

SEVENTY SIX 
UNION OIL COMPANY OF CALIFORNIA



OCTOBER 1964

CLYDE BERNHART: ACTIVE CITIZEN



W. R. Campbell and Clyde Bernhart (R) discuss the procedure for shutting down Unit 33 for turnaround. Bernhart is utilities foreman.

AS UTILITIES FOREMAN at Los Angeles Refinery, Clyde Bernhart is a busy man: his domain extends over water, heat, lights, steam and power throughout the 450-acre plant. These problems keep him active all day long.

When the working day ends, Bernhart doesn't relax. In fact, he's just warming up. Evenings are likely to be taken up with meetings of the city council of Lomita, his home town and Los Angeles County's 76th and newest city.

For 25 years in Lomita, Bernhart has been active in civic affairs, the PTA and Cub Scouts. He once was a general contractor, and donated a church building to the First Baptist Church of Lomita. He has owned his own airplane, putting in 850 hours as a pilot.

Today his wife, Alice, a school teacher in Los Angeles; his son, an Air Force pilot; his daughter, a school teacher in Weisbaden, Germany, and a 150-acre farm in Oregon are his main interests — when he's not worrying about Lomita's next city budget, that is.

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COUNCIL MEETING: Clyde Bernhart, a member of the Lomita City Council, discusses new budget. Pictured (L-R): city attorney Ray Farthing (former associate counsel at Collier Carbon & Chemical Co.), Bernhart, city administrator Stan Green, Mayor Joe Haslam.

Letters

We invite readers to participate in an exchange of ideas and information. Address: Editor, Seventy-Six; Union Oil Company; Box 7600; Los Angeles, California, 90054.

Scouts in New York

• Your July-August number was excellent all the way. The Eva, Orchids and Mrs. Kutas articles will be read to my scouts, and a few boys will also dig into the 76 Blends article. Someday maybe you'll select and republish a collection.

RICHARD G. BORDEN
Binghamton, N.Y.

Triton in Canada

• We operate a British American Oil Company service station and have received your SEVENTY-SIX magazine for as long as I can remember. It might interest you to know that we have many faithful users of Royal Triton even though it costs a little more here than other oils. Getting the magazine helps us push the sale of Royal Triton a little harder.

I. MILLETT
Calgary, Can.

Alaskan Earthquake

• "Earthquake in Alaska" (June 1964) was a warm, interestingly written story. I'm glad the writer let the quotes from Union Oilers tell the story for him rather than trying to fabricate his own account of the earthquake.

LEE PEARLMAN
Sepulveda, Calif.

Soft Focus

• About *In Focus*, beginning on page 25 of the June issue—perhaps the title should be changed since not all of the pictures in this section are in focus!

EUGENE LESNEY
Los Angeles

Oroville Dam

• We were especially intrigued with your excellent article on the Oroville Dam (May 1964). Would it be possible to obtain for future use permission to use both your SEVENTY-SIX cover as a cover illustration and the photographs and art work from the article for *Junior Scholastic*?

LEE HAMILTON
Science Editor
New York

SEVENTY SIX

UNION OIL COMPANY OF CALIFORNIA



Our 44th year of industrial journalism

VOLUME 8 NUMBER 8

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ABOUT THIS ISSUE

The table of contents this month proclaims, "Our 44th year of industrial journalism." Below it admits of Volume 8, No. 8. Both statements are true. The heritage of a Union Oil publication goes back to March, 1921, when the first issue of the Union Oil *Bulletin* was published. In 1941, with the appearance of Volume 22, No. 3, the *Bulletin* was discontinued, but not before a new publication was well underway. Volume 1, No. 1 of *On Tour* appeared in February, 1939, and continued until May, 1957, ceasing with Volume 19, No. 4. The next month *On Tour* became *Seventy-Six* and we started all over.

Recently someone suggested we display our heritage by dating volume numbers back to the original *Bulletin*. That poses problems. Should we total them up and call it Volume 49? Or Volume 43, the number of years of publication? Well, we settled it with a single line: Our 44th year of industrial journalism.



COVER: On August 31, 1964, Fred L. Hartley became the ninth man to hold the title as president of Union Oil Company of California. For a report on the man behind the title, see the article beginning on page 6.



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

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Diamond Jubilee

This month Union Oil Company begins its 75th year of growth

IT WAS AN OVERCAST autumn day. Farmers were busy harvesting the last of their summer crops. Col. H. H. Markham and E. B. Pond were in a heated race for the California governor's post, and the *Los Angeles Times* was urging citizens to register so they could vote November 4, 1890.

From Telluride, Colorado, came news of a discovery of a rich vein of ore. In Santa Paula, California, nine men gathered at a two-story rock-front building for an important meeting. Present were Thomas R. Bard, Lyman Stewart, W. L. Hardison, I. H. Warring, John Irwin, Alexander Waldie, Dan McFarland, W. S. Chaffee and Casper Taylor.

When they walked into the rock-front building, they represented three struggling companies: the Hardison & Stewart Oil Company, the Sespe Oil Company, and the Torrey Canyon Oil Company. When they walked out of the building an hour later, they represented one company, the newly formed Union Oil Company of California. You'd never recognize it as the same company we know today.

Who could foresee that three-quarters of a century later Union Oil would be one of the strongest—and the 15th largest—of the nation's oil companies? This month we begin celebrating our 75th year of growth, growth that started at the modest meeting in Santa Paula. October 17, 1965—a year from now—is Union Oil's diamond anniversary and with this month we begin our Diamond Jubilee year.

The "75-in-a-circle-and-diamond" is our anniversary emblem. It is a symbol commemorating the three-quarters of a century of effort and service that has made Union Oil one of the strongest—and the 15th largest—of the nation's oil companies.

The principal observance of our Diamond Jubilee will be a series of "birthday" dinners for all employees and retirees and their wives or husbands or a guest. The dinners will be held in 1965, from early May through July. There will be dinners in every large city where Union Oil operates, from San Diego to Anchorage, from Honolulu to

Houma. (More about the "birthday" dinners in an early issue next year.)

Out of the planning for the parties has come a revealing fact. More people will sit down to dinner at one of the smallest groups—about 25 in San Diego—than were on Union's payroll on October 17, 1890.

Seventy-five years is a long time and a lot of progress has been recorded since the company was formed. Frankly, on the day Union Oil was organized, there was little about the company to inspire a feeling of security in the heart of an employee or to arouse faith in the mind of an investor. The company did have oil: in 1890 its 26 wells yielded 84,000 barrels—a quarter of California's production. But there were problems. Although the company's assets were nearing a healthy \$2 million, the ledgers were plagued by debts and—as usual—the tills were out of cash. In fact, the founders couldn't even agree on the direction their new company should take; the answer to this question was vital to the company's future.

Should the new company be exploited for the immediate dollars it might produce and this money be reinvested in other enterprises? This was a common practice in the industry at that time; in fact it was regarded as the financially conservative approach.

Or should the company accumulate potential oil lands, build up reserves and be developed into a long-lived corporation that would exist for generations to come? Many businessmen at the time felt this was a dangerous policy.

Fortunately for those of us employed by Union Oil today, the men who founded the company followed the second course—they decided to build for the future. If they hadn't done so, there would be no Diamond Jubilee; there probably wouldn't even be a Union Oil Company. Young corporations operated for today's dollar have a way of disappearing.

The First National City Bank of New York has some interesting observations on companies that failed to build for the future. The bank's newsletter reports that of the 100 largest manufacturers in 1919 only 49 remained on that select list in 1963. Both in 1919 and 1963 there were at least 20 oil companies on the roster—but only 12 of those listed in 1919 were among the 20 recorded in 1963. In 44 years eight oil companies dropped from the top 100.

Union Oil was among the top 100 in 1919, and it still is



today. In 1919 we were 64th among all manufacturing concerns; by 1963 we had moved up to 49th. During that 44-year span our assets grew from \$90 million to nearly \$900 million.

The bank's newsletter, commenting on the turnover in the top 100, says, "Surviving companies are largely those that have proved adaptable to changes in the economy. They stayed (active) in growing markets and shifted (emphasis) to new ones that opened up..."

In Union Oil's near-75 years of service, we have proved adaptable and able to shift emphasis. Often, in fact, the company has given progress a push. Examples date back to the 1890's and early 1900's: the first research laboratory in the West; the first pipeline to tidewater; the first coal-burning locomotive converted to oil; the first tankship on the West Coast; the development of markets in Hawaii and the Orient.

But you don't have to reach that deeply into our archives. Let's pick a few examples from the last quarter-century. In the late 'thirties, with the first signs of California's decline as an oil- and gas-producing state, Union moved into the Texas-Gulf area—and became a major producer. Then the company turned around and pioneered advanced recovery techniques that are helping California reverse its declining trend. Ours was the first waterflood experiment in California; today our people are developing exotic new methods of persuading nature to release even more oil from the ground.

Our history in the 'forties reveals further examples. The first of the *finest*, 7600 gasoline and the then-new Royal Triton motor oil, were ready for the great post-war revolution we saw in automobile-engine design. These products led the way into an entirely new era of power and economy.

What we've done with our land holdings is further evidence of flexibility. Union's founders bought land, thousands of acres of land, because there might be oil under it. In the 'fifties Californians began searching for more housing space—the great population influx had begun. Today

the surface land is valuable. So we have learned to cram full-scale oil field production into a few acres—as we have done in metropolitan Los Angeles. The unused surface? A major asset for the company, "fertile" land for "growing" homes on.

Let's turn to marketing. Ask any competitor how he regards Union Oil. Chances are ten-to-one he'll say Union is one of the most progressive marketing organizations in the business.

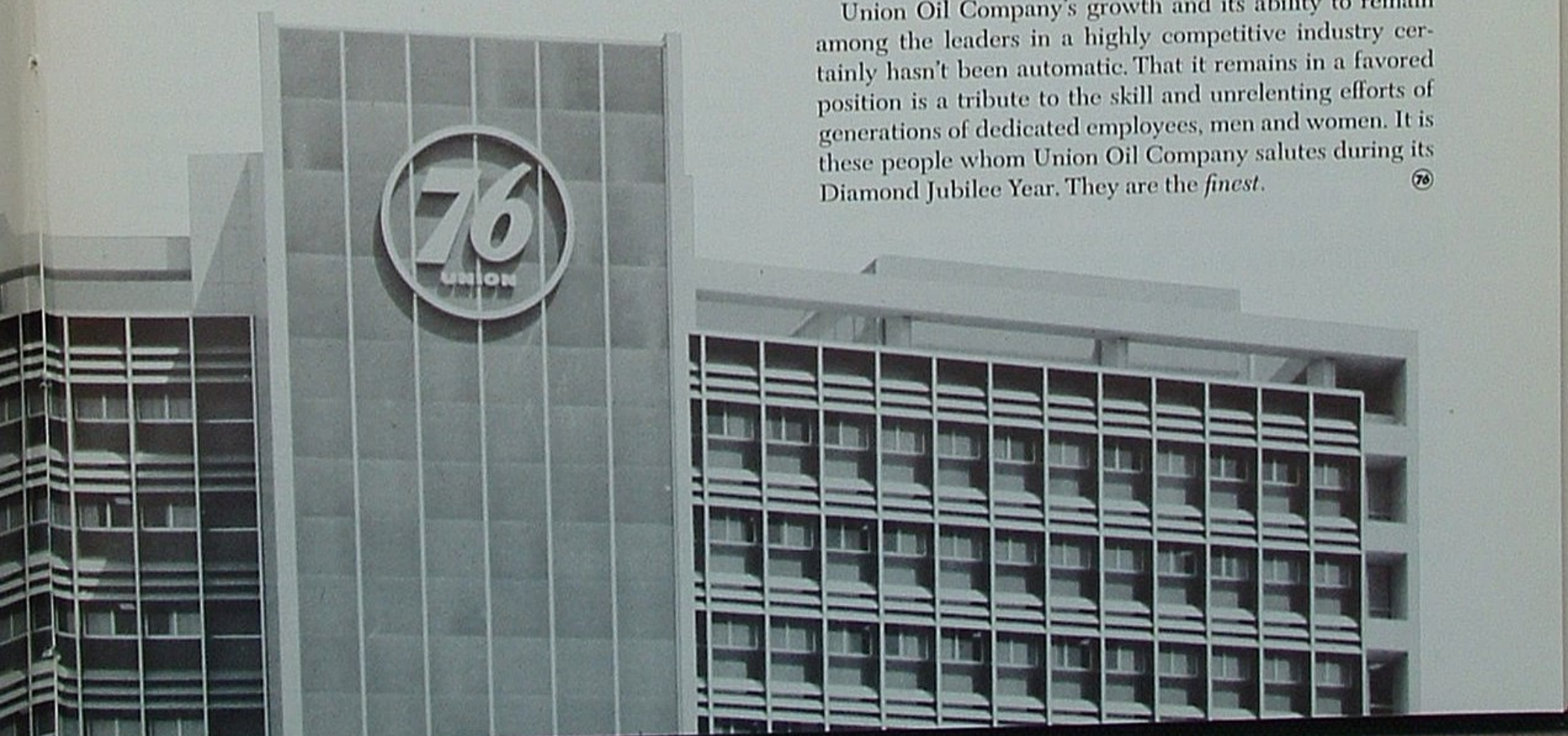
Right after World War II there began a revolution in the service station business—a revolution that still continues today. Only a few years ago, the bottom threatened to drop out of the market, with potentially disastrous effects on service station income. Union Oil foresaw this change; we added an aggressive approach to selling merchandise. The "lube job" became outdated with the introduction of a new concept in car care: 76 Certified Car Condition Service. This is one of many examples of how we shifted gears to better protect our valuable Minute-Man dealer organization.

Adaptability in a competitive market spells change for all of us. Today we see it in the flow of oil through a widespread pipeline system that answers to the touch of a button. We see tabulating machines process millions of commercial and credit card invoices with lightning speed—in short, cutting costs to keep our products competitive. The products of our Research Center are widely used: some 200 Unifiners are installed at refineries around the world; several Unicrackers are either being designed or are under construction today. Four out of five cars are lubricated with motor oils using additives that Union Oil pioneered.

You could list endless accomplishments—large and small—that led to Union's survival and its lasting membership on the roll of the nation's top 100 corporations. But a final statement in the bank's newsletter sums up the significance of our success:

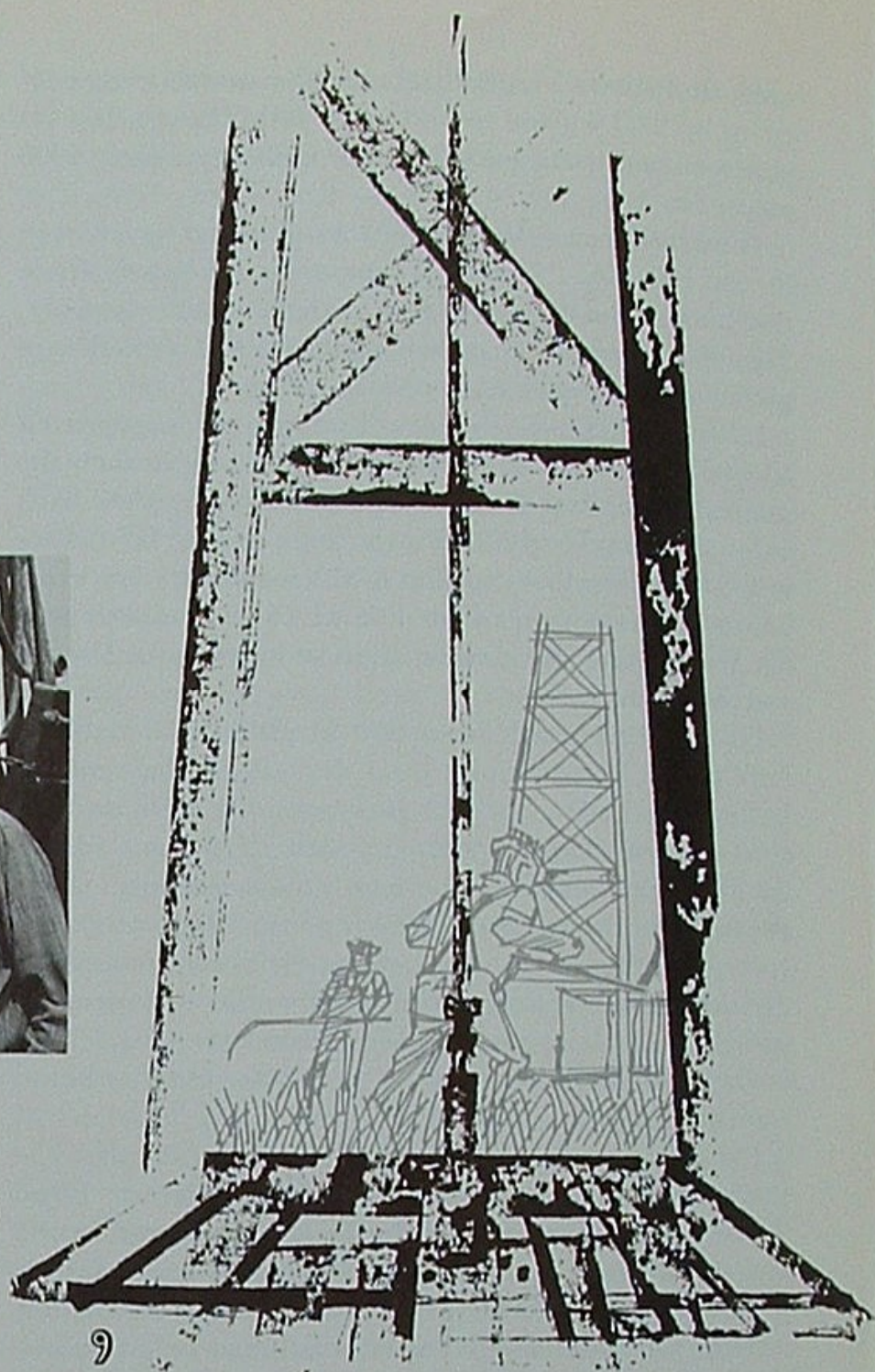
"A top position," the newsletter said, "is neither automatic nor permanent. It requires continuous attention to the changing needs of the nation."

Union Oil Company's growth and its ability to remain among the leaders in a highly competitive industry certainly hasn't been automatic. That it remains in a favored position is a tribute to the skill and unrelenting efforts of generations of dedicated employees, men and women. It is these people whom Union Oil Company salutes during its Diamond Jubilee Year. They are the *finest*. 76





Luther M. Cariker



'I Remember When...

By LOU M. CARIKER

BREA, CALIFORNIA

BACK IN 1924 when I was a driller in the Field Department, I decided to quit my job and go to work for another company. I figured it was costing me money to stay with Union Oil.

In the flush production of the 'twenties, a driller was paid \$12 a day — unless he lost his drilling tools and had to fish the well for them; then his pay was reduced to \$9 a day. While fishing for tools one day in 1924, I decided to leave for greener pastures; but first I thought I'd tell Mabel, my wife.

Well, I didn't quit and all I can say now is thank the good Lord for an intelligent wife; she persuaded me to remain.

That was forty years ago and again I find it is costing me money to stay on the job. If I had taken early retirement in January, I'd be taking home more money than I am right now. This fortunate circumstance would come

about because of three things: I have 48 years service, which makes my pension base high; my wife would be drawing Social Security; and as a retired man I'd be in a lower tax bracket. So you see, the grass still looks greener on the other side of the fence.

Although I'm losing money by working, I wouldn't want to leave my job for anything. Right now I feel that I'm paying back the company for all it has done for me. When I started working in 1917, Union was just a little old poor-boy outfit. But they were good to me. When I was 20 they made me a driller, the youngest in the company. At 28 I was drilling foreman. Now I think I'm the oldest man ever promoted to production foreman; even at 64 you can be promoted around here.

Ever since I started work in 1917, I haven't missed one paycheck, even during the depression. I almost missed; once I was paid for only one day's work. That was in the

'thirties when we had enforced leave because there wasn't enough work to go around. But that one day's pay for a two-week period kept my record perfect.

In 48 years of working, I've never had to be away from my home. I started at Montebello and it looks like I'll end up somewhere in the East Los Angeles basin. I've had the opportunity to transfer, but I always turned it down. My wife is a native daughter of this area, my daughter was going to school, and we were buying a home. Besides, I had a good job and was always happy.

True, there were days I'd just as soon not live over. When the Drilling Department was turned over to Santa Fe Drilling Company, I was torn between drilling and production. Maybe it was the assurance I could stay in Fullerton that caused me to bid into the Production Department.

Then, too, it could have been my respect for the people that caused me to stay with Union. I believe we have one of the best companies in the world. Let me tell you about a few things that happened to me over the years.

Not once have I had to worry about a medical bill. Even in 1917 we had medical insurance. (*Ed. note: The medical plan began in 1915.*) If a hospital bill was higher than the insurance and you didn't have the money to pay it, the company would usually help. A man from Industrial Relations would come to the hospital and pay the difference. You had to pay it back, but that's better than having to sell your car or your stock. Tell me of another company that would do this.

The company pension plan is another example. Some younger employees may resent having to pay money into the pension plan. Well, I can tell you something from experience. Suddenly, one day—and it's all to soon—you are 65 and facing retirement. When that day comes, you'll see the pension plan in an entirely different light. Mind you now, I'm thankful that I lived to be 65, and not that I waited until I was 65 to start living. But anyone who thinks about it for five minutes will have to agree that we don't deserve credit for our own retirement. Someone thought up the plan years ago and we find it's all for our own benefit.

When I retire this fall, not all of my income will come from the pension. I've been putting money into the Incentive Plan, and my only regret is that I didn't leave all of it there.

A few years ago I sold some stock to buy a car; I didn't want to be making car payments so I sold 20 shares. To do this I had to get out of the Incentive Plan for six months. During those next two quarters, the company contributions were big ones, and I lost them. If I were to do it over again, I'd borrow from the credit union; it's cheaper.

When I went to work there wasn't much of a safety program at Union or any other company for that matter. If a man got hurt too many times, he might get laid off. I can remember one of our first safety posters: It said, "Always use the proper tool for the job." The man they sent to hang the poster picked up a chisel to drive the nail; it slipped and mashed his thumb.

Today, of course, safety is paramount. When a piece of

equipment is unsafe, we shut it down. We feel it takes less time to repair a machine than to bury a man.

But safety is little things too. Just the other day someone was telling me about an incident at Research Center, not far from the Stearns Field. For years truck drivers who used the back entrance to Research had stopped near the gate for a drink of water from a rusty old faucet. The water wasn't very good and the Research people began thinking about putting up a sign saying, "Water unfit for drinking." The safety man from Research took one look at the place, saw that the grass had worn smooth where the truckers parked every day, and said, "No, we can't do that." Do you know what they did? They piped clean water out there from the main building. That's the way we practice safety.

A person meets a lot of people and makes a lot of friends in 48 years with a company. Even I didn't realize how many. Once, about 13 years ago, I was in San Bernardino and ran short of money. I went into a Union Oil station and bought some gas, giving the dealer my check. Naturally, he asked for identification.

On the counter I spotted a copy of the *On Tour* magazine (predecessor of *SEVENTY-SIX*). Picking it up I turned to the Service Emblem Awards and pointed to my name under the 35-year column.

"Well, I'll be darned," the dealer grinned. "Anyone with 35 years at Union Oil is good enough for me."

At the beginning of this article, I started telling you how the grass was always greener on the other side of the fence. Well, in my time I've seen a lot of grass, so let me tell you a little something about grass.

When I started in 1917 it cost the company \$11 for a crew of four men to clean the grass from around well No. 14 at the Hole lease in East Coyote field. Sharpening my pencil one day, I figured it cost \$78 in wages today for four men to do the same job. At lunch that day I saw Tony Hamilton, production foreman, now retired.

"Tony," I said, "I've never worked for a man who spent so much money cutting grass. I just figured it out, and it costs \$78 each time we send four men to cut the grass at No. 14.

Tony didn't say much at the time; he just munched his sandwich thoughtfully. Afterwards, as we were leaving, Tony came over to me and said, "Lou, you're wrong. You figured only the wages. I added in the benefits and found it costs \$103 to cut the grass." ⑦

About the Author

Luther M. Cariker was born in Norman, Oklahoma, on December 22, 1899. His service with Union Oil dates back to October 2, 1917. He has been a driller, drilling foreman, head well puller and today is a production foreman in the East Los Angeles basin in charge of rod crews at Richfield Santa Fe Springs, Brea and East Coyote fields. He lives with his wife, Mabel, in Fullerton, California.



FRED L. HARTLEY

Ninth president of Union Oil Company

AT SOME point in the curriculum, while Fred Hartley was studying chemical engineering at the University of British Columbia, there must have been a course titled "Questions—and how to get straight answers." For, beginning with his first Union Oil job as a young college graduate, Hartley has made a reputation for insatiable curiosity,

for asking questions, for getting answers—and for organizing the men with the answers into close-working task forces. Teams.

Today, as the ninth president of Union Oil Company, Fred L. Hartley believes teamwork to be the keystone for the future. "We have too much to do here not to give full

emphasis to it," he says. "We must work together, always."

A bit of Hartley's philosophy is summed up in watercolor on his office wall. It is a painting of a circus clown standing on a sand dune in a barren desert. In the bleak scene, the clown is playing a violin. The painting is captioned, "Everyone has something to offer."

Physically, Hartley fits the mold of a team quarterback pretty well. By today's pro football standards, he may be a bit small; but for channelled energy he doesn't give a yard to anyone. Typically, he strides along like a back plowing through a line.

And like a quarterback, he speaks out in a loud, clear and very-much-to-the-point voice when he feels the signals should be called. A few examples:

To an industry committee studying a mutual problem: "Your presentation is great—but you're working on the symptoms instead of trying to cure the disease."

To a shareowner who questioned a three-year decline in Union's product sales: "The fact of the matter is, we're out to make sales at a profit. To sell at a price less than the total value we put into a product would, of course, be an effective way to lose money. We have eliminated sales that, in our opinion, are not profitable. . . ."

To the Secretary of the Interior on a proposal to modify the oil import program: "We believe these proposals exceed the authority of the Interior Department, that they are uneconomic, that they are unwise, and that they are not justified on the basis of national interest."

Always he reiterates the "profits and teamwork" theme. It comes out in private, in talks to Union Oil groups, and in public—as in these remarks to the Boston Security Analysts Society: "One common activity of Union's management is a never-ending, never-tiring drive to reduce costs and improve operating performance. We have set ourselves some sizeable goals, and I'm confident our management group and employees working as a team are capable of their accomplishment."

THE MOVE INTO MARKETING

The sharpest upturn in Hartley's career came when he was named a senior vice president and head of marketing in 1960. After 21 years in engineering and scientific circles, the transfer brought him into a new world.

As a chemical engineer he had an analytical mind. His wide experience in refining and research had taught him the scientific approach to decisions: To solve a problem, you first strip away emotion. This approach, he found, needed tempering. In marketing, you deal with unpredictable people as well as with facts.

Fortunately, he was able to benefit from some past experience; Hartley had been the Research Department's salesman for years. He had moved to the department from refining in 1953 to take over the newly formed Commercial Development Division. In this spot, his job was sell Union's research developments to others. Number one on his list was a process called Unifining, a unique method of producing hydrogen-purified products. By the time he left the Research Department as its vice president, he and his associates, along with the Universal Oil Products Company, had sold the process so successfully that Unifiners now are being used in more than 200 refineries throughout the free world.

With this background he learned about marketing fast. Today one staff executive describes Hartley this way: "He is a firm believer in the philosophy that the customer is the focal point around which this company must develop and grow."

How strong his preoccupation with the customer—with people—has become is illustrated by a few of his comments from a recent press conference. In response to reporters' questions, Hartley said:

"The industry and Union Oil Company have never enjoyed the volume of business we should relative to the number of our customers. We have an excellent opportunity to influence those customers to buy from us.

"For example: In addition to petroleum products, we have to sell merchandise for our business to be profitable to us and our dealers . . . and to properly serve our customers. We have to recognize—are recognizing in Union Oil—that our customers' automobiles have changed their characteristics. So we have changed our entire service procedure to meet the customers' needs.

"Like it or not, we're even in the real estate business. We want only corners for service stations, but we buy more than the corner with, as our objective, having other businesses established on the remaining property. People like it; the two businesses grow because of each other.

"We are exploring every avenue that will give us a chance to make better profits by serving our customers better—we're looking at customer needs from all angles."

HIS ACTIVITIES—AND HIS BACKGROUND

You get an indication of Hartley's energy—and his wide scope of interests—from a listing of his outside activities.

He holds membership in the American Petroleum Institute, the National Petroleum Refiners Association, the California Natural Gas Association, the Western Oil and Gas Association, the American Institute of Chemical Engineers,

continued

FRED L. HARTLEY *continued*

the All-Year Club of Southern California, the Sales and Marketing Executives Association of Los Angeles, the American Chemical Society and the New York Academy of Science.

He is a director and past president of the Southern California Industry-Education Council, a cooperative effort between educators and civic, industry, business and professional people.

In addition he belongs to the Southern California Symphony Association, the Newcomen Society in North America, the Japan-America Society of Southern California, and is a past president of the Palos Verdes Breakfast Club.

Hartley was born on January 16, 1917, in Vancouver, British Columbia, attended the University of British Columbia and was graduated with honors in May of 1939 as a bachelor of applied science in chemical engineering.

He was recruited to work at Union Oil by the late John P. Rockfellow. Hartley arrived at Oleum Refinery on May 17, 1939, with \$25 in his pocket. He worked in the labor gang at Oleum that summer, then was promoted to junior research engineer at Los Angeles Refinery. In 1942 he returned to Oleum as refinery process supervisor, and later that year was named manufacturing process supervisor at the home office; he stayed in that post for nearly eight years. During that time he was involved in developing new technologies for the manufacture of toluene, for use in wartime explosives, and aviation fuel for the armed services.

In 1950 Hartley became general superintendent of operations at Los Angeles Refinery, a position he held until 1953 when he was chosen to head the newly formed Commercial Development Division of the Research Department. There, as we said, he became Union's world-ranging salesman for processes developed at the Research Center.

His strong belief in innovation and in the need for a constant search for new techniques—reflected most recently in Union's hard-driving marketing policies—became apparent during his tenure in research.

He—and Union Oil Research—are recognized among the country's foremost authorities on oil shale, one of our ace-in-the-hole for the future. Before the end of this year Union Oil will put on stream its first Unicracker, an advanced refining process that will have a major effect on the company's operations and profits. The Unicracking program (now Unicracking-JHC) was initiated and started on its way toward commercial development while Hartley headed the research team.

At the Research Center he received an introduction to the exploration and production phase of the company's operations. A major portion of our research effort is devoted to increasing our supply of raw material—from devising new drilling techniques to improving methods of completing a hole so it will be a better oil or gas well. He put in his post-graduate work in exploration and production as a member of the board of directors and of its executive committee.

In 1960, Hartley was elected senior vice president in charge of marketing. Two years later, when the company reorganized into major profit centers, he headed the new Refining and Marketing Division. In November, 1963, he was elected executive vice president—one more step in one of the most comprehensive, in-depth management experiences any Union Oil executive has ever undergone.

Hartley's election to the presidency of Union Oil came at the regular monthly meeting of the board of directors on August 31. A. C. Rubel was elected chairman of the board and continues as chief executive officer.

Relaxation for Hartley means—whenever possible—vacations with the family: his wife, Peggy, and their two children, Margaret Ann, 7, and Fred Jr., 5. (The Hartleys live on Palos Verdes Peninsula south of Los Angeles.) In fact the family had been fishing for salmon in British Columbia the week before his election.

Occasionally, he squeezes in a hunting trip; a session at the piano, usually when there's a group of singers around; a game of tennis; and, "as time permits—about once every three years," a round of golf. 76



TWO PRESIDENTS: Fred L. Hartley, newly elected president of Union Oil, was pictured in December, 1959, with A. C. Rubel, then president, who presented Research Center with a safety plaque for two million manhours without a disabling accident. Hartley was then vice president for research.

a Chemical Tune-up in every gallon

(Summary: In the first article, we saw how to blend gasoline for quick starting, rapid acceleration and power. In the second article, we saw how to combat the twin devils of combustion: knock and surface ignition. In this concluding article, we'll look at the chemical tuneup in every gallon.)

EVERY MILE YOU DRIVE," says the advertisement:
"—You get a chemical tuneup,

"—It keeps your carburetor clean—and the inside of your engine too.

"—It gives you better timing—better carburetion."

These three points have been hammered home time and again in Union Oil Company's advertisements in newspapers, magazines, on radio and TV. What specifically do they mean? Are they just advertising come-on's? Or do they really mean something?

To the men who know, the chemical tuneup is a meaningful promise. Yet the chemical tuneup is an invisible feature. Unlike blending, it doesn't give you better starting, acceleration or power. Unlike refining, it doesn't prevent knock. What the chemical tuneup does is keep

your car running—purring merrily along without expensive repair bills. It keeps your engine free of harmful deposits that might otherwise stall you on the road and cost you repair bills.

Specifically the chemical tuneup you get with 76 gasolines does three things. First, it keeps the induction system of your engine clean. Second, it keeps the insides of your engine itself clean. Third, in Royal 76, it prevents surface ignition and gives you better timing. Surface ignition was one of the twin devils of combustion we discussed last month. Now let's look at the other two facets of the chemical tuneup.

Let's look at the induction system first.

Most people never stop to think about it, but your car's induction system (carburetor and intake manifold) sucks in 10,000 gallons of air for every gallon of gasoline you burn. The gasoline itself is free of contaminants, thanks to the refinery. But who is to keep the air clean? Air filters help, but they don't halt tiny particles of dust, exhaust, grime, smog molecules and other contaminants. Too small to be captured on the air filter, these tiny bits of grime collect on the throttle bore of your carburetor.

continued

a Chemical Tune-up *continued*

Now let's see how they affect your car's performance. When you are idling your engine, the throttle is almost completely closed. There is very little clearance between the edge of the throttle blade and the wall of the throttle bore. Just the slimmest sign of a deposit, therefore, will choke off the supply of air—air that is needed in a 10,000 to 1 ratio to gasoline. What happens, then, is the fuel-ratio goes rich, the engine idles roughly and stalls.

One answer to the problem of keeping the throttle bore shiny clean is to use a gasoline detergent, a chemical cousin to what's used in washing dishes. These gasoline detergents prevent formation of deposits of grime, dust and contaminants. At Union Oil refineries, a patented detergent called NR-76 goes into every gallon of Royal 76 and Regular 76 produced.

A dramatic example of the effectiveness of NR-76 occurred some time ago at a Southern California wood working and door factory. There were many saws and planers at the mill, machines that filled the air with tiny—almost microscopic—particles of wood dust. These particles were too fine to be fully screened out by the air filters used on the fork lifts and lumber carriers at the mill.

Here's what happened: Heavy deposits formed on the throttle bores of all the automotive equipment at the mill. Within two to three weeks, the fork lifts refused to idle properly. To keep the equipment running, drivers had to pump the throttle. Gasoline consumption went up. Worse still was the down time that delayed production.

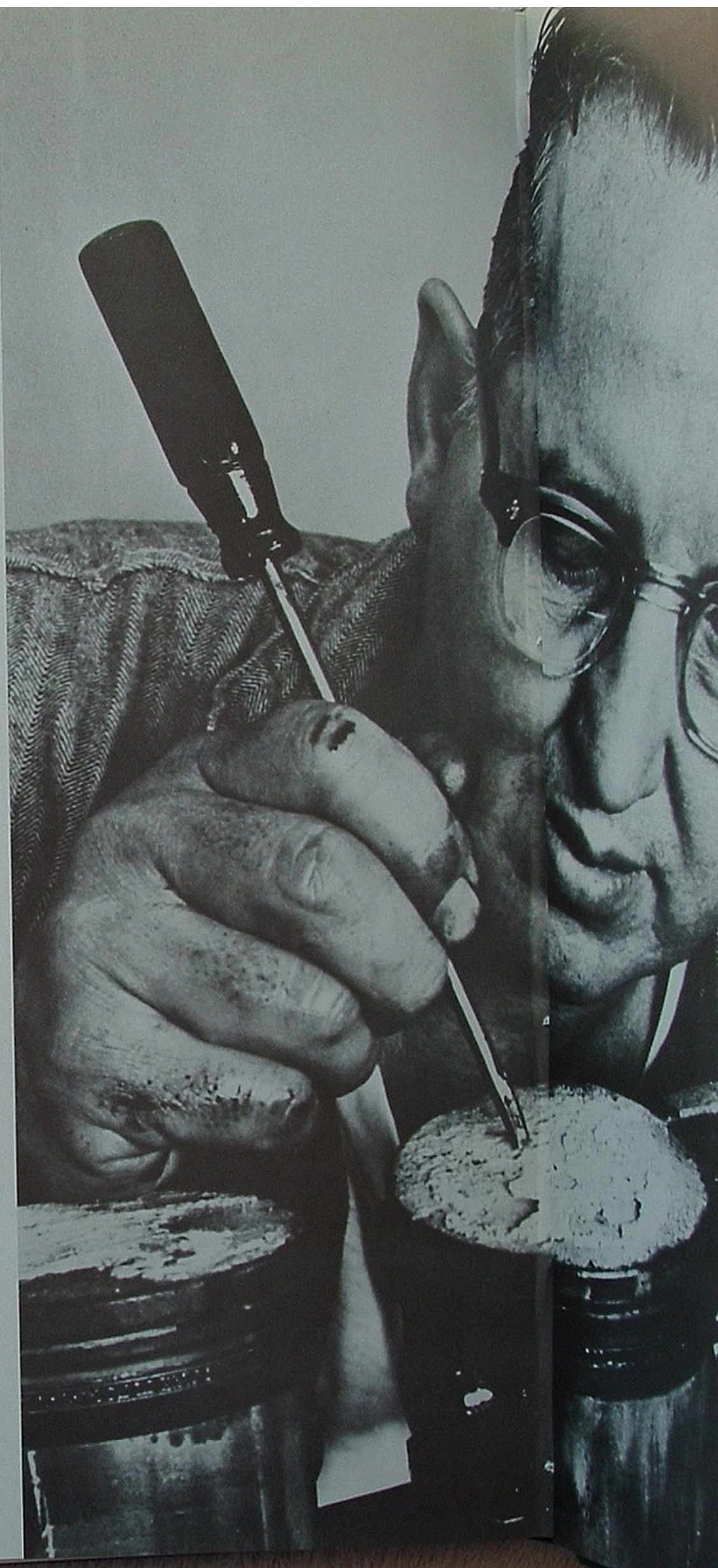
The story has a happy ending, however. Early in its field testing, Research tried NR-76 in the gasoline used at the door factory. Idling problems and frequent carburetor boil-outs were eliminated. Not only did NR-76 keep the carburetors clean, it also cleaned up the dirty ones.

This chemical tuneup feature can work on your car too. If you drive in a smoggy city such as Los Angeles, or a dusty Oregon logging or farming town, NR-76 can keep your car running when others stall.

But NR-76 is more than just a carburetor detergent. It contains a high quality, carefully selected carrier oil that gives NR-76 added benefits. With this carrier oil, the detergent action is carried through the induction system—right up to the combustion chambers of your engine. The result of this: clean intake manifolds and minimum deposits on the intake valves and parts.

Now, let's look inside your engine to see what the chemical tuneup will do. According to Dr. Ray Mattson, Research Center's technical consultant for this series, the main problem inside your engine is sludge. Sludge can plug up oil lines and play havoc with your hydraulic valve lifters. Another thing—varnish—can form on pistons and valve stems and lifters.

PHOTO BY RICHARD TOLBERT





When an engine gets gunked up with sludge, most people blame the oil. Although oil is very important, gasoline too plays an important role in determining how much sludge is formed. In fact, a poor gasoline (one that promotes formation of sludge) can mean you'll need an engine overhaul in 30,000 miles. With proper care, however, most cars today can go 100,000 miles without sludging up. Assuming you're getting no more than ten miles to the gallon, a penny a gallon extra for top quality gasoline would cost you \$70 for those extra 70,000 miles of trouble-free driving. That's cheaper than a \$200 overhaul.

Union Oil's refiners know a way to stop varnish and sludge formation. Additives are no simple cure here. The cure is in proper and thorough refining. In short, you're putting the life of your engine in the hands of the refiner.

From the gasoline refiner's point of view, proper and thorough refining translates into millions of dollars worth of hardware. It's no short term answer, but it is the kind of answer that builds long-term customers accustomed to trouble-free driving.

If you've been around Union Oil Company for a couple of years, chances are you've heard of the Product Quality Improvement Program. In part, this was Union Oil Company's \$17 million answer to the problem. The program included construction of Union Oil Company developed Unifiners that remove unwanted sulfur and nitrogen impurities—resulting in clean, sweet gasolines.

This means that by using 76 gasolines you'll have a clean and shiny engine that won't be needing an overhaul in 30,000 or 50,000 miles because of sludge. From a long-range point of view, this refining program paved the way for Union's claim today of a chemical tuneup in every gallon.

The chemical tuneup we advertise so widely is more than a mere carburetor detergent. It goes beyond the carburetor to keep your intake manifold free of gummy deposits. The chemical tuneup keeps the inside of your engine clean too. It stops gasoline-formed sludge from clogging up your lubricating system. It prevents harmful varnish on pistons, valves and valve lifters.

These claims are backed by performance.

WITH THIS, we've had a look at what makes 76 gasolines the finest. We've seen how proper and careful blending gives us quick starting, snappy acceleration and mileage-producing power. We've seen how 76 gasolines prevent fuel knock, and how Royal 76 rids us of that second devil of combustion: surface ignition. In this concluding article, we've seen how Union's chemical tuneup keeps your carburetor and intake manifold shiny clean, and prevents formation of harmful sludge.

What more could you ask of the finest? 76

BETTER TIMING: The chemical tuneup also improves timing, a problem discussed last month. Kenneth R. Trader of Research Center points to deposits that cause preignition. Royal 76 reduces timing problems dramatically, as much as 80 per cent.

Husky ground gainer...

still making yardage

WHEN BILL EARLEY was a backfielder for the University of Washington in 1950-52, he scored 91 times for the Huskies. In three years of varsity play, Bill caught 83 passes — 28 more than teammate Hugh McElhenny. Earley's Husky record of 1,264 yards for pass receiving still stands.

Today, from his office on 738 Marine Drive, Port Angeles, Washington, Bill Earley is still gaining ground: This time he is scoring for Union Oil. Since going into business with Henry Geist in 1962, the team of Earley and Geist has picked up volume by 50 per cent.

And what a place to live and work. Port Angeles, a fishing and lumbering community on the Olympic Peninsula of Northwest Washington, is the gateway to Olympic Park, home of the famed Olympic elk. Earley lives in Port Angeles with his wife, Betty, and their two sons, Bill, 9, and Phil, 7, who are learning to play football from one of the finest. 76



Husky Halfback Bill Earley (19) carries the ball for a touchdown in a 54-4 defeat over Montana in 1951.



Bill and Betty Earley inspect an apple tree at their home in Port Angeles.



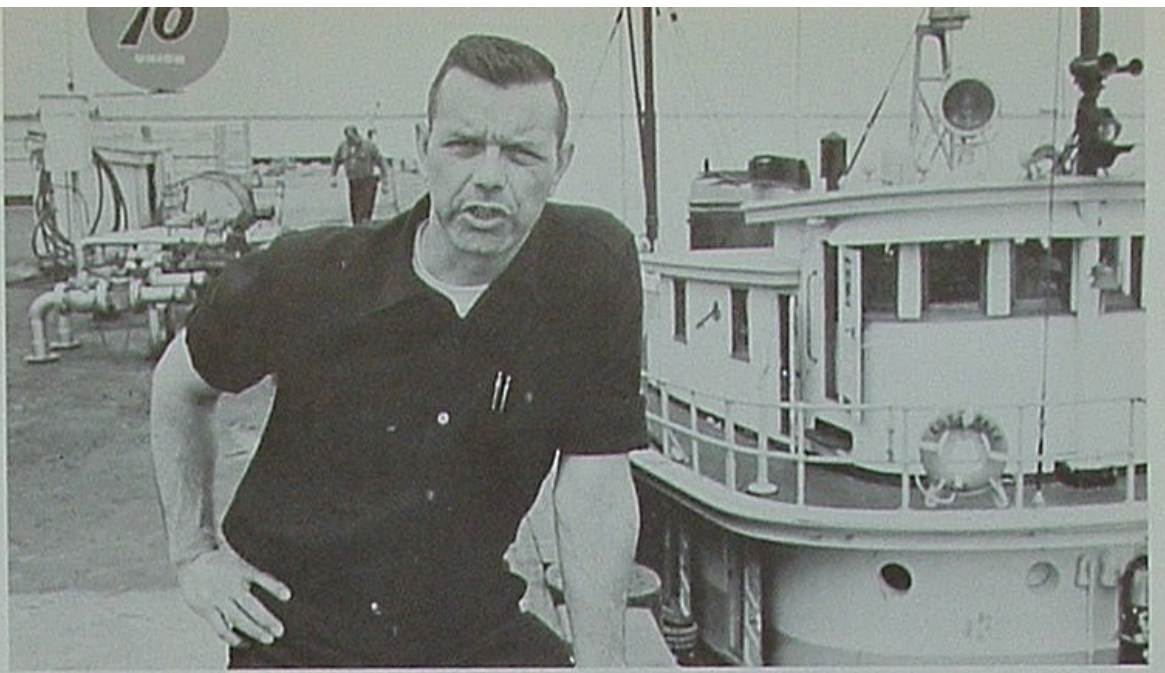
Sons Bill and Phil learn



a touchdown in a 59-14 defeat over Montana in 1951.



home in Port Angeles.



Today Bill Earley, posing in front of the tug, Ed V. Turner, is a consignee in Port Angeles.

Photos
by
Joe
Munroe



At Harper Brothers Logging, Bill chats with mechanic Adrian Ripley about lube.



Sons Bill and Phil learn finer points from dad.



Bill keeps in shape unloading Union products, in this case at Easterly's service.

Business



Highlights



NEW CATALYST EARNS ITS WAY IN FLUID CAT CRACKER

There is a different catalyst being used in the Fluid Catalytic Cracking unit (FCC) at Los Angeles Refinery, and it's full of pleasant surprises.

Catalyst is one of the key elements in the FCC, a unit that breaks down heavy oil molecules into lighter, smaller molecules that make up gasoline stocks. In the molecular world, the FCC makes "little ones" out of "big ones." It is one of the workhorses of the refinery.

Not only is the catalyst different, refinery operators are adding fresh catalyst at a faster rate these days. (As the catalyst becomes impotent from use, it is regenerated and returned fresh to the reactor system.)

Although these changes cost an extra \$600 a day, the added expense is paying off handsomely. In upgrading low-valued slurry oil (a fuel-oil ingredient) into higher value gasoline and light cycle oil, there has been a product value improvement of an estimated \$2,000 to \$2,500 a day.

There is more good news, too. As a result of the change, the FCC reactor is operating about 50 degrees (F) lower today than it was a year ago. The lower temperature means a significant reduction in fuel gas production, resulting in greater yields of higher valued cycle oil and gasoline.

The new catalyst program is an example of how the company spends money to make money.

Scale model of Project Amos observatory.



CREDIT CARD CUSTOMERS MAY BUY 'CONSTITUTION' RECORDS

During October our credit card customers will have an opportunity to buy two record albums of lasting value. They are "The Living Bill of Rights" and "The Living Constitution." Each will cost \$1.50 including postage and taxes.

"The Living Constitution" presents the entire Constitution, narrated as written, but dramatized with a chorus of voices against a musical background. Issued once previously, the record drew wide acclaim.

"The Living Bill of Rights," a logical follow-up, describes such points as what laws safeguard your privacy and how free your speech really is, and tells whether you can always be sure of trial by jury.

These records will not be available through service stations; rather they will be sent directly to credit card customers who order them.

UNION SERVICE STATION: ONE MILE AHEAD — OPEN 24 HOURS

When the gas gauge is getting low on a lonely stretch of road, it's always comforting to see one of our station location signs announcing that the "Sign of the 76" is just ahead.

For years our highway signs have been familiar with blue trademark on orange background. This sign is now being replaced with a new version, which has a replica of our rotation "76" ball and the distance to our station in easy-to-read letters.

In addition to more eye appeal, the new sign offers increased visibility after dark.

WE'RE HELPING TO BUILD A \$5 MILLION OBSERVATORY

Project Amos, when completed next year, will be a \$5 million space observatory situated on 10,000-foot high Mt. Haleakala, the highest peak on Maui, Hawaii.

(Amos is an acronym standing for Arpa Midcourse Observing Station.)

The observatory will track missiles and satellites on flights over the Pacific.

Union Oil is supplying the petroleum products for this project to Associated Engineers & Contractors of Seattle, Washington, the general contractor. The observatory will be open for public inspection by next summer.

MAC CARTER WINS GRAND PRIZE IN 1963 CREDIT CARD CONTEST

M. K. "Mac" Carter, a commercial sales engineer in the Marketing Department's California South Coastal Division, has won the 1963 Employee Credit Card Contest. As the grand prize winner, Carter took home \$881 in winnings.

Carter placed first in the contest by securing 181 new, active credit card accounts. As evidence of Mac's persuasive salesmanship, every card issued in his account became active.

According to contest rules, employees were invited to solicit credit card applications from friends, neighbors, relatives and business acquaintances. The key to the contest, however, was in the word active. Before an employee could qualify for the contest, his new customer had to use the Union credit card during three—not necessarily consecutive—months. Only then was the account regarded as active.

Carter's \$881 in prize money came about this way. He received a grand prize of \$500 for bringing in the largest number of active accounts. As one of the four Union employees who were in the top 10 in the contest during all four quarters, he received a year-end bonus of \$100 in Autoscrip. Moreover, as employees in the top 10 during any single quarter received a \$25 Autoscrip bonus during that quarter, Carter qualified each time for another \$100. Finally, as with all contestants, he received Autoscrip certificates worth \$1 for each active account—and Mac had 181 of these.

During the contest, 6,955 new active credit card accounts were obtained through Union Oil employees. The holders of these new credit cards are now buying an estimated \$1.8 million a year worth of our products and services, an indication that the contest pays dividends to everyone.

Other winners were as follows: Four year-end \$100 Autoscrip bonuses for being in the top 10 during all four quarters were R. R. Morris of Southwest Mountain Division with 170 active accounts, J. Steinberg of California North Coastal Division with 162 active accounts, Helen Erickson of Southwest Mountain Division with 159 active accounts.

The 1963 contest was so successful the company is holding a new contest during 1964. Now in full swing, this contest holds promise for all. Results for the first quarter indicate Mac Carter is trailing in third place. Ahead of him were H.O. Lonberg of Oleum Refinery and J. E. Osborn of the Credit Department. 76



In Memoriam: JAMES E. SUTTLES

THE PASSING of James E. "Sonny" Suttles on September 23, 1964, was announced from Rochester, Minnesota, where he had gone to seek medical advice. His death brought to an end a valuable and colorful working career.

Mr. Suttles, assistant to the manager of the Gulf Division and an assistant secretary of the company, was a pioneer in the Gulf Division practically from the inception of Union's exploratory program there. Employed as a landman in 1940, Sonny became division landman in 1942, division manager of lands in 1955, and assistant to the Gulf Division manager in 1959. Since 1946 he had also served in his concurrent capacity as assistant secretary of the company.

In these assignments Mr. Suttles was a key figure in the acquisition of many Gulf Division drilling leases that have since become major oil fields. Sonny's genial nature and friendliness toward everyone, both in and outside the company, were contributing factors to his and our success in the South.

Born at Houston on April 9, 1906, Mr. Suttles never ventured far from the city of his birth to seek greener pastures. He found plenty of happiness and challenges on his Texas doorstep. A graduate of Rice University in 1927, he immediately turned his structural engineering training into the manufacture of prefabricated homes. In 1930 he became a partner in the contracting firm of Joe A. Suttles & Sons.

Finally the oil industry caught his attention. He became owner of a small drilling company at Houston in 1933, and an independent lease broker in 1937. He thus had valuable experience and a host of friends in the South when Union needed local talent to start the Gulf Division.

Mr. Suttles is survived by his wife, Maurine, two sons, Joseph and James, and a daughter, Sandra. To them, Union Oil people everywhere express their deepest sympathy. 76



**A supply and transportation
specialist discusses
problems
encountered in**

JUMBOIZING OUR S

By **ROBERT N. GREEK**

UNION OIL CENTER

EARLY IN 1963 Refining and Marketing's Planning Department faced the challenge of reducing the costs of raw materials — mainly crude oil — being processed in our refineries. After a survey of expenses, the cost of transporting crude oil almost 12,000 miles from the Persian Gulf to Los Angeles Refinery seemed like a good candidate to tackle.

On a unit basis, the transportation cost was already low — on the order of two cents a gallon, which is cheaper than sending a half-ounce post card the same distance. On the other hand, the total cost of some \$7,000 to \$8,000 a day was large. A one per cent reduction, for example, could save \$30,000 a year per ship.

It's not all that simple, however. The cost of a ship, from a planning point of view, is not that recorded on conventional expense ledgers, but rather it is the cost on the world charter market for tankers at a given period of time. A tanker fleet is almost never in balance: Either you are chartering out surplus ship time or you are chartering in other operators' ships to meet deficits. In fact, you might be doing both at once. Thus, an important point in making decisions is, "What does the market pay for a ship at a given time?" As we shall see, the world tanker market is quite volatile; a classic case of supply and demand at work.

Getting back to our cost reduction problem, among the ideas we investigated was jumboizing or stretching-out the already large 67,000-ton ships we have under long-term charter. As a rule of thumb, as tanker size increases, both investment and operating costs decrease to some lower limit. What that limit is no one knows; each year it seems stretched further. When Union's chartered tankers were launched in 1958, they were then the largest vessels ever built in a U.S. shipyard. Five years later the world champion was a 123,000-ton vessel, and now a giant of 150,000 tons is abuilding.

The conventional method for jumboizing is to saw the vessel in half amidships and add a middle section for extra length. A more recent development goes one step further: it also slices the ship lengthwise, adding a sandwich-like section to deepen the draft.

Union Oil took a new approach. We did away with everything forward of the engineering or machinery space — which, after all, is the expensive part of the tanker. Then we added an entirely new forebody, making the vessels longer, deeper and wider. The 118,000-ton version we selected is expected to reduce cost-per-ton-per-mile on the order of 20 per cent. Two supertankers, the *Lake Palourde* and the *Torrey Canyon*, are scheduled to enter shipyards this fall for the jumboizing program.

So far we have found transportation costs. By sizes, in this case up fr \$50,000 barrels per ship is needed at Los Ange much more storage was We set out to determ ments. Basically we wa had less storage than on

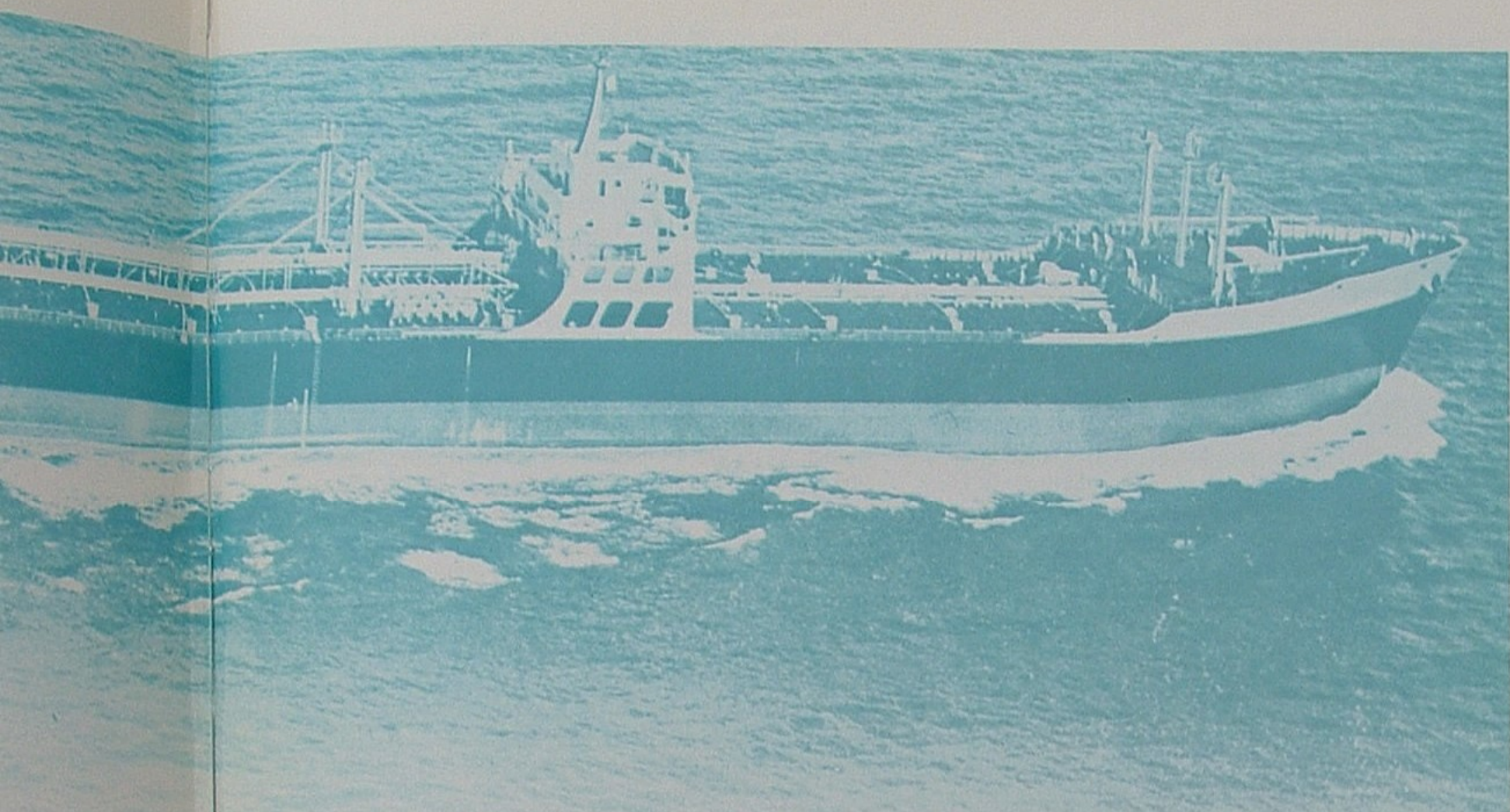
Ab

Robert N. Greek is n Planning in the Refinin graduated from Massach served in the U.S. Navy conflict before joining U ships in the National In of Management Science cety of America (ORSA Shippers Committee. Th from a speech he delive of ORSA in Honolulu on S



A supply and transportation
specialist discusses
problems
encountered in

JUMBOIZING OUR SUPERTANKERS



ZING OUR SUPERTANKERS

So far we have found a way to significantly reduce our transportation costs. But bigger ships mean bigger cargo sizes, in this case up from the present 470,000 barrels to 850,000 barrels per ship, which in turn means more storage is needed at Los Angeles. Our next question was, "How much more storage was really needed?"

We set out to determine the optimum storage requirements. Basically we wanted to minimize total cost: If we had less storage than one ship's cargo capacity, each vessel

About the Author

Robert N. Creek is manager of Supply and Distribution Planning in the Refining and Marketing Division. He was graduated from Massachusetts Institute of Technology and served in the U.S. Navy during World War II and the Korean conflict before joining Union Oil in 1953. He holds memberships in the National Industrial Traffic League, the Institute of Management Science and the Operations Research Society of America (ORSA), and has been chairman of Bulk Shippers Committee. The accompanying article was taken from a speech he delivered before an international meeting of ORSA in Honolulu on September 18.

arriving at Los Angeles Refinery would have to wait until the refinery could process the surplus. At something like \$10,000 a day charter-market cost for jumbo supertankers of this size, we could not afford to do much waiting. The first question to be answered then was, "How much waiting could be expected with a given amount of storage?" With two ships in service, the answer obviously lay between storage equal to one ship's cargo and two ships' cargos. In terms of cost, the difference in tankage required would be significant: more than \$3 million in capital outlay.

With two ships in service, each with a 60-day turnaround, one might expect a ship arrival every 30 days. Ships, unfortunately, are like grapes: they often come in bunches. A five-year arrival history of the three ships presently in this service shows that ships were almost equally likely to arrive anytime from one to forty days apart. Nothing in the new operation, with two jumbo ships doing the work of three tankers, seemed likely to change this pattern. This calendar of arrivals is the result of many factors: weather and port delays, dry-docking schedules, and charter in and out activity.

To understand tanker operations, you have to recognize that tankers are not scheduled; they are driven. Dry cargo and passenger ships tend to operate on a scheduled basis,

continued

JUMBOIZING *continued*

running to meet port-of-call dates set weeks in advance. Allowances for upsets and delays are typically included in their schedules. Tankers, on the other hand, are normally pushed to maximum efficient speed at all times. With market prices running up to \$10,000 a day this is hardly surprising.

In addition to the maritime calendar, we also had to consider the refinery's operations. We didn't want a jam-up when two vessels were forecast to arrive close together. It is possible, on arrival of the first ship in a bunch, to crank up the refinery to maximum rate, thereby reducing the amount of storage needed for the second ship. But refinery managers want their operations tuned up to an optimum level and held constant. They don't like to see a whole year's supply of imported crude oil introduced in 10 or 12 randomly spaced big slugs, wherein the refinery units have to take up the bounce, losing efficiency in the process.

Worse yet, the Pipeline people who operate the crude oil storage system pointed out that government import quota regulations require that we import an exact amount of oil in each six-month period. Anything less and we lost the deficit forever; anything more and we would be forced to put the excess into bonded storage, which would take one or more tanks out of service and upset Pipeline operations.

Other views were heard, too. Our Marine Department

would like to make all deliveries in the summer so they could charter out the vessels in the winter when world-wide charter rates are high, due to increased world fuel oil demand for heating and power. If we could somehow shift a winter cargo into the summer months, and our timing was good, the difference in one ship charter could mean as much as \$400,000 extra.

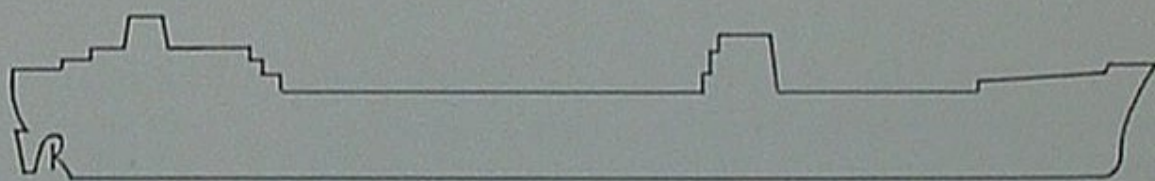
Meanwhile, problems continued to compound. Process unit turnaround schedules in the refinery had to be considered. Emergency shutdowns were a factor. Periodic dry-docking imposed disruptions. To make the problem more complex, the total system changes with time: new process units are added, product mix changes, import quotas fluctuate.

Our solution was to form a team whose members came from the operating departments. Wellman Branstrom of Pipeline, Don Chaffee of Los Angeles Refinery, Gene Friess of Refining at Union Oil Center, Sam Taber of Engineering and Construction and I got together to find the answers. The storage we selected was 1.6 times the cargo capacity of a jumboized supertanker.

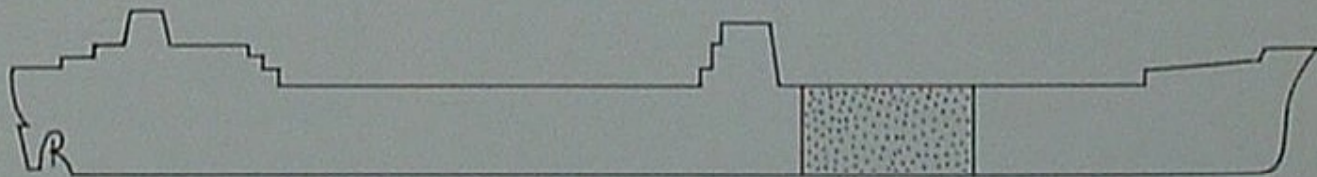
Therefore, we are not only jumboizing two supertankers, we are now jumboizing our tankage at the Los Angeles Outer Harbor Terminal. Engineering and construction have started on the addition of a 250,000-barrel floating-roof tank, which will bring our capacity to 1,300,000 barrels in our total Los Angeles system. Construction will be completed about March 1965, with the first supertanker due to arrive shortly thereafter. 78

Four Ways to Jumboize a Tanker

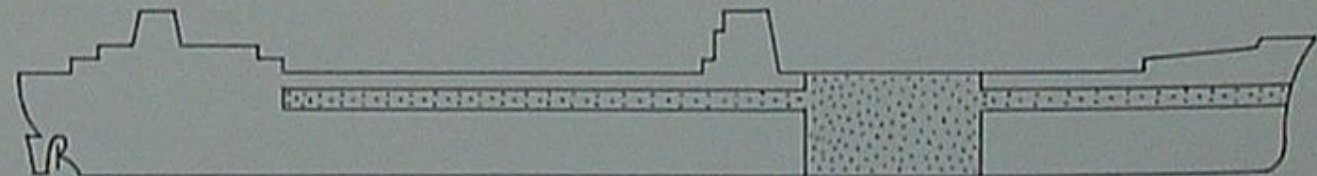
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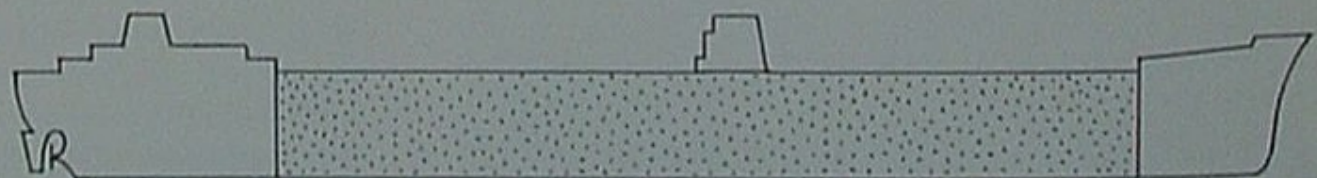
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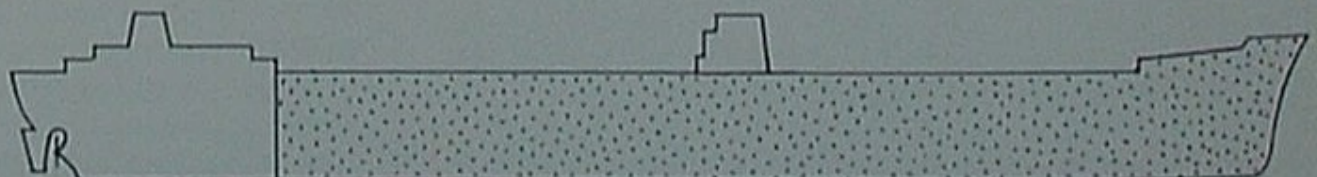
LENGTHEN AND DEEPEN...



LENGTHEN, DEEPEN AND WIDEN...



OR BUILD A COMPLETE NEW BODY (UNION'S METHOD)



Montana Centennial Fun

THE GREAT WHITEFISH STAGECOACH RIDE

WHITEFISH, MONTANA

THE WELLS FARGO Overland Stage left Whitefish at 7:30 p.m. Tuesday, June 30, with a traditional bottle of champagne to christen the event properly and the hearty cry, "Giddy-up." Four matched black horses leaped to the reins and thus began the Great Stage Ride from Whitefish to Kalispell.

Not everything went smoothly. About five blocks from the departure scene, the stage developed wheel trouble and had to be taken to Chuck Tudor's Union service. The repairs made, owner and builder Ben Wagner Jr., a Montana highway patrolman, got into the driver's seat and resumed the journey.

Several blocks later a group described by the Kalispell *Daily Inter Lake* as "a gang of desperados undoubtedly from Whitefish" descended on the stage and bellowed: "This is a holdup." Crew and passengers quickly threw up their hands. A few wallets were actually tossed onto the road.

It was just about dusk, the perfect time for a holdup as every highwayman knows. Unfortunately there were so many motorists on the road trying to get a closer look at

the stage that the holdup was a failure.

No stops for feed and water were necessary along the 15-mile route, but a group of men wearing bearskin coats leaped out of the brush at one point and converged on the coach with free refreshments.

The stage arrived in Kalispell at 11:05 p.m.

A replica of the famous overland coaches of bygone days, the stage was built to help celebrate Montana's centennial this year. In fact, the coach has a permit issued by the Montana Railroad and Public Service Commission to operate as a taxi. While an application was pending, a public hearing was held to record objections, if any, to issuing a permit. The only witness was a Kalispell man who testified that he had spent two weeks on a park bench waiting for the stagecoach.

It was all in fun, of course, and after the stage arrived in Kalispell it brightened the centennial festivities. But half the fun was getting it there from Whitefish. Said Minute Man Tudor, referring to the crowd of well-wishers, "This probably was the only Wells Fargo stage that had a highway-patrol escort." 76



SERVICE STOP: This modern-day Wells Fargo overland stage stopped for repairs at Chuck Tudor's Union service in Whitefish, Montana. Highlight of ride was a "holdup" between Whitefish and Kalispell.

Union Oil Foundation will expand its scholarship program

THE UNION OIL COMPANY of California Foundation, a non-profit organization devoted to support of charitable, scientific, educational and cultural pursuits, will expand its scholarship program in 1965.

In the future the foundation will offer four scholarships each year, rather than the two it has awarded in the past. Moreover, these scholarships will be made available to sons and daughters of Union Oil employees, dealers, consignees and distributors as well as those of employees of subsidiary companies operating in the United States. Previously only employees' children qualified.

The 1965 scholarships are for students beginning college in 1965 who took the National Merit Scholarship Corporation qualifying tests in March of 1964. Recipients will be chosen on the basis of scholastic aptitude, leadership and good citizenship.

Scholarships will be based on financial need and will cover undergraduate studies. They will be four-year awards, ranging from a minimum of \$250 a year to a maximum of \$1,500 a year. Winners may attend any college or university in the United States.

Information regarding the foundation is available from R. O. Hedley, secretary; Union Oil Company of California

Foundation; 461 South Boyleston Street; Los Angeles 90017.

Wayland Minks Jr. Wins Merit Scholarship

WAYLAND R. MINKS JR., whose father is an analytical specialist at Union Research Center, has been awarded a four-year scholarship by the National Merit Scholarship Corporation.

The Union Oil Company of California Foundation sponsored the scholarship.

Minks, 18, was graduated from Orange High School in June, and entered the University of California at Santa Barbara in September where he plans to major in French.

Competition for Merit Scholarships was keen this year. A record 700,000 students from 16,000 schools were tested. Minks' scholarship award was made on the basis of test results, plus high-school grades and such other qualifications as leadership, citizenship and school activities. 76

MERIT SCHOLAR: Wayland R. Minks Jr., receives National Merit Scholarship from A. C. Stewart, president of Union Oil Company of California Foundation. Looking on are Mr. & Mrs. Wayland R. Minks.





IN FOCUS

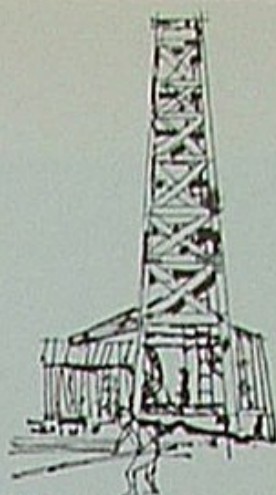


THE WINNERS: When Jerry Baldwin, retail credit manager in San Francisco, and his son, Jerry, entered the 14th annual Northern California Father and Son Golf Tournament, they won the third-flight trophy. If this wasn't a big enough thrill itself, the trophy was presented by Ken Venturi, U. S. Open champ.



STOCKTON VETERANS: Union Oil Company was among 78 individuals and firms honored recently for 40 years' membership in the Greater Stockton Chamber of Commerce. Accepting a certificate of appreciation for Union were (L) John G. English, regional sales manager, and (R) E.R. Peirano, Stockton Terminal superintendent. Chamber manager George Ernest presented the certificate.

TURNING BACK THE PAGES



The Story of Triton Motor Oil

IT WAS A TENSE moment. In the Research Lab at Los Angeles Refinery, Dr. Ulric B. Bray steadied a pressure vessel containing warm liquid propane. Researcher Donald E. Carr injected fuel oil into the chamber. Slowly the asphalt in the fuel oil settled to the bottom and was drawn off.

Dr. Bray opened a valve at the top; the pressure was released and liquid propane began evaporating, chilling the mixture inside. At 40 degrees below zero, the paraffin wax in the fuel oil crystallized.

"It works," Carr grinned. "We can filter out the wax crystals." Dr. Bray smiled.

Thus was born the process which by 1934 brought Triton to the world as the most revolutionary lubricating oil on the market. Contrary to the usual course of research, the first experiment was successful. It eliminated both asphalt and wax from heavy fuel oil, something that distillation wouldn't do for either Eastern or Western motor oils.

Until that time, motor oil was produced by distillation. The oil was heated and by carefully adjusting the temperatures and pressures the desirable lube oil stocks were distilled off, leaving the asphalt behind. Unfortunately, the distillation process permitted certain undesirable portions of the raw oil stock to get through. In an engine these low grade oil stocks promoted formation of sludge and carbon deposits.

Our researchers asked a question: Is there another way of selecting the oil stocks we want while eliminating the asphalts and waxes? The answer came in the experiment performed by Carr and Bray. Instead of distillation, propane was used to remove asphalt and wax. Another selective solvent removed the undesirable oil stocks. Lengthy testing proved the validity of these experiments. No sludge, no carbon: also, engine wear was dramatically reduced.

Once a lube oil plant was built at Oleum Refinery, Triton had to be introduced to the public. To dramatize Triton's properties, the Ascot Speedway in Los Angeles was rented for a 60,000 mile, five-car endurance run, using the best Eastern and Western motor oils. Cal Tech supervised the tests, which saw Triton outshine its rivals. Then the company hired nine veteran racing drivers to push a new 1934 Studebaker 60,000 miles over mountains, deserts and highways in 60 days, using Triton. Both Cal Tech and Studebaker specialists, who tore the engine apart, admitted that Union's claims were true, even understated. Triton motor oil was the finest. ®



JAGUAR OR LEOPARD: you get the finest from Norm Anderson

SITUATED AT THE picturesque intersection of Highway 59 and Cedar Glen Road near the shores of Lake Arrowhead, California, is a brand new Union Oil Station. It's one of the newest in the business and one of the handsomest.

New in the business also is dealer Norm Anderson, a recent graduate of the Minute Man training school. That he is well equipped to handle his business is indicated by a promising rise on his sales curve.

Shortly after opening the station, Norm had a rare opportunity to demonstrate his versatility. When Mr. and Mrs. John Weinhart of Inglewood, California, drove into his station, Norm asked if he could "fill 'er up." Moments later, the Minute Man discovered he was also dealing with a 65-pound leopard, a pet of the Weinharts, who are importers of rare animals.

As the accompanying picture testifies, Norm handled the situation with aplomb in the finest Minute Man tradition. Next time you're up his way in your Jaguar, drop in. Norm's good with those, too.

HERE'S A MINUTE MAN AT OUR RICHFIELD PLANT

EDWIN C. LEHEW of Daytona Beach, Florida, bought a new car in California this summer while visiting his brother, Robert, in Fullerton. While test-driving the vehicle in Placentia, Lehwew was astonished to discover that he had run out of gasoline.

The auto came to a halt near our Richfield Production Office on Linda Vista Boulevard. Unfamiliar with the car's mechanical operations, Lehwew walked over to the Richfield office to solicit aid.

"I saw the orange 76 sign," Lehwew said, "and to me that spelled 'aid.'" As it turned out, he was not wrong.

Lehwew stopped the first man he encountered, and he couldn't have found a better man for the job than Lester W. Hunt, engine mechanic and a veteran of 31 years in Union's automotive service.

Les Hunt is the kind of man who can sympathize with the plight of a stranded motorist. Although he's not a Union dealer, here is evidence that Hunt is a Minute Man in the truest sense of the word. In a letter to John Fraser, manager of operations for the Pacific Coast Division, Lehwew said:

"Mr. Hunt got several gallons of gas, drove me to my stranded car down the road, used a booster cable to get the car started and got me on my way. However, he would not accept payment for his kindness nor for the gasoline."

"At times like this," Lehwew continued, "I know that money does not adequately compensate. However, I do want to thank your company for having such a fine gentleman in its service."



QUICK CAR DRIVEN BY JIMMY QUICK and lubed with UNION'S T5X

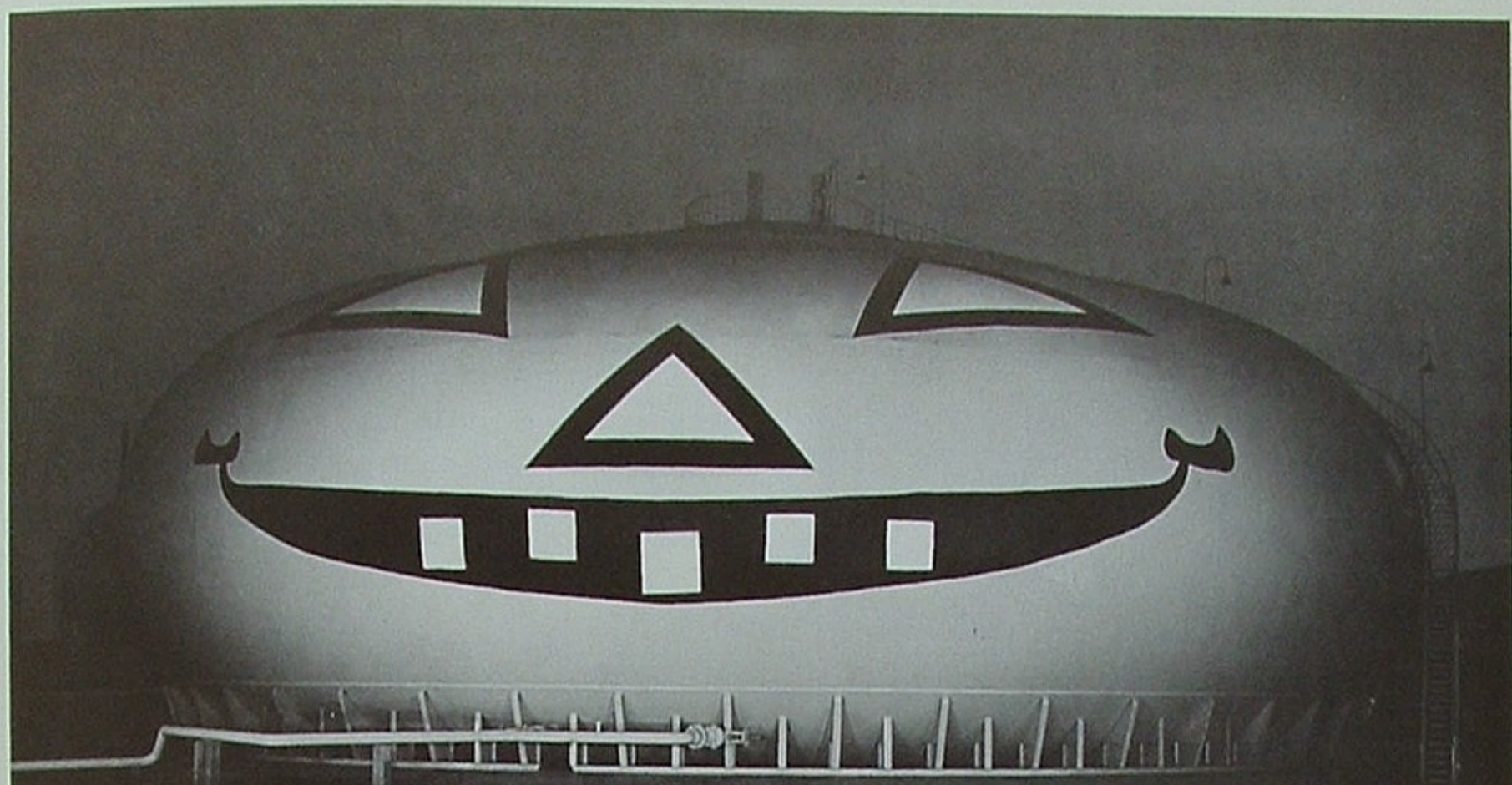
DALLAS, TEXAS

DRIVE OUT John West Road to the Devil's Bowl Speedway any Friday night and the roar of the super-modified race cars will hammer your ears.

On a normal racing night, 3,500 persons will be on hand at the Devil's Bowl. For open competition, 7,000 or 8,000 may jam the Speedway.

The entry list usually includes between 30 and 40—modified cars that reach speeds in excess of 100 miles an hour on the straightaways. Among the favorite drivers on this track are Buddy Wilson, A. D. Trowell, Tom Marshall, Buddy Normal and Jimmie Quick. Many of these drivers use T5X lube oil in their race cars. During the past five years none of the drivers using this oil has reported bearing trouble due to oil—despite the grinding pace they put their cars to on the track.

Even the patrons benefit at the Speedway. Through an arrangement with track promoter Roy Carter, Kinchloe Oil Company, our Dallas distributor, and jobber C. O. Hamilton give a free change of Royal Triton oil each Friday night to the person holding the lucky ticket from a drawing. As the emblem on Jimmie Quick's car says, "It's America's finest." 76



Smilin' Jack: THE GREAT PUMPKIN

Smilin' Jack, Los Angeles Refinery's jack-o'-lantern, gives a Halloween smile to passing motorists while storing natural gasoline.

LOS ANGELES REFINERY

LUCY, LINUS AND CHARLIE BROWN of the Peanuts comic strip may be waiting for the Great Pumpkin to rise out of the pumpkin patch, but their time would be better spent by looking to the hill at Los Angeles Refinery.

For the 14th consecutive year, we are decorating a large gasoline storage tank as a jack-o'-lantern. Big Smilin' Jack, as it is called, originated in October of 1952 when the tank was built. No sooner had the painters applied the orange prime coat than dozens of people began exclaiming, "Why, it looks like a pumpkin!"

Before anyone could convince us the idea was crazy, we had engineered the biggest jack-o'-lantern this world had ever seen. Its eyes and nose were 18 feet high; its mouth 73 feet long, and its teeth four feet square.

Newsmen came running. Photographers shot it from every angle. TV cameras carried the face to millions. Letters came rolling in from admirers.

A Norwalk, California, girl even wrote a poem about Smilin' Jack. Among the dozens of magazines and hundreds of newspapers that have featured the pumpkin are: *Ford Times* (It is possible that Union Oil is the only big company in the country that celebrates Halloween), *This*

Week magazine (Thought for pie lovers: If the tank were filled with pumpkin meat instead of oil, you'd have enough for 26,880,000 pies), the *Oil & Gas Journal* (Just for fun and for no other reason except to be in the spirit of Halloween, Union Oil made a jack-o'-lantern out of one of its big pressure tanks) and *Life* magazine (the world's biggest jack-o'-lantern).

Why a tank shaped like a pumpkin? Engineers explain that round spherical tanks withstand greater internal pressures than do cylindrical tanks. Spheroids, like Smilin' Jack, are used for storing light oils that vaporize readily or gases that will not remain in liquid form unless held under a slight pressure. Round tanks are the stoutest, but they are costly. Accordingly, engineers designed the Noded Hortonsphere, which can accommodate a larger volume than a sphere and withstand greater internal pressures than a cylinder. Smilin' Jack, known as Tank No. 304 after Halloween, is used for storing natural gasoline under pressure of about six pounds per square inch.

For whatever it's worth, Smilin' Jack has probably paid for itself. Enough gasoline has been consumed by motor-ing spectators to fill the tank's 80,000-barrel capacity a dozen times over. ®



AWARDS

REFINING & MARKETING

October 1964

45 YEARS

EMMET P. KAVENEY Los Angeles Refinery
EDWARD J. ZANUSSI Oleum Refinery

35 YEARS

RUSSELL P. COLEMAN Los Angeles Refinery
LEO W. DOTY Oleum Refinery
ALBERT L. LATHROP Los Angeles
HOWARD C. NICHOLSON Oleum Refinery

30 YEARS

CHARLES D. BRADLEY Union Oil Center
JOHN G. BROWN Phoenix, California
HARRY B. HILL Torrance Dist., California

25 YEARS

RAYMOND K. MARUYA Honolulu
LAWRENCE R. PEARCE Oleum Refinery
MABEL L. ROUSSEL Union Oil Center
ELMER T. VIGRE Oleum Refinery
FRANCIS J. WILSON San Francisco

20 YEARS

LEONARD N. OLSON Los Angeles
FRED G. PEARCE Los Angeles Refinery
IVAN G. UNDERWOOD Los Angeles Refinery
HARLEY D. WAGLE Los Angeles Refinery
CHARLES J. WENKEL Los Angeles

15 YEARS

PAUL GEO. BISSIRI Santa Maria Refinery
RICHARD L. NOLAND Union Oil Center

10 YEARS

CLARENCE J. GIBBY San Francisco
WILLIAM S. McMENOMY Union Oil Center

CORPORATE

October 1964

35 YEARS

L. DOYLE WACHTEL Union Oil Center

20 YEARS

BARBARA J. HAMILTON Research Center

10 YEARS

JOHN A. LANDESS Research Center
GEORGE P. MALY Research Center

EXPLORATION & PRODUCTION

October 1964

30 YEARS

FLORENCE G. BREITSTEIN Union Oil Center
KIETH V. KAUFMAN Torrey, California

20 YEARS

KELLY C. CARSON Vinton, Louisiana
BERNARD A. MINCH Bakersfield, California
MYRLE S. JOHNSON Vinton, Louisiana
LELDON L. BEVILL Midland, Texas

15 YEARS

CHARLES H. DIXON Midland, Texas

10 YEARS

HENRY L. BRANDON Union Oil Center
H. L. BURRELL, JR. Anchorage, Alaska
PHILLIP M. SEATON Orcutt, California
JERRY L. WILLEY Bakersfield, California

DEALERS

October 1964

30 YEARS

FRANCIS REBMAN Belden, California

25 YEARS

CHARLES FREEBURG La Crosse, Washington

20 YEARS

BUD I. SHEPARD Santa Rosa, California

15 YEARS

SAM DE PILLO San Francisco
AL KOSKI San Francisco
WARREN SPEER Phoenix
CARL J. UHL West Covina, California

10 YEARS

MARY LOUISE MENA Ash Fork, Arizona
THAD NISHIHARA, dba
NISHIHARA SERVICE Honolulu
C. CARLYLE NORMENT San Jose, California
VIC M. ZAKER Phoenix

5 YEARS

PAUL ANDERSON Needles, California
A. BREKIEWICZ Seattle
ALLAN CABRAL Richmond, California
PAT COFFEY Garden Grove, California
ESQUIRE MOTORS Wenatchee, Washington
RAYMOND FONG College City, California
A. GULYN Seattle

ADA JONES Fairbanks, Alaska
STUART KARLINGER Idleyld Park, Oregon
MARION KENNEY Creston, Washington
WILLIAM LOFTUS Tubac, Arizona
KERMIT B. McNURLIN Portland
DANNY M. SMITH Williams, California
H. C. SWEET, dba LAST
CHANCE TRADING POST Chandler, Arizona
JACK WYCHE Anaheim, California

CONSIGNEES

October 1964

35 YEARS

J. L. ROGERS Prescott, Arizona

25 YEARS

SOUTHWEST
FLOUR AND FEED Glendale, Arizona

15 YEARS

H. R. KOTTLER Pullman, Washington

10 YEARS

G. LOWELL JARVIS Hoodspert, Washington

RETIREMENTS

September 1964

HERBERT M. BRIDGMAN
Pasadena, California February 19, 1936
ARNOLD L. MORRISON
Coos Bay, Oregon February 20, 1946
GREGORY B. STONE
Oleum Refinery March 2, 1926
ALFRED E. VALENTINE
Oleum Refinery April 19, 1927
WILLIAM A. S. WRIGHT
Research Center October 14, 1929

IN MEMORIAM

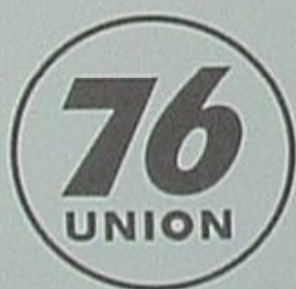
Employees:

RICHARD M. SHAFFSTALL
Santa Monica, California August 3, 1964
JOHN A. MULLINS
Oildale, California August 18, 1964

Retirees:

RAY T. HATFIELD
Anaheim, California July 23, 1964
JOHN B. DENIO
Bakersfield, California July 25, 1964
FRANK E. LEWIS
Richmond, California August 5, 1964
JAMES K. FRASER
Long Beach, California August 16, 1964

Michigan log loader working at Erickson-Benbow Corporation, Benbow, California



"76 Unifuel definitely extends overhaul intervals"

Mr. John Benbow, Vice President, Erickson-Benbow Corporation, Benbow, Calif.

"All of our diesel equipment works better on 76 Unifuel. Engine life is increased and overhaul intervals are longer.

"The Cummins 262 turbo in our Michigan log loader has 12,000 hours without a major. And, we've replaced only one set of injectors in it at about 6,000 hours.

"Our 19 trucks have Cummins 280's in them and we have been averaging 250,000 miles between majors.

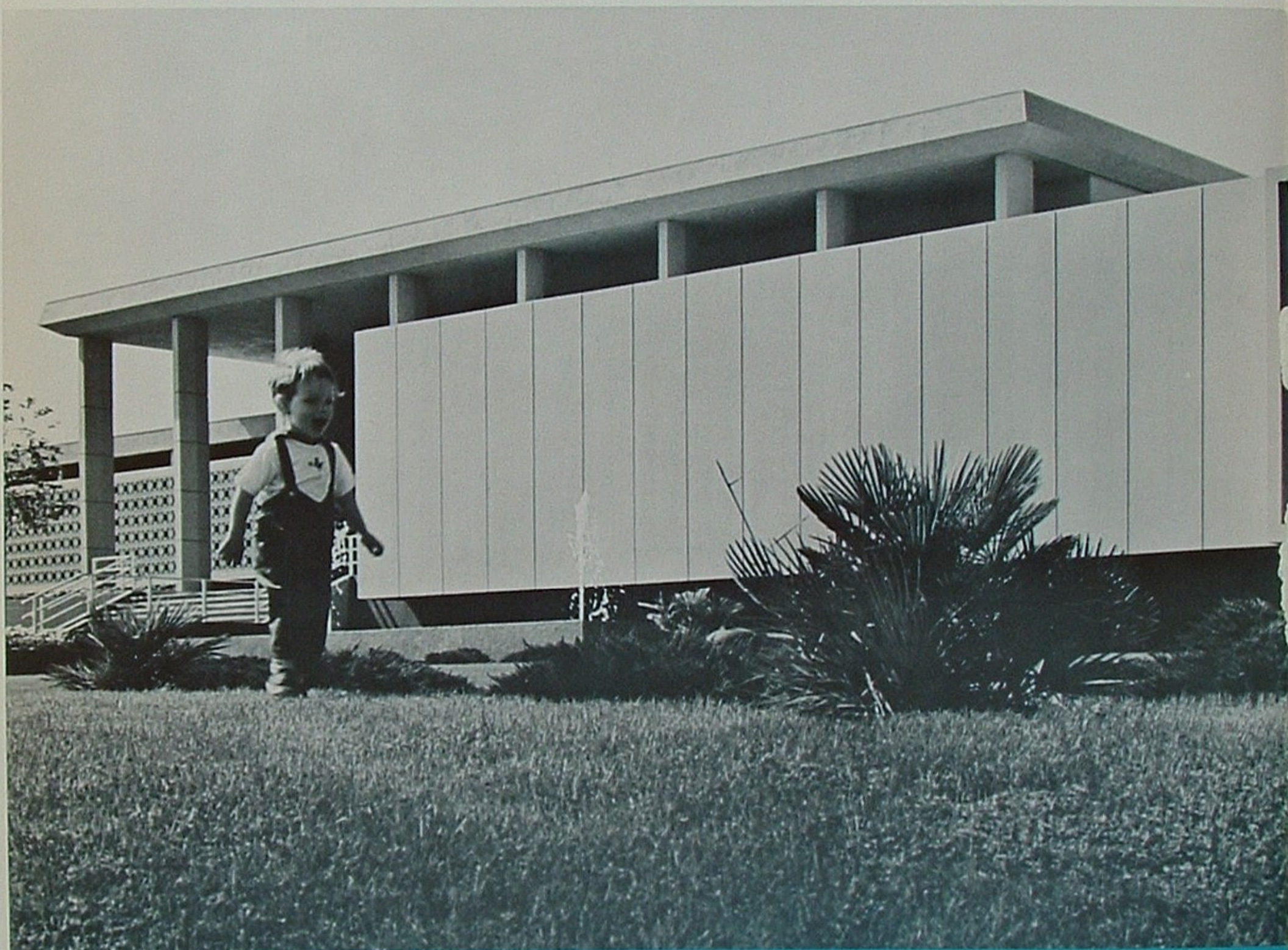
"Performance like that is certainly proof that quality products are always the best bargain."

Try 76 Unifuel. You'll agree it's The Finest. Field and laboratory tests prove that this amazing blond diesel fuel can double and triple injector life—that its low sulfur content reduces engine wear. Your nearby Union Oil representative has complete details about 76 Unifuel. Call him today.

UNION OIL COMPANY OF CALIFORNIA 

UNION OIL CENTER, LOS ANGELES 17, CALIFORNIA

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



How We Work ...

Two-year-old Richard Tolbert loves to romp on the lawn in front of the city hall at Montebello, California. Four feet from Richard is a gas injection well, one of many in Montebello operated by Union Oil Company. No derrick or surface pipe surrenders a clue to the location of Braun No. 7. The well is underground, camouflaged by pool, fountain, shrubs, flowers. Held safely in storage in the eighth zone of this well—some 7600 feet below—is 40 million cubic feet of natural gas. As winter approaches, this supply will be drawn upon to heat Montebello homes. But, Richard is interested only in the flower he has seen and wants to pick for mother.