me and the Jeansville. Chances are, I'll retire before it does."

The gentleman holding the plaque is Union Oiler Ray Stone of the Los Angeles Terminal. Reason for his smile is that he recently received an Outstanding Volunteer Leadership Award at the Pacific YMCA's annual conclave in Phoenix. He was one of three persons from California, Arizona, New Mexico, Nevada and Hawaii to be so honored. Roy has been associated with the North Orange County YMCA for nearly 27 years, as a boys club leader, basketball program manager, board member and many other posts. D. A. Reed, superintendent of the L. A. Terminal (left), said, "We're proud to have Ray working with us."



Earl R. McCloud (left) of Refining and Marketing and Colin H. Chadband (right) of Exploration and Production were elected by fellow employees recently to serve three-year terms on the board of administrators of the Employees Medical Plan. They succeed J. G. Baird and J. L. Stair, whose terms expired. Present board members include Dr. H. C. Huffman, chairman; Laura N. Abbott, vice chairman; Elton P. Barnett, Wilbur R. Griffiths, McCloud and Chadband. Advisers are Richard Call, M.D., medical director; E. A. McFadden, legal counsel, and D. S. Povah, industrial relations adviser and secretary.



Consignee Frank J. Harkenrider of Hermiston, Oregon, was all smiles on learning of his recent election as president of the Hermiston City Council. He will hold office for two years. Frank succeeded his father, George W. Harkenrider, as consignee last December when the elder Harkenrider retired. George had been Union consignee since 1928, the last five years with Frank as his partner.



When the Advance Saw Works, a merchandiser of saws and cutting instruments, moved recently from Vernon, Calif., to Pico Rivera, partner Bruce Brown (left) put it up to the salesmen as to what kind of gasoline credit cards they could use. A quick huddle similar to this one and the salesmen voted to use Union Oil credit cards. "There's a station on every corner," one salesman said. Brown, to register his approval, showed us his Gold Card which dates back to 1951.





This young skier wearing the sign of the 76 is 8-year-old George Lian, son of Alaska District Manager Hal Lian. The occasion was a giant slalom on February 24, at Arctic Valley near Anchorage. Young George, a member of the Chugach Racing Club, drew the number 76 "by sheer coincidence," according to dad. You can see more about Alaska in an article beginning on page 2.



The contagious smile above belongs to Helen Cairney, wife of Union Oiler Ralph Cairney, who is superintendent of the Portland, Oregon, marketing terminal. Helen is no stranger to the mike or TV camera. She is pictured here moderating the twice-monthly radio series "PTA Calling," also is chairman of the radio-TV committee of the Portland Council of Parents and Teachers. Last month Helen began co-hosting a new series called "Questions Please" aired by the city schools on Thursdays. Her photograph was featured last month on the cover of Megaview magazine, which described her as "a distinguished PTA leader, enthusiastic educational radio-TV devotee, energetic public school and university citizen worker."



Half a century of Union Oil service is the fine record of James S. Goodale, seen at right of photo receiving a special "76" plaque from Division Sales Manager J. J. Grunewald. The occasion was a retirement luncheon honoring Jimmie as he completed his final 18 years with the Company as consignee at San Rafael, California. Undoubtedly there are scores of Union Oilers who remember Jimmie when he served as personnel supervisor at San Francisco. He was the first Company representative usually met by applicants for jobs in that area. And he hired hundreds of us, including the editor of "76." With 32 years of employee service behind him, Jimmie crossed the Golden Gate Bridge to one of his favorite communities and foremost ambitions. As a salesman of our products in San Rafael since 1946, he has exemplified the Finest in industrial accomplishment as well as citizenship. Still hale and hearty, he plans to travel a bit before settling down to 50 more wonderful years on San Francisco Bay.

from J. N. Bateman

EMPLOYEES

April 1963

40 YEARS

KENNETH W. BROWN.....Expl. & Prod.-P/C Div. So.

35 YEARS

SIDNEY I. BARTEL.....Ref. & Mktg.-Acctg.
CAESAR COSTA.....Oleum Refinery
WAYNE G. HAW.....Los Angeles Refinery
HERBERT W. HILL.....Expl. & Prod.-P/C Div. So.
PHILIP E. REH.....Mktg.-Calif. So. Cstal.

30 YEARS

ROY C. NICHOLS.....Mktg. Engineering-S.F.
JOHN W. TOWLER.....Ref. & Mktg.-Refining

25 YEARS

INA L. BUELL.....Ref. & Mktg.-Acctg.
VERNON C. HERRON.....Research
GEORGE P. KEENAN.....Comptrollers-Accts. Payable
REISIN W. SMILEY.....Research
BARBARA ULMER.....Mktg.-Calif. So. Cstal.
MERVILLE W. VEATCH.....Mktg.-Oregon Div.

20 YEARS

LAURA N. ABBOTT.....Ref. & Mktg.-Pipeline
K. D. ALBERTSON.....Expl. & Prod.-P/C Div.-No.
WALTER C. CRUMMY.....Expl. & Prod.-Glacier-Cut Bank
HOLTON HOLST.....Ref. & Mktg.-Eng. & Const.
ARTHUR M. JOHNSON.....Ref. & Mktg.-Acctg.
ORAIN B. JOHNSTON.....Expl. & Prod.-P/C Div.-So.
LUTHER W. MARBURY.....Oleum Refinery
ALFRED L. MARIS.....L. A. Refinery
MARTIN MICHAUD.....Ref. & Mktg.-Acctg.
ALEXANDER RECKLING.....L. A. Refinery
ROY L. ROWLETT.....Oleum Refinery
HARVEY B. SHARP.....Expl. & Prod.-P/C Div. So.
HOWARD WM. SMITH.....Mktg.-Northwest Div.
BERNICE A. WALDE.....Comptrollers
Payroll & Benefit Plan

15 YEARS

DANIEL F. BARBOZA.....Mktg.-Hawaii Div.
JAMES S. BROWN.....Expl. & Prod.-P/C Div.-No.
RAYMOND T. BURNS.....Expl. & Prod.
Foreign Operations
RICHARD W. DODDS.....Expl. & Prod.
Crude Oil Acctg.
C. C. FRUTIGER.....Mktg.-Northwest Div.
JOHN E. HINES, JR.....Research
WALLACE W. HOWE.....L.A. Refinery
GORDON W. HOWIE.....Expl. & Prod.-P/C-So.
KENNETH L. KOHAL.....Expl. & Prod.-P/C Div.-No.
NORMAN LAIRD LAY.....L. A. Refinery
WILLIAM F. LITTLE.....Oleum Refinery
ADDELMAR Q. MILBURN.....L. A. Refinery
G. V. MUSSELMAN.....Mktg.-Calif. So. Cstal.
CLOYD P. REEG.....Research
ALFRED RITTERBUSH.....Santa Maria Refinery
ROBERT S. TAYLOR.....Mktg.-Southwest Mt. Div.
L. H. TIBBITTS.....Expl. & Prod.-P/C-So.

10 YEARS

RAYMOND J. BODINI.....Research
MARK E. BROUSSARD.....Expl. & Prod.-Gulf Div.
ESTELLE CARPINE.....Credit Card Acctg.-S.F.
KENNETH L. COLLINS.....Research
PAUL C. COLLINS.....Expl. & Prod.-P/C-So.
RAYMOND CONKLIN.....Oleum Refinery
E. B. FERGUSON, JR.....L. A. Refinery
D. R. FITZGERALD.....Research
CORMAN E. GLENN.....Expl. & Prod.-P/C Div.-No.
HAROLD E. GRANQUIST.....Oleum Refinery
BOBBY J. HAYS.....Expl. & Prod.-P/C Div.-No.
EMMA C. LEE.....Credit Card Acctg.-S.F.
OLIVER C. NELSON.....Expl. & Prod.-P/C Div.-No.
PHILLIP P. OBEE.....Pipeline-No. Div.
DICK E. PALMER.....Cut Bank Ref.-Glacier Div.
ARCHER S. PRATT.....Expl. & Prod.-P/C-So.
FRANK H. PINNELL.....Mktg.-Calif. So. Cstal.
HELEN G. PURVIANCE.....Credit Card Acctg.-S.F.

SERVICE



DEAN B. RILEY.....Purchasing-S.F.
DONALD R. SHERAR.....Mktg.-Calif. So. Cstal.
FRANCIS J. SIMONS.....Mktg.-Glacier Div.
JACK T. SPAULDING.....Refining & Mktg.-Pipeline
ERWIN D. TALLY.....Santa Maria Refinery
RAYMOND H. WALKER.....Expl. & Prod.-P/C-So.

DEALERS

April 1963

35 YEARS

SAN JOSE MEDICAL BUILDING CO.
San Jose, California

25 YEARS

C. DE LA FUENTE.....Lemoore, California
R. W. FREDERICKSON.....Chula Vista, California
EVERETT LEONHARDT.....Compton, California

20 YEARS

J. W. DELAPP.....Durham, California
R. D. PALMER.....Baldwin Park, California
PARKER & BANGS.....Seattle, Washington

15 YEARS

JOHN BOBBY.....Spring Valley, California
GEORGE O. FOSTER.....Portland, Oregon
DOLLIE GLAD.....Needles, California
HUFFMAN & SONS.....Red Bluff, California
WALTER LARSON.....El Monte, California
S. H. LASZEWSKI.....Los Angeles, California
CARLO JAMES RICCI.....Petaluma, California
H. H. TERRY.....Prineville, Oregon
HOWARD ULRICH.....Yakima, Washington
FRED WILLIAMS.....Hoodsport, Washington
DOMINIC & FRANK YEAFOLI.....Rodeo, California
(anniversary in March 1963)
ROSS HARRIS.....Oceanlake, Oregon

10 YEARS

CHESTER L. JONES.....Guatay, California
PACIFIC AUTOMOTIVE
SERVICE.....San Francisco, California
JOHN RULON.....Pico Rivera, California
WALTER STARR.....Woodland Hills, California
WAYNE F. THOMPSON.....Palomar Mountain, California

5 YEARS

HENRY BERK.....Othello, Washington
GENE CAGLE.....Santa Monica, California
A. S. CARMICHAEL.....Hillsboro, Oregon
H. R. EGERTON dba MUTINY BAY RESORT
Langley, Washington

RICHARD FERNANDEZ.....San Diego, California
RICHARD GILMORE dba ALMANOR INN
Lake Almanor, California
RUBEN G. GOMEZ.....Kerman, California
GUILLES MOTOR CO.....Seattle, Washington
HALFWAY STATION.....Tombstone, Arizona
VERNON & BETH HANSEN.....Somerset, California
BENNY R. HISE.....Oceanside, California
GEORGE HOGGATT.....Bakersfield, California
ALVIN E. HUNT.....Camas, Washington
TOM T. ISHII.....Honolulu, Hawaii
THOMAS JOHNSON.....Sherman Oaks, California
MASASHI KANDA.....Hauula, Hawaii
LEONARD M. LEMONS.....Central Point, Oregon
CLAUDE C. McCORVEY.....Portland, Oregon
E. L. MILLENBACH.....Coupeville, Washington
A. MOLINARI.....San Mateo, California
JIM NORRBOM.....Glen Ellen, California
RED CIRCLE STATION.....San Bernardino, California
ROBERT SCHULZ.....Escalon, California
WILLIAM B. SUTTON.....Williams, Arizona
SWARTS-FODE CHEVROLET.....Lind, Washington
D. H. UDSETH.....San Francisco, California
M. C. WRIGHT.....San Marino, California

CONSIGNEES

35 YEARS

E. B. WATERS.....Petaluma, California

10 YEARS

JAMES C. NOLAN.....Fall River Mills, California

5 YEARS

JOHN B. COGHILL.....Nenana, Alaska

IN MEMORIAM

Employees:

FRED J. HAMILTON.....March 8, 1963
Research Dept.
EDWARD P. KEARNEY.....February 14, 1963
Mktg.-Calif. No. Cstal.
HARLIN W. POOL.....February 20, 1963
Oleum Refinery
ERNEST C. WICKER.....February 28, 1963
Northwest Division

Retirees:

LIELA I. APPEGATE.....March 9, 1963
Calif. No. Cstal.
GEORGE C. BISSETT.....February 17, 1963
Pacific Coast Division
OSCAR C. HAYES.....February 17, 1963
Los Angeles Refinery
ALEXIS J. MCGURN.....February 11, 1963
Purchasing Dept.
JOSEPH E. PRAIRO.....March 6, 1963
Oleum Refinery
ERWIN PRICE.....March 1, 1963
Pacific Coast Division
ROBERT D. WILSON, M.D.....March 4, 1963
Medical Department

RETIREMENTS

March 1, 1963

CLARENCE H. ABERNATHY.....April 19, 1926
Los Angeles Refinery
JEAN F. HYMER.....December 1, 1926
Comptroller's
GEORGE S. NEIL.....July 29, 1929
Oleum Refinery
GRACE SCHAUMBURG.....July 22, 1943
Gulf Division
JOSEPH B. STONE, SR.....January 23, 1950
Glacier Division

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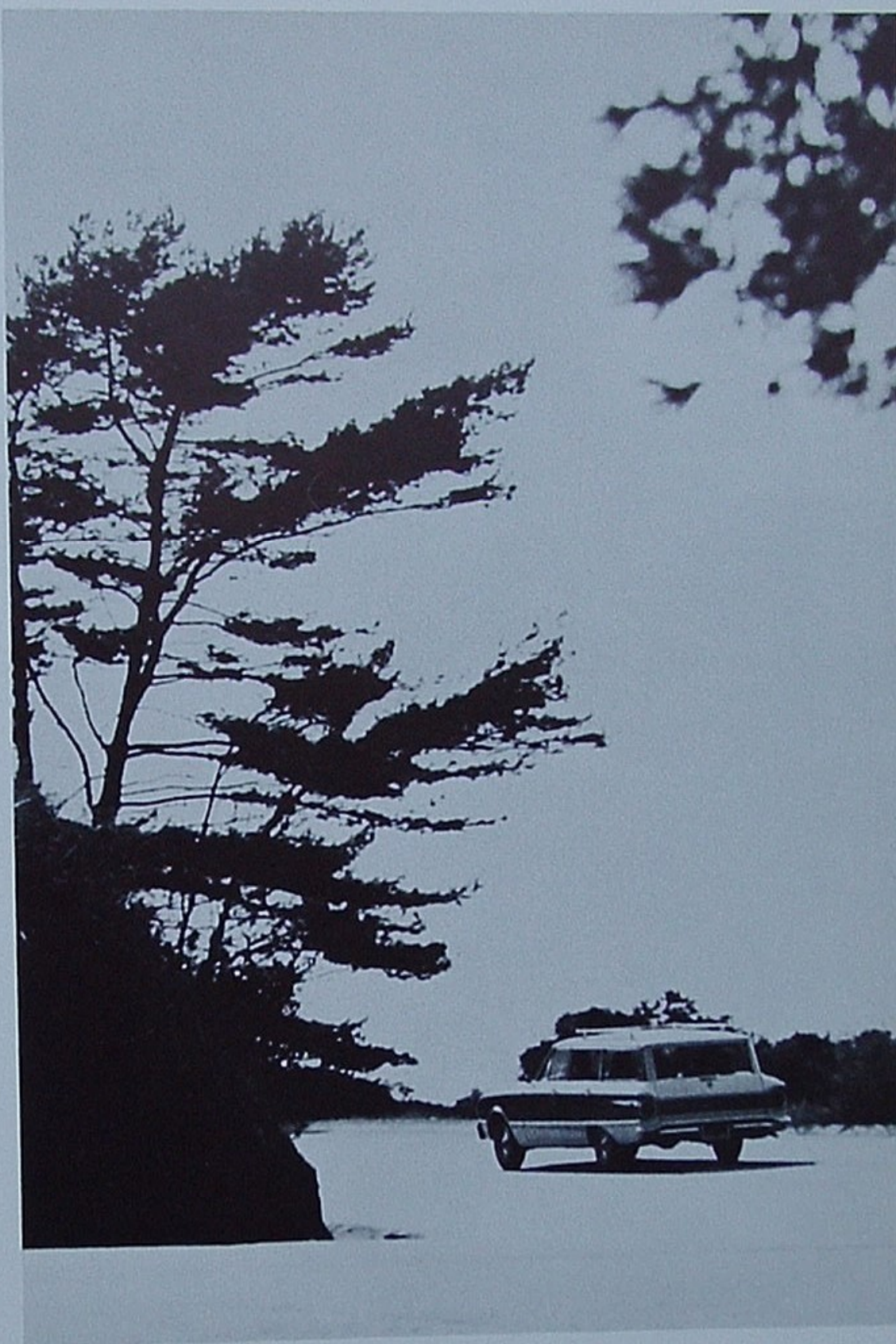
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Old-Time Auto Shows ■ Plan-
etariums & Observatories ■
Petrified Forests ■ Summer
Theaters ■ Nature Trails ■
Folkdance Festivals ■ Aquar-
iums ■ Gold-panning ■ Art
Colonies ■ Road Races ■ Sail-
plane Contests ■ Frontier
Forts ■ Crayfishing ■ Geysers
and Hot Springs ■ Historic
Homes ■ Rodeos



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Where We Work...

One of the costliest gambling games in the world is being played miles offshore in the Gulf of Mexico. Just one chance in this sea-covered punchboard costs an average of nearly half-a-million dollars. The "Christmas tree" of valves, at lower margin of photo, is evidence that Union Oil has punched one lucky number. The taller assemblage of steel marks a slanted drilling well that is probing 10,000 feet down and a quarter-mile farther out to sea. Men seen running the game here from under the rotary table are Union Oil engineers. We'll introduce them and their work in a forthcoming issue of Seventy Six.