

SEVENTY ⁷⁶ SIX

Union Oil Company of California



JANUARY 1963

Driver of the month

Owen Reynolds has compiled an almost unbelievable record as a Union Oil transport driver. He's piloted the big rigs through traffic-bound Southern California for the past 18 years—nearly 400,000 miles without any kind of accident, even a marred fender. In recognition of his ability behind the wheel, the California Trucking Association named him its "Driver of the Month" late last year. According to Terminal Superintendent Don Reed, Reynolds had strong competition for the honor from among Union Oil's own drivers. Others have nine, 10, 11 accident-free years, but, Reed says, "Reynolds has just had no accidents at all!"

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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.

THE COVER: Smiling Terry Kennedy—formally, Terrel J. Kennedy—is the teletype operator at Union Oil Center. That big file she's working at is the Center's directory—names and room numbers of a thousand people. (See page 6)

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*Archeologists tuck away dainty tools,
turn to earthmovers,
as they look for ancient man
on the Nevada desert*

DESERT SEARCH



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The teaspoon-of-dirt-at-a-time world of archeology is holding its breath as it watches the progress of an unusual "dig" at Tule Springs on Nevada's hot and dusty desert.

Way back, more than 30,000 years ago, man walked here, scientists believe. They have found the bones of the animals he ate. They have found indications of fire pits where he cooked his food. They have found some of his simple tools. They hope for the jackpot that, from a scientific standpoint, beats any payoff in nearby Las Vegas: they hope to find the remains of man himself.



It's their method of searching for him that breaks with tradition.

Instead of patiently pecking away with trowels and brushing the dirt aside with whiskbrooms, the archeologists are using giant bulldozers and scrapers to shave long trenches — but a delicate two-inch cut at a time — into a desert wash. Their purpose: to dig rapidly through the accumulated deposits of the centuries to a level where man may have lived when the desert was lush grassland.

The earthmoving job — big by any standards — is clearing away as much as 40 feet of overburden in a grid pattern. Portions of the grid between the cuts as well as places of special interest — fire pits and the like — are being left untouched for future study. The walls of the cuts themselves give geologists and paleontologists a chance to study the plant and animal life and even the climatic changes that have taken place during tens of thousands of years while man was developing.

Why are they digging at this particular spot with all the desert to choose from? Happenstance.

A field team from the American Museum of Natural History stumbled on Tule Springs in 1933. They saw the evidence of cooking fires and found a crude implement and fragments of animal bones.

Later, three small exploratory diggings were conducted by the Southwest Museum of Los Angeles. But a systematic probing of Tule Springs could never be undertaken because of the cost.

"We got everything we could with the whiskbroom-trowel technique," Miss Ruth Simpson, associate curator of the Southwest Museum says, "But we could never completely explore Tule Springs because of the amount of dirt to be moved."

Those early finds did accomplish one thing: they upset archeologists' theories about the length of time man had existed on the North American continent. Charcoal taken from the fire pits was dated by radiocarbon testing as more than 28,000 years old.

Prior to the "Carbon 14" dating of the Nevada charcoal (and other radiocarbon dates established at about the same time from other parts of the country), archeologists generally agreed man had existed on this continent for no more than 10,000 years.

The radiocarbon dating focussed world-wide attention on Tule Springs. The Nevada State Museum obtained a National Science Foundation grant to explore the site in conjunction with the Southwest Museum. Dr. Richard Shutler, curator of anthropology at the Nevada State Museum, is directing the dig.

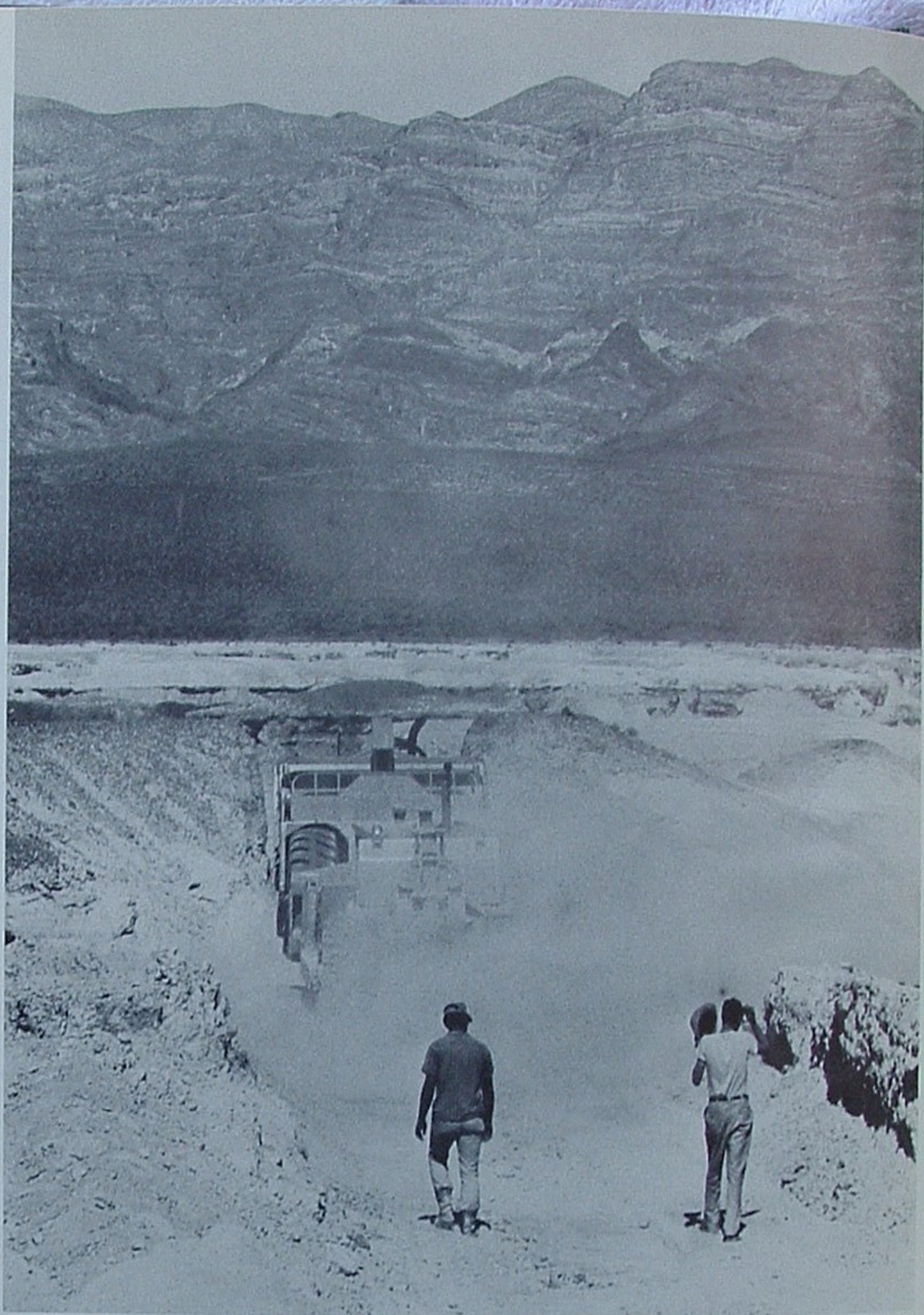
It isn't unusual for scientific institutions to work together on projects such as this, according to Dr. Shutler. The unusual aspect is the help being given by private companies and individuals.

Plumbers, electricians, and carpenters from Las Vegas

continued

Giant earthmover, dwarfed by reaches of Nevada Desert, scrapes exploratory trench into dry wash at Tule Springs. At the bottom of the trench: the place where man lived nearly 30,000 years ago.

Archeologists walk in the dust and heat behind bulldozer, watching for any artifacts that may be uncovered. When interesting material is found, the machinery is rerouted to prevent damage.



First load of 76 Unifuel arrives at Tule Springs in a cloud of dust. At left: Sales Manager C. S. (Red) Palmer.



Desert Search continued

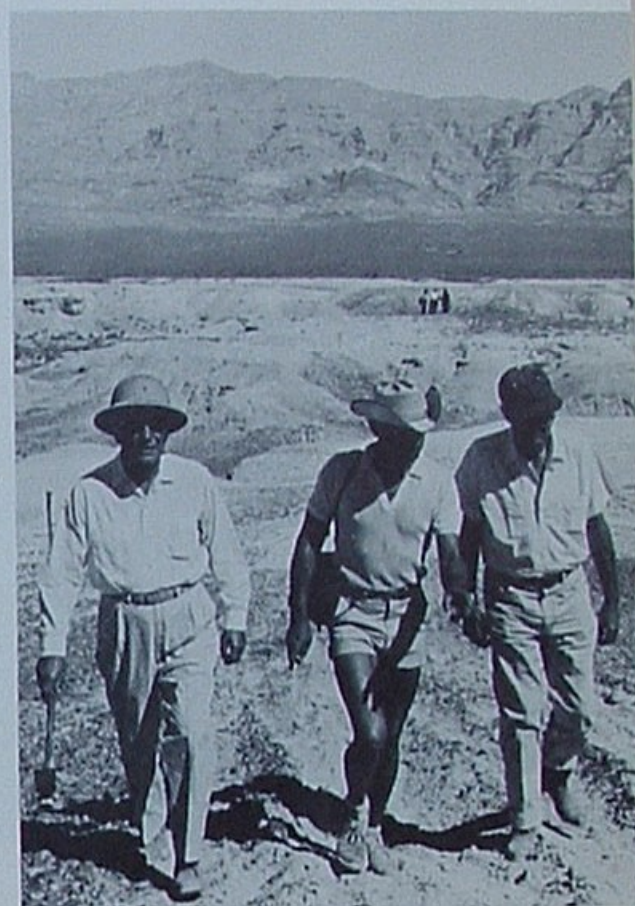
donated their help in the construction of the camp. Food and hotel rooms were donated.

H. C. Smith, an associate archeologist of the Nevada State Museum and head of the H. C. Smith Construction Co., engineered the big earthmoving job.

An aerial mapping company, Pafford and Associates, prepared topographic maps to guide the operation.

International Harvester lent two over-size bulldozers and Allis-Chalmers lent a mammoth scraper; Wells-Cargo, Inc., provided water trucks and other equipment; the International Brotherhood of Operating Engineers, Local 12, sent out men to operate the enormous earthmoving equipment.

Union Oil Company supplied the fuels and lubricants: about 25,000 gallons of 76 Unifuel, plus 7600,



Union Oiler Kelley Walker, an archeologist, and H. C. Smith who engineered the earthmoving, trudge back from an inspection tour of the Tule Springs earthmoving project.

Scientists perch like birds while one leans down to study charcoal deposit—remains of firepit where man cooked centuries ago.

Guardol, and Unoba grease. (Kelley Walker, supervisor of asphalt and contractor sales out of Los Angeles, and C. S. Palmer, sales manager for Las Vegas, are the Company's two contact men.)

What are the chances of finding human fossils at Tule Springs? Very slight. The earth wasn't heavily populated 28,000 years ago. The people were nomadic hunters — and may have treated their dead as casually as do some of today's primitive tribes.

"We'll be extremely fortunate if we find human fossils," Shutler says. "It's a remote possibility but not an impossibility."

Whether or not such direct evidence is found, the Tule Springs project is bound to advance our knowledge of man and his evolution at a critical time. Miss Simpson

sounds a gloomy note about the future of archeological exploration in the western United States.

"This may be the last generation to be able to derive information from these depositories of the past," she says. "Freeways, expanding cities, the rush of people into our states . . . so much of the country is being cut up or covered! Inevitably we will lose part of our heritage."

But now, the same earthmovers that are changing the face of the West to make room for the homes and highways of today's people, are working to preserve part of that heritage.

If all goes well, they will uncover the homes and "highways" of *yesterday's* people. Perhaps even the mortal remains of ancient man himself.

*Teletype operator Terry Kennedy
helps people in Union Oil
get the day's work done*



finger talk

Terry Kennedy is a young lady who talks with her fingers. She has a low, pleasant voice for local talking to people like Dorothy Gauthier who works with her. But when Houston or Hongkong, Anchorage, Sydney or Seattle is on the line — there she goes chattering with her fingers.

Terry is in charge of the teletype room at Union Oil Center.

From her machines on the edge of downtown Los Angeles, she has at her fingertips a direct connection with most of the continents of the world; with companies in every major city of the United States; and with Union Oil offices from Great Falls, Montana, to Phoenix, Arizona.

None of this finger talk is idle conversation. Add teletype to meetings, telephone conversations, and letters: it's one more way the people in Union Oil talk to one another to get the day's work done. Here are a few samples of the kinds of messages that go in and out of the teletype room in a day:

drilling reports from Louisiana, Texas, Australia, Alaska, Trinidad, and the Rocky Mountains;

details of a Navy fuel oil bid from New York;
a request for copies of the "Living Constitution"
record from Savannah, Georgia;

confirmation of a labor agreement from Honolulu;
notice of a shipment of gasoline additive to Los Angeles Refinery from a manufacturer in Baton Rouge;
report of a month's gas sales from the Kenai field;

details of a Unoco Ltd. transaction in Hongkong;
notice of a lost credit card from a Los Angeles customer;

an inventory of the tanks at Edmonds Refinery;
. . . and so on and on — hundreds of messages a day flow in and out of Union Oil's various offices.

Union Oil is actually involved with four teletype systems, three of our own plus the public carriers.

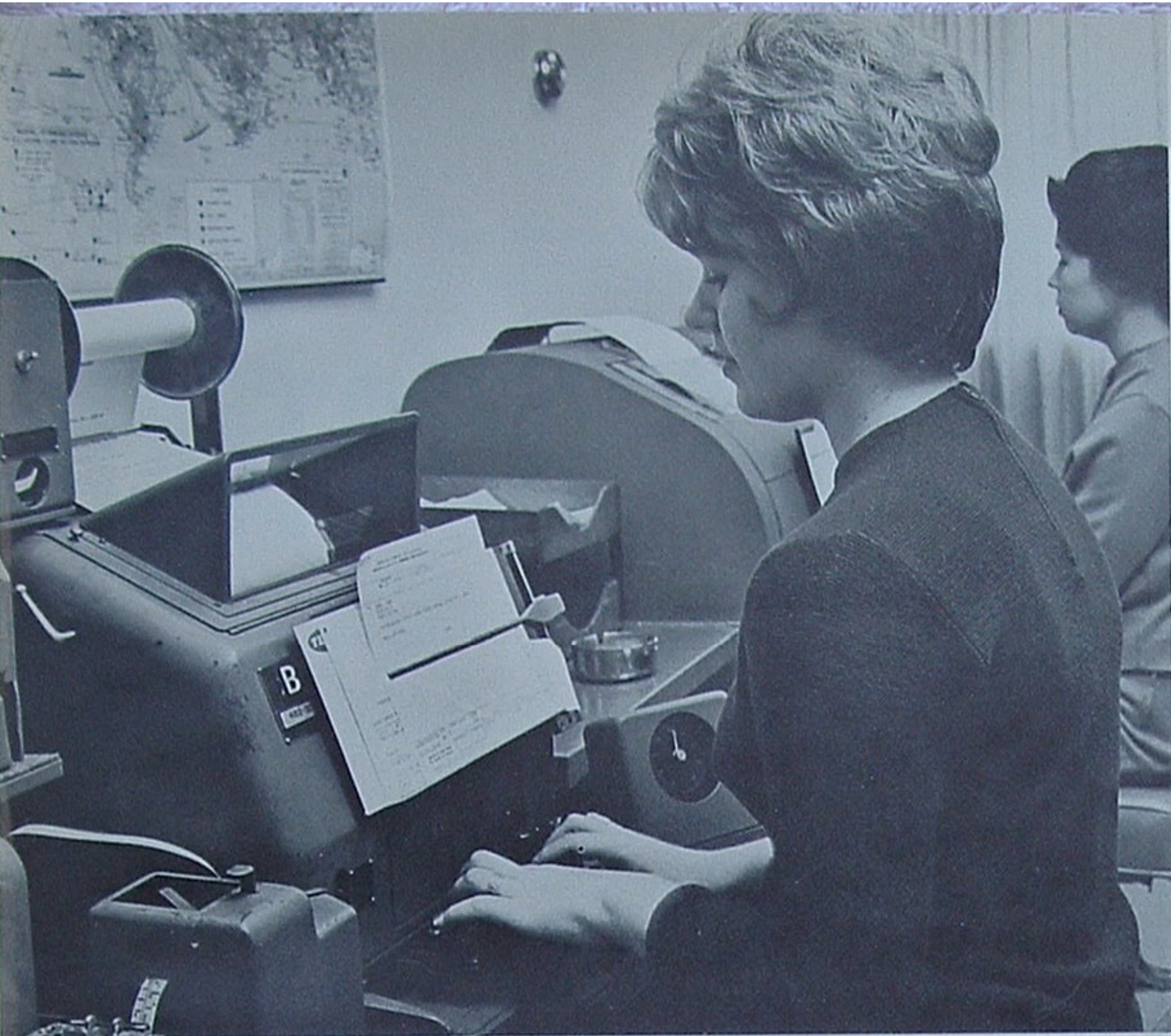
From Union Oil Center, Terry can send messages over the Company's own wire-line-and-microwave to San Francisco, Oleum Refinery, and Richmond Terminal. (Of course, Evie LeBrie in San Francisco can talk southward, too.)

From San Francisco through Portland, Seattle, Spokane, Cut Bank, and Great Falls — and from Los Angeles south to Phoenix — we have our own leased lines.

The great advantage of this network of Company owned and leased lines here in the West is economy. We pay a flat rate for the leased lines; any number of messages can go over them for the one flat fee.

(Because we pay for the lines no matter how much they're used — and also for the sake of the Incentive Plan — the Communications Department recommends people use teletype instead of making long distance calls unless there's a critical time element.)

The second system is "regular" teletype over the public carrier circuits of telegraph, telephone, and cable companies. Directly, or indirectly, this system connects us with instruments throughout the world.



Finger talkers: Dorothy Gauthier and Terry are typing out messages that the machines convert into punched tape. Messages are transmitted from the tape—which puts the message out at the maximum—and most economical speed.

Regular teletype works much like telephone. There's a bulky directory that looks exactly like a telephone book. Terry looks up a number and dials it on a special telephone. When the line is clear, a light flashes and she puts our message on the wire.

All this sounds simpler than it really is. Part of Terry's job is knowing the fastest — and most economical — route for messages. And knowing a whole raft of initials.

Messages may go out over Pacific Telephone's TWX—a dial system; by Telex, *Western Union's* dial system; or by WUX, Western Union telegram. When the message leaves the country, there's Mackay Radio and R.C.A.

Our two other teletype systems are more specialized.

One of them connects the pipeline dispatching office in the Center with San Luis Obispo and Oleum Refinery. The other connects credit offices in Los Angeles, Phoenix, San Francisco, Portland and Seattle with Wilco and tire warehouses. This system speeds the delivery of tires, batteries, and accessories to dealers.

Next to sitting across a desk talking to someone, teletype is about the best means of communication Union Oil has. It's faster than letters — and both people still get written copies of what they've said. It's nearly as fast as telephone — but a lot less expensive. And, unlike telephone, many people in many locations can get the same word at the same time, quickly, and again, in writing.

Thanks to Terry and her talking fingers.



Messages carried by the Company's own teletype lines come into Union Oil Center punched in the tape. Terry feeds the tape into a printer which types copies that wind up on someone's desk—or relays the message to other points.

*Montana speaks softly
but carries*

a BIG STICK

from D. F. Charles and L. J. Torkelson

The Montana scene at right has changed little in the past 150 years. Even now, you can readily imagine a herd of buffalo dotting the grasslands . . . a party of Blackfeet hunters riding single-file near the timber . . . an exploring group, led by Lewis and Clark, standing on one of the ridges and surveying new U.S. soil for the first time . . . or perhaps, in the distance, several thousand Indians circling a cluster of U.S. cavalymen to terminate Custer's Last Stand. The land has changed hardly at all.

Yet if any part of America was alerted to the certainty of nuclear attack, a strange transformation would take place here.

An 80-ton steel door, center, would move aside, exposing an 80-foot silo beneath it. Out of this subterranean gun barrel would emerge one of the most terrifying bullets man has conceived: the Minuteman. Nearly 60 feet long and pushing a nuclear warhead, the missile would roar into Montana's big sky over the thrusts of three solid-fuel rocket engines. Its speed would mount to 15,000 miles per hour. At the end of its arching flight, up to 6,500 nautical miles in length, it would score practically a bull's eye on the target. Its blast over foreign soil would wreak damage too awesome to contemplate.

Nor would this one missile be alone. Scattered over a Montana area larger than some of our eastern states are 150 similarly concealed Minutemen. Their number is growing in North Dakota, South Dakota, Missouri and Wyoming until, by 1964, there will be 800 of them — silent and unseen — guarding the ramparts of Freedom.

The destructive power of this nuclear arsenal is said to far exceed the force of all explosives used in all wars since gunpowder was discovered. Knowing this, America should pray the hour will never come when such destruction is unleashed. But if it does come — in the form of nuclear attack by a foreign power — the retaliation will be swift and devastating.

Possibly and hopefully, the very presence of this "big stick" in the soft-spoken plains of Montana will be sufficient deterrent to sober any nation against triggering a nuclear war.

Another of our pictures, showing a launch control



- THE MINUTEMAN



Beneath the white door in the center of the picture: a "gun barrel" loaded with a Minuteman missile, ready for retaliation in case of attack against the United States.



25-ton steel liner ready to be lowered into a Minuteman silo on the Montana plains.

center nearing completion, best indicates the amount of work and material going into this greatest of American fortifications.

First phase of the program, covering 165 sites in Montana, was contracted jointly to George A. Fuller Company and Del E. Webb Corporation. The mechanical and electrical contracts were awarded to E. K. Jenkins, Inc. and Amco Electric respectively, both of which depend on Union Oil products served from our Lewistown, Harlowton, Stanford, Great Falls and Choteau marketing stations. Amco equipment also rode on Minute Man tires.

Excavation at the launching sites called for the removal of 3,000,000 cubic yards of earth — about the same volume involved in the construction of Washington's Tieton Dam.

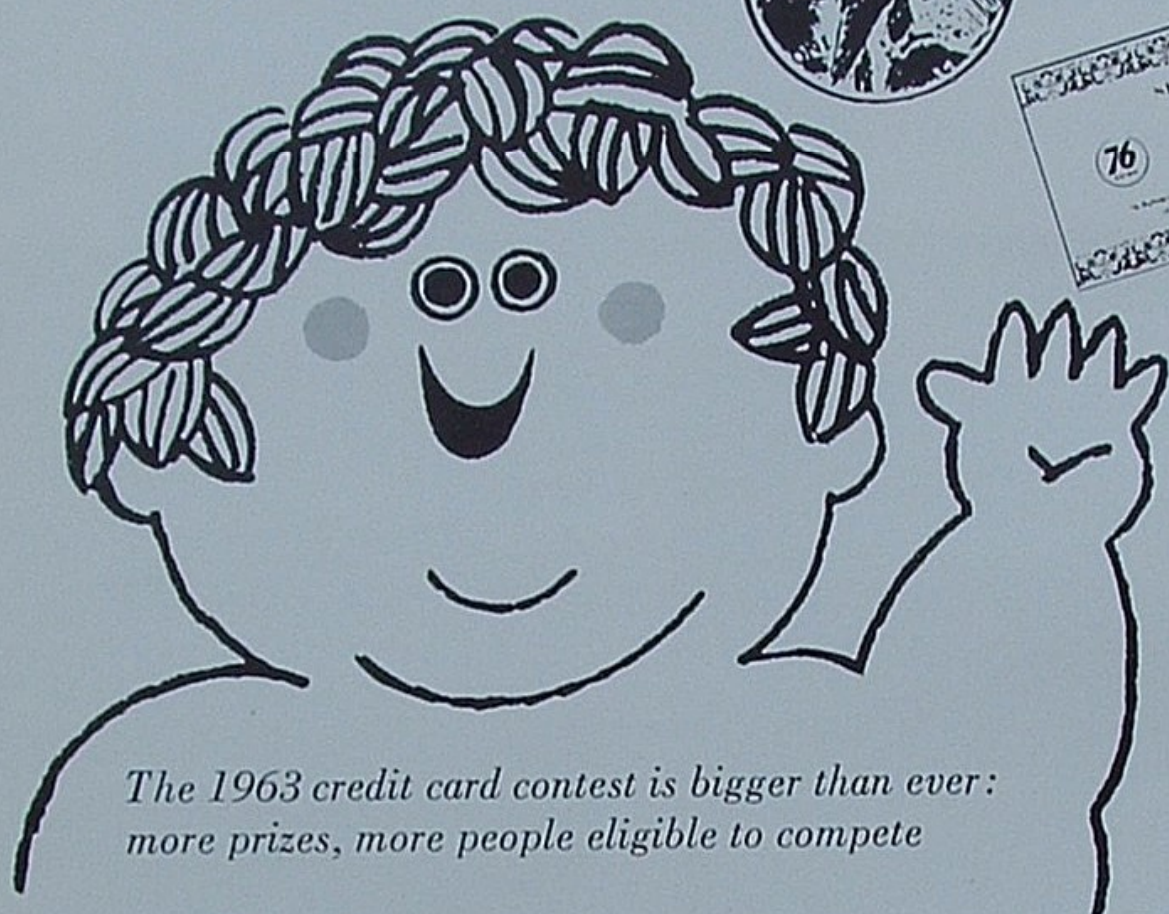
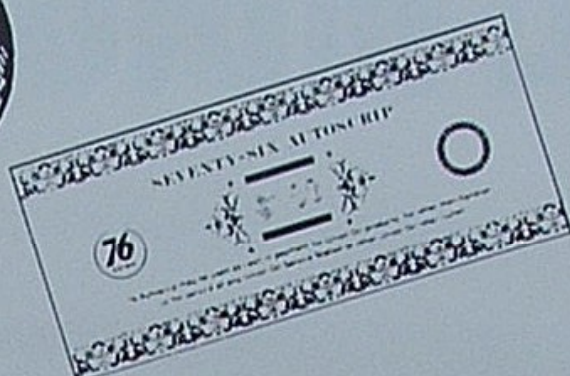
Some 120,000 cubic yards of concrete used in the silos and control centers would build a four-foot-wide concrete sidewalk from Helena to San Francisco. The project's more than 30,000 tons of reinforcing and structural steel would be sufficient for 38,000 automobiles.

Cable construction, required as an infallible nervous system linking the entire complex, involved enough wire to reach twice around the world. More than 120 miles of access roads had to be built in remote areas.

When all 800 silos are finished — each loaded with a cocked and primed Minuteman — it should be the hope of all mankind, including Americans, that not one of the missiles is ever fired. Their silence will be golden. Their complete hibernation underground — until all nations can agree to settle their quarrels non-violently — will be efficiency of the highest order.



Here's



The 1963 credit card contest is bigger than ever: more prizes, more people eligible to compete

As a Union Oil employee, you've already received a New Year's card with a fat little cherub on the outside and an important announcement on the inside.

The announcement: there'll be another employee credit card solicitation contest this year. It started January 1 and it doesn't end until December 31.

The last contest, held back in 1961, was a rousing success no matter how you look at it.

Employees and retirees won more than \$5,500 worth of 76 Autoscrip . . .

. . . the people for whom they got credit cards are now

buying at the rate of nearly a million-and-a-half dollars worth of Union Oil products a year.

There's more of everything for everyone in the 1963 contest!

More people are eligible; all employees and retirees in our principal marketing area can participate. (Some Marketing Department and management employees were barred from the 1961 contest.) "Principal marketing area" means Alaska, Arizona, California, Hawaii, Idaho, Montana, Nevada, Oregon, Utah, Washington, and Wyoming.





Good News

The people in the Gulf Coast, West Texas, and Eastern Continental divisions aren't forgotten. They're not eligible because we just don't have service stations back there.

There are more prizes. You still win a dollar's worth of 76 Autoscript for each active account you get; but you also win an extra \$25 worth by being in the top ten during any calendar quarter of the year. Further: anyone who stays in the top ten for all four calendar quarters receives another bonus: \$100 worth of 76 Autoscrip.

Whoever gets the most active accounts — in 1961, it was Helen Erickson of San Diego — wins either \$500 or a second 76 Autoscrip dollar for each Autoscrip dollar won during the contest, whichever is greater. It's like double stamps only the winner gets double dollars.

An "active account" is one which is used to purchase products or services during any three months of 1963. And they don't have to be consecutive months. Incidentally, the books won't close until March 31, 1964, so applications accepted during December will have time to become active accounts.

We won't repeat all the information you received in your New Year's card; but there is a suggestion the credit department thinks important enough to repeat — important in the sense that *not* following the suggestion cost people prizes during the 1961 contest.

General Credit Manager W. W. Workman asked us to remind everyone: *when you fill out the contest credit card application, fill it out completely.*

Put your name on the form, he says, and write in your employee number and your department number (they're on your paycheck stub) and your home address. If you don't do all these things, the people at the credit

card center in San Francisco can't credit you with the new account — because they won't know who you are.

And it'd be a shame if you missed getting any of that free 76 Autoscrip!

5 reasons you DO YOUR FRIENDS A FAVOR when you get them a Union Oil credit card

- The Union Oil credit card introduces them to 4,000 stations and the finest service and products in the nation.
 - They'll automatically have instant long-term credit on Union Oil's generous Budget Plan — no down payment, up to 18 months to pay.
 - They'll learn about Minute Man tires, batteries, and accessories. Your own Company guarantees all of them, backs them with its 73-year-old reputation for giving full measure and fair value.
 - When they travel, they can charge their service station purchases almost anywhere in the United States through exchange agreements with other quality oil companies.
 - They can charge up to \$100 worth of service and repairs on their Union Oil Credit card at authorized new car dealers. (Tell them "Look for the sign.") Often, they'll be able to use their credit card at the same new car dealer who sold them the car they're now driving.
- You can add any number of other advantages to these five — a record of car expense for income tax purposes, convenience, no need to carry cash, credit identification, and so on and on and on.

So remember: when you send in their applications for Union Oil credit cards, you

DO YOUR FRIENDS A FAVOR!

GO

*Corrosion engineers
are counter-attacking
with cathodic protection*

WHERE RUST DOETH CORRUPT

Much too soon after Union Oil completed the Producer's Pipeline from the San Joaquin Valley to Port San Luis Obispo on the coast in 1910, corrosion began to ravage sections of the line. The heavy pipe, believed by its manufacturers to be durable for many years, began failing within a few months.

Cholame Flats, a few miles inland from Port San Luis Obispo, was an especially bad trouble spot. Here, the buried line came down from the hills and crossed a valley. Trouble was detected when the first telltale patch of oil seeped to the surface of the trench fill. Pipeliners found the leaky pipe eaten through at one point, yet undamaged only a few feet away. They identified the villain as rust.

This was the beginning of a long Cholame Flats ordeal. Hardly was one leak patched with a saddle clamp before another appeared. Regularly, whole sections of pipe had to be removed and replaced.

Believing that corrosive water had a lot to do with the rust problem, engineers tried coating and wrapping the pipe with waterproof materials. This often aggravated matters. Where workmen left a gap (they call it a "holiday") in the wrapping, rusting took place at an accelerated rate. Bare pipe next to the wrapped sections began corroding, whereas it had given no trouble before.

Cholame Flats wasn't the only trouble spot, nor was Union Oil the only victim. Corrosion of metals, particularly iron and steel, was an industry-wide disease, costing the oil companies countless millions of dollars annually. Consequently some of the best scientific minds sought a remedy.

Finally, in 1942, a new technique was tried at Cholame. As pipe was being replaced again, after only three years of service, a new electrical device was added. The trench was filled and the power turned on. Magically the rusting came to an immediate halt.

Since 1942 there have been few pipeline repairs across Cholame Flats, none due to corrosion. The cure was contained in that electrical installation, known as "cathodic protection."

For an explanation of how cathodic magic works, we turned to four research men who handle the Company's protection problems: Dr. Loren Neff, senior section leader in the production research division, Research Engineers Erik Hedborg and Dick Hall, and Dr. Lou Dvoracek.

The pipeliners who laid the line across Cholame Flats in 1910, they told us, unknowingly installed an electrochemical device similar to a flashlight battery.

You know how the zinc case of a battery eventually goes to pieces — and makes a mess of the flashlight if it isn't removed?

The zinc is the part of the battery that gives off energy in a chemical reaction to make electricity. It is gradually eaten away. The slender black carbon core of the battery receives energy. It is the "cathode" and remains unchanged.

What happened at Cholame Flats was this:

Bright metal spots on the line — places where the pipe was struck with a hammer or even gripped by wrenches — acted like the zinc in the battery and gave off electricity. The dull surfaces acted like the carbon core and attracted the current. In very little time, those bright

continued on page 14



How thick's the pipe? Merl Shores, squatting down beside the road, is holding an ultrasonic vibrator against a gas pipeline. Vibrator sends signal to instrument, where Russ Arthur reads thickness of the pipe. (Both men work in Research Department.) Such preventive watchfulness enables Company to repair or replace pipe and metal vessels before "rust doth corrupt" them.

Where Rust Doth Corrupt continued

spots were eaten through and, of course, the pipe leaked.

Having determined that rust troubles are basically electrical, we began to experiment with methods of control.

One method is to connect the pipeline to "sacrificial anodes" of zinc or magnesium. Both these metals discharge electrical currents into the soil toward the pipe and prevent its corrosion by cathodic protection. The sacrificial anodes are slowly eaten up; but they're much less expensive to replace than the pipe itself.

The other method is to set up an electrical system that connects the pipeline to graphite anodes and to a rectifier. (The rectifier converts alternating current into direct current.) You plug the device into a power source, and current passes through the soil to the pipeline and back again, instead of meandering out of miscellaneous spots in the pipe. And again, no leaks. This is the type of cathodic protection we now use on the line across Cholame Flats.

When we built the 244-mile crude line from Junction to Oleum Refinery in 1957, we installed cathodic protection throughout the line. We were so confident of the electrical technique that a lighter steel was specified for the pipe, thereby offsetting practically the entire cost of both pipe insulation and cathodic equipment. Not a single leak has developed because of corrosive attack on this pipeline during its first five years. Frequent tests indicate it will continue to give trouble-free service.

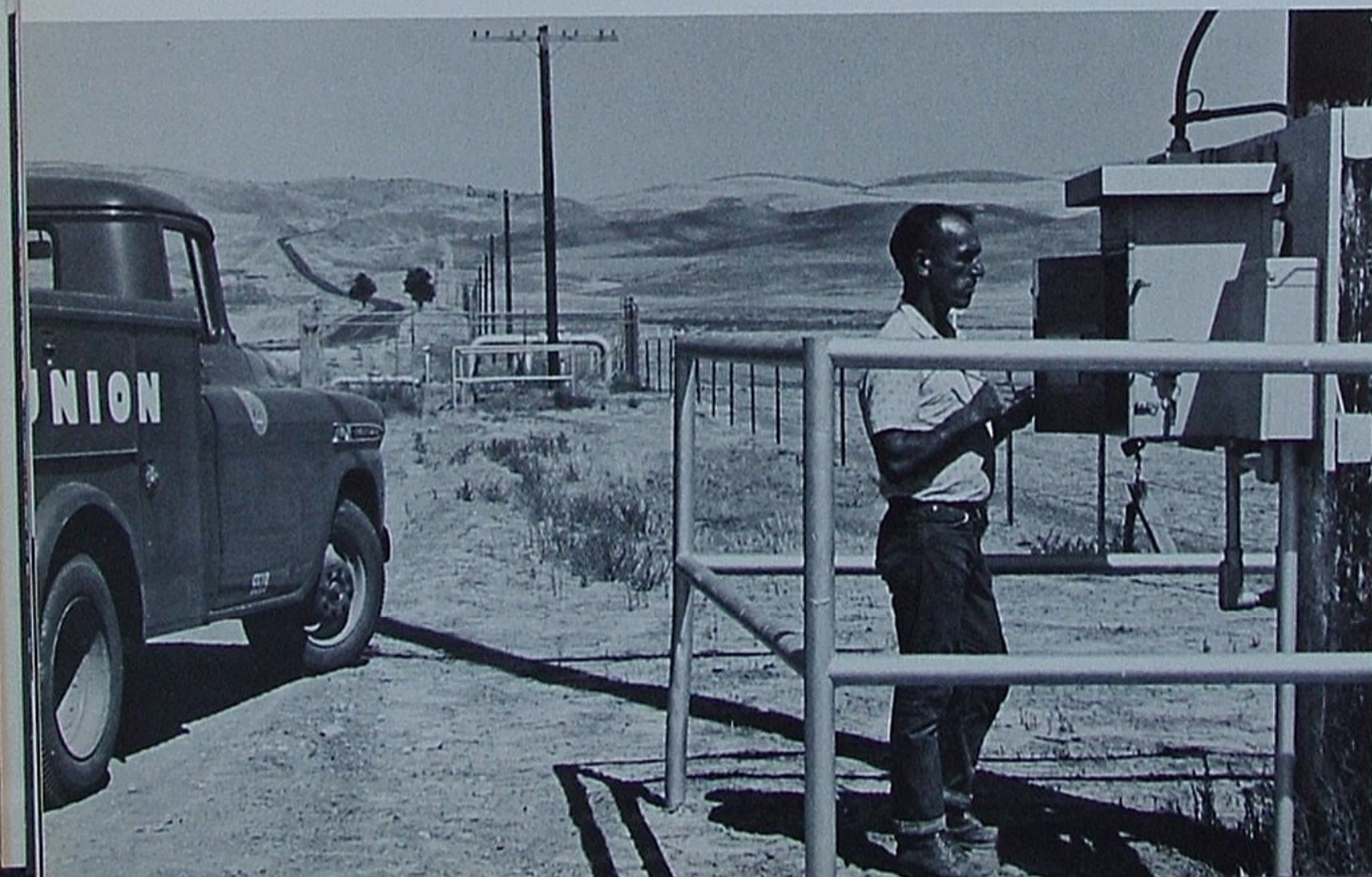
Besides Union Oil's pipeline installations, many other Company facilities benefit from similar anticorrosion techniques.

At Oleum Refinery, the large quantities of salt water pumped in from the bay for cooling purposes go through a revolving water screen to remove ocean debris. Salt water is so corrosive that major portions of this screening equipment had to be replaced every five to eight years. In 1959, 36 zinc anodes were mounted directly on the screen frames. To date, this equipment shows practically no sign of corrosion.

Salt water cooling boxes at our refineries are even more impressive examples. These concrete boxes each hold a coil of some 80 or more lengths of steel pipe immersed in a salt-water bath. Hot oils and gases circulating through the coil add heat to the water, greatly increasing its corrosive attack on the pipe. Formerly the costly pipe coils had a service expectancy of only three years. A trial installation of anodes and a rectifier 11 years ago has extended the life of one coil to the present day, without a sign of failure. Savings in repairs of this one unit already amount to over \$20,000.

The steel casings in 130 oil wells in our Coalinga Nose Field have been cathodically equipped, avoiding incalculable repair costs. Union Oil's tankships are similarly protected — outside their hulls and inside their salt-water ballast tanks. Petroleum storage tanks and countless other metallic vessels and units throughout the Company are either guarded by anodes or are being studied for possible applications of the technique.

Wherever rust doth corrupt, there is a possibility that corrosion engineers can prescribe the magic cure — anodes, electrical therapy, coatings, or a combination of the three.



Ed James checks operation of electrical unit that protects Union Oil pipeline from corrosion where it crosses the desolate looking Cholame Flats.

Charles B. Thornton, electronics executive, elected to board of directors



Charles B. Thornton

A new member was elected to Union Oil's board of directors at its November meeting: Charles B. Thornton, chairman of the board and chief executive officer of Litton Industries, Inc.

Two days later, by coincidence, the *New York Times* carried an article titled, "Corporate Profile: Litton Firm has Fantastic Growth Record." The writer of the article outlined Mr. Thornton's background.

"Tex' Thornton was a colonel during World War II at the age of 28," he wrote. "He was in command of a group of 10 'Whiz Kids' who spurred Air Force procurement. After the war, several of the 'Whiz Kids' joined the Ford Motor Company. Among them was Robert McNamara, who later became president of Ford and is now Secretary of Defense. Mr. Thornton served a two year term as director of planning.

"He then moved on to Hughes Aircraft as vice-president and assistant general manager of the Hughes Aircraft Company. He was largely responsible for putting Hughes into the field of advanced electronics. Annual Hughes sales rose from \$1,500,000 to \$20,000,000 in the five years of his tenure."

Mr. Thornton left Hughes in the mid-nineteen-fifties to form his own company: Electro Dynamics Corporation. A short time later, he purchased Litton, then a small West Coast manufacturer of microwave tubes.

Today after what the *Times* writer describes as a "rapid and almost massive acquisition drive," Litton Industries is an international operation. It has 67 manufacturing plants, major research and engineering laboratories, and 37,700 employees spread throughout the world.

Litton's five product groups include business machines, supplies, and equipment; electronic systems; nuclear submarines and other marine vessels; industrial and commercial electronic equipment; and electronic components.

Aside from his position with Litton Industries, Mr. Thornton is a director and member of the executive committee of the First Western Bank; a director and member of the executive committee of the Times-Mirror Corporation; and holds directorships in the Western Bancorporation, Times-Mirror Broadcasting Company, the All-Year Club of Southern California, and the Los Angeles Y.M.C.A.

He is a member of the President's Advisory Council of the Electronics Industries Association, and of the Defense Industry Advisory Council of the Department of Defense.

In addition, he is a trustee of the National Security Industrial Association; member of the Board of Advisors of the 13th International Management Conference; member of the Advisory Group to the Economic Committee of the NATO Parliamentarians' Conference; and a member of the Interim Study Committee for the American Free Enterprise Exposition.

He is also a member of the Planning Council, American Management Association; member of the Board of Governors of the Welfare Federation of the Los Angeles area; director and member of the Finance Committee of the Southern California Symphony Association; and member of the Founding Friends and Honorary Alumni Association of Harvey Mudd College, Claremont, California.

highlights

OUR PERPETUAL "PETE" SCHROEDER

Way back in 1944, Peter H. Schroeder reached 65 and was obliged to retire from his Union Oil job as Agent (now called Resident Manager) at Oregon City. As warehouseman, then tank-truck salesman, and finally our top representative in this sector of Oregon, Pete had met a lot of fine people and sold most of them on the merits of Union Oil products and services.

Our Agent at Oregon City had been replaced by a Consignee. But the Monday morning following retirement formalities, the Consignee was surprised to see Pete walk into the marketing station, ready for work. He wanted to continue as a salesman.

"But I can't afford a salesman," protested the Consignee.

"Won't cost you a cent," Pete assured him. "I've been connected with Union Oil Company too long to enjoy just staying home. I'll work for you for nothing."

Pete's salary for a short time was limited to the gasoline consumed in making his sales calls. But soon his value to the Consignee became so evident that a salary was agreed upon. He stayed on as a full-time paid salesman for 14 years.

In March, 1961, when time brought a change of Consignees at Oregon City, it was part of the bargain that Pete could now either retire or stay. He stayed. Present Consignee Mike Coleman regards him as the leading perpetual oil salesman of Oregon and possibly America.

Born in Sabula, Iowa, in 1880, Pete celebrates his 83rd birthday this January. He'll no doubt observe the occasion, as usual, by selling a few barrels of oil, then

relax on a 25-acre berry and fruit farm that has occupied his spare time throughout the years. Quite a man, Pete Schroeder!

YOU THINK YOU'VE GOT BILLS? TRY THESE ON FOR SIZE

Next time you write a stack of checks for the utilities, and then get after the kids to turn off the lights and quit wasting hot water—relax! You should see the electric bills, the water bills, and the gas bills the Refining Department pays!

The utility bills total to more than \$12,000,000 a year — and they'd be higher except for the thought, the planning, and the cooperation of the people in the refineries.

The refineries' bills are getting smaller; but not because there's been any single large cut in the use of utilities. The smaller bills result from many relatively minor savings.

According to our spokesman for the department, "We've studied refining units, for example, and learned how to run them with less steam. As a result, our operating efficiency is up and our steam costs are down. We save on both heat and water.

"The men who operate the units are more cost conscious than ever. They're very careful about utilities —and they see the results in the Incentive Plan.

"Engineers and operators in all the refineries are always looking for ways to shave utility costs and, at the same time, to improve our efficiency."

Turn off those lights, kids! What're you trying to do? Boil eggs in that bathtub?

No matter how *you* approach the

problem at home, Union Oil's cooperative approach works. And it's saving tens of thousands of dollars for us every year.

BELIEVE IT OR NOT, WE'VE GOT PIGS IN OUR PIPELINES!

Wax — as pure white Aristowax or its new companion, wax-plastic Unowax — is one of the Company's quality products. But raw, black, oily wax as it comes from the ground in light crude oil is a nuisance to the Pipeline Department.

Crude oil moving through the lines deposits the wax on the inside of the pipes. The deposits can build up until they lower a pipeline's efficiency. The deposits reduce its capacity and increase the pressure needed to push the oil through.

To prevent this buildup, the pipeliners run scrapers — they call the devices "pigs" — through the lines periodically to remove the wax deposits. (See photograph.)

Pipelines handling waxy crude oils have a scraper trap at each end. The pig is put in the trap which leads directly into the pipeline. Force of the oil carries it through the line. The pig — pushing its load of wax — comes out the trap at the other end.

The longest trip for a pig is the 180 miles of 16-inch line between Coalinga Pump Station and Oleum Refinery. Under normal operating conditions, the trip takes about three-and-a-half days.

When it travels this piece of line, the pig passes through remote-controlled Patterson Pump Station. When it nears Patterson, the pig triggers a signal which automatically slows down the station's pumps, reducing the main line

operating pressure. This permits the pig to pass through a valve at the station. After the scraper passes the valve, it triggers another signal which automatically speeds up the pumps to their normal level.

In case you wonder: a pig seldom gets stuck in the pipeline (there have been cases where it took extra pressure to boost the device along). The lines are scraped on regular schedules to keep them at peak efficiency; so the scraper usually slides through like a . . . well, a greased pig.



Gary Meyer and Joe Csiszer pull a greased "pig" from a pipeline.

We recently received approval from Lloyd's Classification Society to make a $5\frac{3}{4}$ " increase in the load line of the Baracuda-class supertankers Sansinena, Lake Palourde, and Torrey Canyon. This change increases the cargo capacity of each vessel approximately 7,100 barrels — at no increase in transportation expense. The authorized tonnage of the vessels is now 66,883 deadweight tons, and the average cargo carried is 467,000 barrels of 31 degree gravity crude oil.

"Cec" Woodward, foreman at Portland Gravel Company in Milwaukie, Oregon with Pete Schroeder. (See "Our perpetual Pete Schroeder.")



A COLLIER CHEMICAL GOES INTO OUTER SPACE!

A Collier chemical product helped write a page in aerospace history when Major Robert M. White became the first known human to go into outer space in a winged aircraft. He did it in one of the now world-famous X-15 planes, modern technology's closest approach to a true rocket-ship.

On that mid-July morning, the 50-ft-long, dart-shaped craft carried 8,400 lbs. of Collier Anhydrous Ammonia as a fuel component aloft as it rose from Edwards Air Force Base, tucked firmly in the under carriage of its B-52 mother ship. After release from the converted bomber, the X-15 was given full throttle for 80 seconds as Major White pointed its nose upward at an angle of 41 degrees, the steepest climb ever attempted by one of these research craft. During those 80 seconds, the 8,400 lbs. of anhydrous ammonia was oxidized by 10,400 lbs. of liquid oxygen to produce the engine's maximum designed thrust, 57,000 lbs. That's approximately equal to 640,000 horsepower!

In the climb, Major White exceeded the experiment's 3,500-mph "speed limit." He sped upward at 3,784-mph, a testimonial that Collier "gas" has plenty of "go power," plenty of "performance plus"! This extra speed enabled the X-15 to glide right past its 282,000-ft. destination altitude on up to 314,750 ft. — 59 miles up!

Major White easily exceeded the 50-mile altitude set by the National Aeronautics and Space Administration as the beginning of outer space, and qualified for the astronaut wings, previously won only by the four Mercury astronauts in space capsules.

X-15 photograph courtesy NASA.

Ten minutes after the rocket-powered flight began, Major White was back at Edward Air Force Base, getting his first congratulations — from his eight-year-old son. That scene is apt to be repeated in the coming months as White is expected to reach or exceed a 75-mile altitude by year's end. That would be three-quarters of the way toward the 100-mile orbital altitude goal. After achieving *that* height, the problem will be to come back alive!

As new horizons open for the X-15's in man's attempt to solve problems closer to astronomy than aviation, hopefully, a Collier chemical will power the ships to the unknown destinations of science.

Reprinted from "FORE-SEE," publication of Collier Carbon and Chemical Corporation, a Union Oil subsidiary

SPECIAL TO FISHERMEN: IF YOU LIKE STRIPED BASS TRY THE WATERS OF OLEUM!

If striped bass are your dish just about the best spot in the whole San Francisco Bay area to catch them is off Oleum Refinery. (From the City, take Highway 40 across the Bay Bridge.)

Fish from all over the Bay come swimming past the refinery just to enjoy the water. They're happy, relaxed, and ready to bite. A study by the Regional Water Pollution Control Board shows why.

The Board's laboratories have been running tests around the Bay

to find out what effect waste water has on the fish. In the test, live fish swim around in different concentrations of waste water mixed with fresh water; and the fish that can still swim after 48-hours gets the cigar. Or the water is considered clean. The object, of course, to set waste water standards. And to keep the fish population healthy.

Oleum's "effluent water" got an "A" from both the State and from the fish themselves. And it *is* one of the best striped bass fishing spots on the Bay!

P.S. Due to security, safety, and fire regulations, Oleum's long wharf isn't open to fisherman. You'll have to rent a boat.

REFINING AND MARKETING PLANS NEW UNICRACKER FOR LOS ANGELES REFINERY

The Refining and Marketing Division has announced plans to construct a 16-000 barrels-a-day Unicracking unit at its Los Angeles Refinery.

The new process performs chemical miracles by bringing its "feed stock" into contact with a novel catalyst in the presence of hydrogen gas.

Facilities for manufacturing and purifying the hydrogen are part of the program. Cost, including other changes in the refinery, is estimated at \$18,000,000. Completion is scheduled for 1964.

The important results of the process are these:



The proposed plant will take in lower value oils, heavier than diesel oils and high in sulphur and nitrogen, and convert them entirely into high quality gasoline or jet fuel. Many of these heavier feed stocks now go into fuel oil.

There's a "volume swell": for every hundred barrels of feed, the process yields 120 or more barrels of finished product.

We will increase our "octane cushion" — our ability to raise the octane number of our gasolines if tomorrow's cars demand higher anti-knock performance. Further: we will make gasolines that burn even cleaner than our already remarkably clean Royal 76 and 7600 regular.

AS EMULSIFIED ASPHALT, OIL AND WATER DO MIX TO MAKE STRONG ROADS

You see more asphalt roads than any other kind. However, there's a portion of the road you never see: its base. Generally, the base of a road is built up with crushed rock. However, in places where good rock is scarce or expensive, a form of asphalt, "emulsified asphalt" is being used to stabilize or strengthen native soils so rock isn't needed.

(Emulsified asphalt is made by mixing asphalt and chemicals with water. After the emulsion is used, the water evaporates and the asphalt droplets recombine.)

As an example of the use of emulsified asphalt in road building:

Orcutt Refinery has been supplying the emulsion to contractor A. J. Diani who has been building roads at the Point Arguello (California) Naval Facility. Diani had his choice of either using a rock base for the roads or stabilizing the sandy soil with emulsified asphalt. He chose asphalt because of the high cost of good rock and the



Dream Harbor: The New Perez Cove Marina at San Diego, California. The "American Yachtsman — West Coast Boating News" calls it one of the "California Dream Harbors;" Union Oil calls it "Perez Cove Marina." Both are right: Perez Cove Marina on San Diego's Mission Bay is one of California's dream harbors. It opened for business late in 1962 with a fanfare, a ribbon cutting by Mayor Dail of San Diego and Miss Pacific Beach, and several thousand visitors. President of Perez Cove is Herman Poe, an ex-Union Oiler and ex-Union Oil dealer.



President A. C. Rubel receives a commemorative plaque from Charles W. Haynie, president of the New York Society of Security Analysts. The plaque was presented in appreciation of an inspection tour by oil analysts of Union Oil facilities in Southern California and the Gulf Division. Assisting at the presentation are (left to right) Marshall L. Page and Donald H. Randell of the oil analyst group and (far right) W. L. Stewart, Jr., chairman of the board. Special awards were also given to R. F. Niven and C. E. Denton for their part in making the tour a success.

expense of hauling it in.

In use, the roads are scraped and the soil is piled in a long ridge or windrow. A traveling mixer comes along and picks up the soil then mixes it with the emulsified asphalt and deposits it back on the ground. The mixture is spread by a grader and rolled and there's the strong firm base.

It's taken about 1,100 tons — 45 truck-and-trailer loads — to treat the roads at Point Arguello.

Suzanne Bragg, lovely daughter of Sales Manager H. W. (Hoot) Bragg, was queen of Union Oil's "Birth of a Rose" float in Pasadena's 1963 Tournament of Roses.



*We asked that question
of dealers from Border to Border,
and the answer seems to be "Great!"*

"HOW'S 76 CERTIFIED CAR CONDITION SERVICE DOING?"

For the past six months or so, dealers with sunburst emblems on their sleeves have been offering 76 Certified Car Condition Service to their customers.

For those of you who aren't dealers or in the Marketing Department, 76 Certified Car Condition Service is a system of services and inspections for automobiles. It replaced our old Stop-Wear lubrication.

There were two reasons for developing the service.

First, such a service is a real life saver for all cars, young and old. C. E. Rathbone, director of marketing, puts it this way:

"Lube service, basically, is greasing fittings.

"76 Certified Car Condition Service is designed to provide other needed services and preventive maintenance procedures which give the customer greater care-free driving with safety.

"Regardless of the make or year-model of a car, these are essential services.

"There are 35 of them in all. And when they're performed, we guarantee — in writing — the customer's motoring satisfaction and safety."

The second reason was to put the Union Oil dealer in step with the future.

No question: the longer-than-average oil drain and lubrication recommendations are here to stay. No question, again: a drop in income is inevitable for service station men who rely solely on old fashion lubrication. With 76 Certified Car Condition Service, Union Oil dealers have a chance to reverse the trend, to increase their incomes — today and tomorrow.

The new service has been offered long enough to show results. We wondered what the results were. Has our Certified Service brought dealers that higher income? How are they "selling" it? Do the customers accept it?

We asked a few questions.

Our answers came from dealers in California, Oregon, and Washington. Their stations range in size from Earl Pidcock's 16,000 gallon unit in Medford, Oregon, to Art

Folsom's 40,000 gallon highway station in Bakersfield, California.

Taking first things first: the money.

Folsom told us his average service ticket had jumped \$4 — an increase from \$12 to \$16 average — after he started selling 76 Certified Car Condition Service.

Hal Stacey of Kennewick, Washington, used another measure: his lubrication and labor sales ratio moved up from \$12.50 for each thousand gallons of gasoline to \$18.60.

John Harley's monthly sales have increased from \$150 a month to \$275. Harley has a 22,000 gallon station in Los Angeles. John Chandler, also of Los Angeles, says his increase amounts to \$100 a month.

Earl Pidcock wrote, "My first two jobs after being certified turned out to be \$60 rather than \$6 to \$8 lube and grease jobs. That's a change — a good change."

Ken and Dan Ames, brand-new dealers in Menlo Park, California, had another angle on the value of 76 Certified Car Condition Service.

Ken had worked for long-time dealer Bob Gallagher in his fine station on the edge of the Stanford University campus at Palo Alto. Several years ago, we carried a story in SEVENTY-SIX about the unusual volume of service work Gallagher handles.

The Ames brothers took over the Menlo Park station last July, Ken was certified in September. "In spite of being in a new station," he says, "we have — in these few short months — come pretty close to the high averages Gallagher was making. And that's exceptional because Bob is an exceptional dealer."

A fast, solid start in business for the Ames brothers; a hundred dollars a month for Chandler, a hundred twenty-five for Harley; higher average returns from each car for others: 76 Certified Car Condition Service is achieving its second objective. Dealers who offer the service are certainly increasing their income.

Or, as Richard Fernandez of San Diego, who has had a 40 per cent increase in his daily average of labor dollars, puts it, "Anyone who says that the days of the service station operator making money in the service bays are over, is either talking through his hat or he hasn't tried using the 76 CCCS program."

If there's any secret to the success of these particular dealers it seems to lie in forgetting about "lube jobs" and talking to all customers — no matter what the age of their cars — only about new Certified Service. Two comments were typical:

Chandler told us, "We stress that the only service we are now selling is 76 Certified Car Condition Service regardless of the age of the automobile.

"The results were slow at first; but by now Certified



Carlyle Sampson (third from left), one of the dealers who answered our questions about 76 Certified Car Condition Service, has been in the business 32 years. "We went all out for the Service," he says. Proof: Sampson and his men — all certified. Left to right: Harold Hanaford, Robert Toyama, Sampson, Byrne Garhardt, and Barry Noland.

Service has given my total service work a big increase over what I had before."

Jim Pruss, quite a bit farther north in Bellevue, Washington, gave a similar report. Jim wrote, "Almost 100 per cent of the customers we talk to who ask for ordinary lubrication buy the Certified program after we explain it to them. I've made more money on the lube rack in the past two months and written bigger tickets than ever before."

The most effective sales aid, our dealers say, is the 76 Certified Car Condition Service order form itself (Form 970M). All except one of our panel mentioned it.

For those of you who haven't seen the form, it is an impressive check list ranging from testing tail light to inspecting the front tires for nails and cuts — and covers 33 other vital points in between. The check list emphasizes services that are necessary for safety and protective maintenance.

Carlyle Sampson of Pacific Palisades, California, uses both these prime points in his selling.

"We tell them (the customers) it's just like their semi-annual visit to the dentist to come to us. Preventive maintenance will save a higher repair bill later.

"We also tell them that the service is aimed at safety and accident prevention. 'Freeway safety,' we call it."

As a second approach, many dealers mentioned the Positive Crankcase Ventilation — "PCV" — Valve. That's a gadget installed on all 1962 and later cars to reduce crankcase emissions. Unless the valve is serviced or re-

placed regularly, it doesn't operate. Gasoline mileage is reduced.

George Hoggatt, who's been selling Union Oil products in Bakersfield, California, for years, says the majority of his customers don't even know such a valve exists.

"I ask them," he says, "Has the PCV valve in your car been checked recently?" And the blank stares he gets give him the opportunity to talk about the valve itself and 76 Certified Car Condition Service.

As a sidelight to the answers from dealers, the people in our Sacramento, California, office included a few remarks about a survey they had conducted. It reads:

"In surveying the division, we noted that those cars being serviced every 30,000 miles were in great need of our Certified Service. Grease fittings were dry, distributor shafts and other key points were failing due to lack of lubrication. A thorough check of the cars showed that neglect was starting to make many of them unsafe to drive."

Adding the division's survey to the reaction from dealers, we get an answer to our question. "What are the results from 75 Certified Car Condition Service?"

Remember: we wanted to put together a service that our customers need whether they drive older cars or new models; we wanted to generate a higher income for dealers who would offer the new service rather than out-dated "lube jobs."

76 Certified Car Condition Service — even after these few months — is achieving both objectives.

Union Oil Products at Work



The machinery of logging is big and rugged, must be able to stand up to heavy work under all conditions—including the incessant moisture. Quality of Union Oil oils, greases, fuels is an important factor in dependable operation.

RAIN IN THE



The nation's deepest, darkest, dampest forests and the biggest trees in the world grow through the Pacific Northwest and down into California.

Here, where the rain falls quietly and often and the fog whips in from the ocean, are the firs, the hemlock, the cedars, the spruce, and the tall redwoods; and farther inland, the great stands of pine.

Hard hats, rubber coats, even the thick mat of leaves and bark, twigs, needles, and branches that cushion trees as they fall: nothing can withstand the soft misty rain. It penetrates deep into the ground. It slips under collars and around gloves, insidiously soaking through to the skin.

Follow the rainfall pattern south from Canada, south along the Sierra Nevada, California's backbone, south into Arizona. Where the rain is heaviest, there grow the trees.

Three western states alone — Oregon first, then California and Washington — yield nearly half the wood and wood products cut from live timber in the United States.

The Douglas Fir country of the Pacific Northwest, where these pictures were taken, is one of the few important forest regions in the entire world where conservation was begun before there was even a thought of timber exhaustion.

Protection against fire, a widespread Tree Farm Program, artificial reforestation — one industry nursery has grown well over 100,000,000 trees, scientific logging, the development of seeds to produce better strains of trees: these are a few of the conservation methods that are resulting in the wise use of a great natural resource.

Intelligent forestry has opened the woods for recreation, created fishermen's and hunter's paradises, provided grazing land, and improved and perpetuated the Northwest's sources of water.

In the West, in its woods and in its sawmills where the logs become clean bright lumber, Union Oil is a major supplier of petroleum products.

The photographs on these pages show some of the operations of the Ben A. Thomas Company, a Union Oil customer and the largest independent logger in the Lewis River area of southern Washington.

Among the quality products made by the people of Union Oil for the lumbering industry are these:

- 76 Unifuel.....diesel logging trucks and equipment
- 7600 gasoline.....gasoline powered trucks, power saws
- T5X, Guardol, and Unitec motor oils.....diesel and gasoline powered engines
- Unoba grease.....dip tank bearings, edgers, planers
- Strona HT-1.....heat resistant grease
- Redline Marok.....chains, for protection against water
- Unical Cable Lubricant.....woods equipment
- Red Line Turbine Oils.....Automatic spray lubricators, high pressure hydraulic systems
- Red Line AP Gear Lubricants.....gear reduction units

WOODS



The heavy-laden log trucks are large and fearsome monsters to meet on a narrow, wet, twisting woods road.

EMPLOYEES

January, 1963

40 YEARS

ARTHUR B. YARNELL.....P/C Div.—South

35 YEARS

JOHN W. CARLSON.....Mktg.—Oregon Div.
EVERETT W. FRELIGH.....L. A. Refinery
ANNA L. KEANE.....Mktg.—Calif. No. Cstal.
ALBINO S. LUSARDI.....Pipeline—No. Div.
RUSSELL G. McADAM.....Purchasing—S.F.

30 YEARS

RALPH L. CAIRNEY.....Mktg.—Oregon Div.
FRANK L. WHITE.....Compt., Explor. & Prod.

25 YEARS

MARTIN G. EKBERG.....Mktg.—Calif. So. Cstal.
JAMES D. JOHNSON.....Oleum Refinery
ALBERT H. LANGE.....Research
EVA M. SEARING.....Compt., Payroll & Benefit Plan
GEORGE E. SLAGILL.....Mktg.—Calif. Co. Cstal.

20 YEARS

HARRY T. BARRIOS.....Gulf Div.
ROBERT G. BECHTOLD.....L. A. Refinery
BRASWELL E. DAVIS.....P/C Div.—North
G. W. HENDRICKS.....Research
HARVEY D. HOWARD.....Mktg.—Calif. So. Cstal.
KIRK B. JELF.....L. A. Refinery
DOUGLAS MATHEWSON.....Mtg.—Calif. So. Cstal.
THOMAS O. SPATES.....P/C Div.—North
JOSEPH J. THOMPSON.....L. A. Refinery
AUBREY J. WOOTEN.....L. A. Refinery

15 YEARS

BILLY J. EVANS.....Ind. Rel.—Houston
JOHN WILSON CAIN.....Mktg.—S.W. Mtn. Div.
LESTER E. DRAKE.....P/C Div.—South
JOSEPH B. JOHNSON.....L. A. Refinery
JOHN R. JOYCE.....Oleum Refinery
R. F. KRUEGER.....Research
CARL W. REHMER.....Cut Bank Refinery
EDWIN J. SCHMIDT.....Refining & Mktg.
R. T. WHEELER.....P/C Div.—North
MELVIN L. WINSON.....Mktg.—Calif. So. Cstal.
DEAN A. YOUNG.....Research

10 YEARS

TYLER BRINKER.....Gulf Division
EUGENE J. DOMAYER.....L. A. Refinery
WM. R. DUDLEY.....P/C—South
LEON LEDBETTER.....L. A. Refinery
LILLIE M. LUNN.....Gulf Division
PATRICK W. McGINNIS.....Research
DEWITT MORGAN, JR.....Gulf Division
LARRY V. MUZZALL.....Research
HOWARD L. NASH.....Mktg.—S. W. Mtn. Div.
DOROTHY I. PEITZ.....Legal—Tax Div.
DON W. REYNOLDS.....Central Div.
H. B. RICHARDSON, JR.....P/C Div.—So.
DARROW A. RUSSELL.....Mktg.—Calif. Central Div.
B. H. THOMPSON, JR.....Mktg.—Calif. Central Div.
MORTON A. WAGNER.....L. A. Refinery
KENNETH WINCH.....Gulf Div.
HEINRICH D. WOEBKEN.....Research
GEORGE E. WOLFE.....Mktg.—S. W. Mtn. Div.
GRACE C. WONG.....Compt.—Acct.—S. F.

SERVICE



CONSIGNEES

January, 1963

35 YEARS

H. W. ALLEN.....Redmond, Oregon

15 YEARS

KAUAI PETROLEUM
COMPANY, LTD.....Nawiliwili, Kauai

RETIREMENTS

December 1, 1962

CHARLES BARLOGIO
No. Div. Pipeline April 28, 1942
JEWELL R. CASE
Communications August 25, 1947
FRED HERROD
Oleum Refinery February 1, 1927
WILLIAM H. JAMIESON
Mktg.—Calif. No. Cstal. January 1, 1945
HUGH H. JONES
So. Div. Pipeline Feb. 19, 1927
CHESTER C. KINSEY
Mktg.—Northwest Div. July 14, 1920
HUBERT H. LEESON
Exploration & Production November 9, 1922
NICHOLAS MARTIN
Oleum Refinery June 17, 1927

DEALERS

January, 1963

45 YEARS

HAROLD COEUR.....Freshwater, California

30 YEARS

G. W. CHAPMAN.....Junction City, Oregon

25 YEARS

R. L. DAY.....Fillmore, California
JAMES R. HOPKINS.....San Francisco, California

20 YEARS

GLEN ROBINSON.....Anaheim, California
GRAYCE WANNER.....Oregon City, Oregon

15 YEARS

JOHN CHANDLER.....Los Angeles, California
COMBELLACK-PFEIFLE TIRES.....San Jose, California
ART HENDRY.....Bremerton, Washington
RUDY KAUL.....Anaheim, California
ALVIN KRAMER.....Marlin, Washington
B. D. PENRY.....Healdsburg, California
ELWIN SCHUMACHER.....Tacoma, Washington

10 YEARS

DONALD C. BUNYARD.....Empire, Oregon
W. C. BUTLER.....Gold Beach, Oregon
CLEMENS MOTOR.....Florence, Arizona
ELWOOD VILLA.....San Luis Obispo, California
MICHAEL SPANISH.....Walla Walla, Washington
STEVE PONCE.....Half Moon Bay, California

5 YEARS

DUWAYNE DONNELLY.....Portland, Oregon
RALPH GAINEY.....Sunset Beach, California
LESTER H. GREGERSEN.....Auburn, California
THOMAS M. HAMADA.....Kamuela, Hawaii
KNAPP TRADING COMPANY
(CARRIZO BRANCH).....Show Low Arizona
LA BREA CAR WASH.....Los Angeles, California
R. LOHOF.....Cut Bank, Montana
ED LONG, JR.....Alhambra, California
JOHN W. OSTBERG.....Berkeley, California
JOSEPH SCHNEIDER.....Ilwaco, Washington
WALTER D. WILSON.....Amboy, Washington
LONNIE O. WRIGHT, JR.....Bend, Oregon

IN MEMORIAM

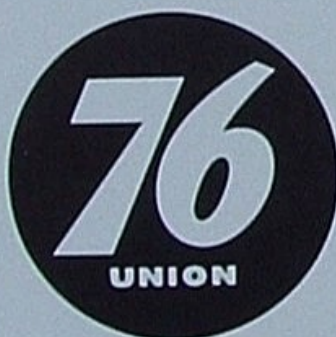
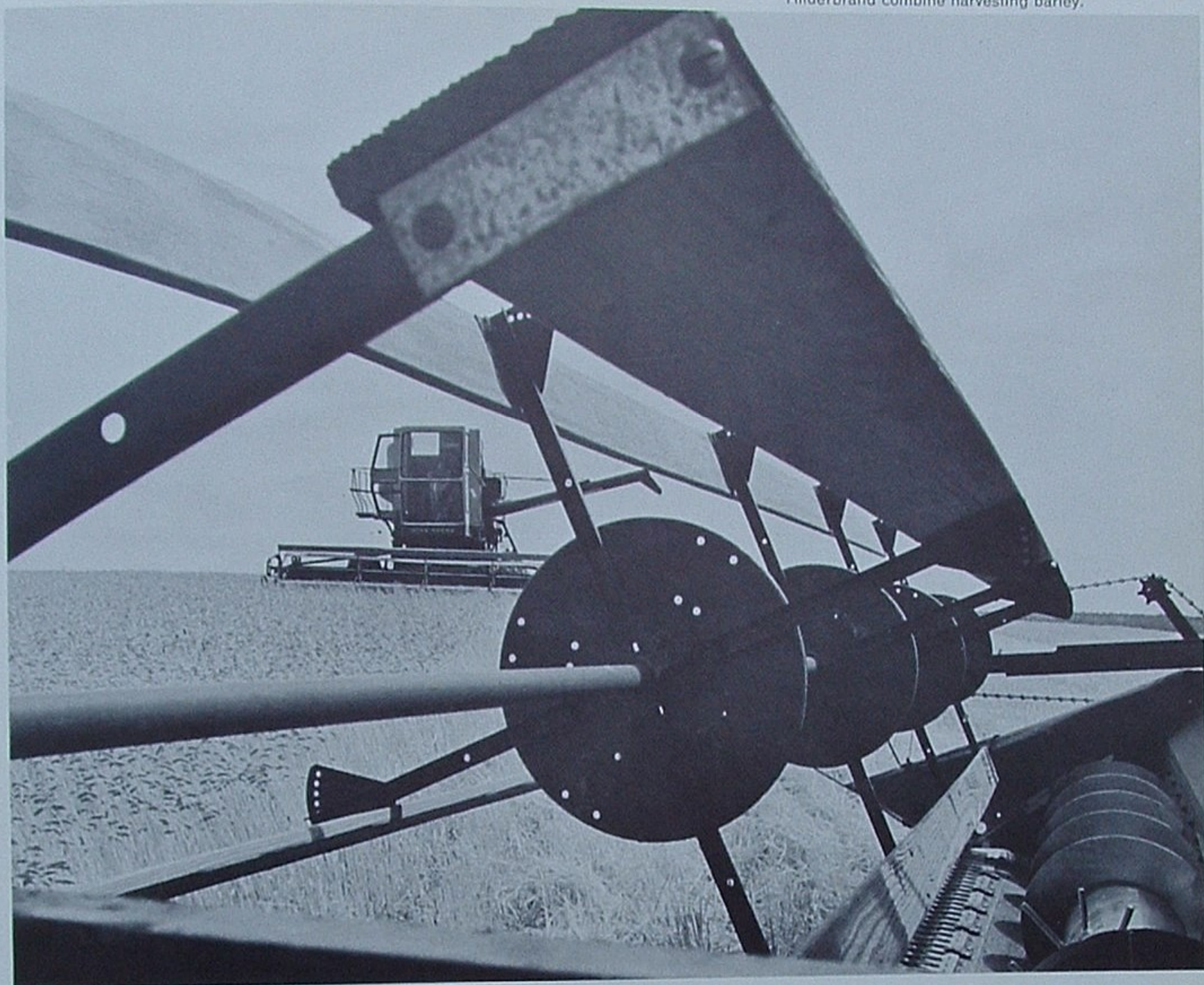
Retirees:

CLAUDE V. ABBOTT
Marine Dept. October 22, 1962
ROBERT F. ANGELL
L. A. Refinery December 3, 1962
ELIZABETH H. BURROUGHS
Research Dept. October 24, 1962
RUSSELL H. CYRUS
Marine Dept. November 8, 1962
GEORGE M. DEATHE
Oleum Refinery November 11, 1962
STANLEY E. HALLANDER
Oleum Refinery November 8, 1962
EVERETT E. MANNING
Oleum Refinery November 4, 1962
M. J. McGARIGLE
Marketing-Central Sales September 6, 1962

Employees:

WESLEY C. MERRILL
Research Dept. November 11, 1962

Hilderbrand combine harvesting barley.



Mr. John Hilderbrand and Mr. Gordon Hilderbrand
Partners, Hilderbrand Ranch, Wasco, Oregon.

"We use Unoba in all our equipment because it doesn't run out even in high temperatures.

"The sickle-head bearing on this combine is a good example. This bearing gets extremely hot and doesn't have any sort of grease seal. Yet Unoba stays in there.

"And because it stays in so well, we now grease this bearing only twice a day — compared to the four times a day we had to shut down and grease it with other lubricants.

Unoba sticks to the job...regardless of temperature

"I've also noticed that we can pump Unoba from the same gun at temperatures ranging from 32° to 110°. Heat and cold just don't seem to bother it."

There is a variety of Unoba greases designed to cover a wide range of applications. These greases are compounded to resist heat, moisture, shock and corrosion. A Union Oil Commercial Sales Engineer will be glad to do a survey of your equipment and recommend the type of Unoba best suited for your problems. Call your nearby Union Oil representative 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



Where We Work...

While most of the world sleeps, Dispatcher Forrest Heisterman is watching over Union Oil's pipeline system from an office at Union Oil Center. The flow through nearly 1500 miles of pipelines, the oil in hundreds of tanks, vessels at three marine terminals, a thousand or more valves that must open and close at the right time; these are his concern. Because daylight or dark, it makes no difference; crude oil must flow to the refineries and ships; finished products must flow to the customers.