ON TOUR

JANUARY 1

with Union Oil Company of California

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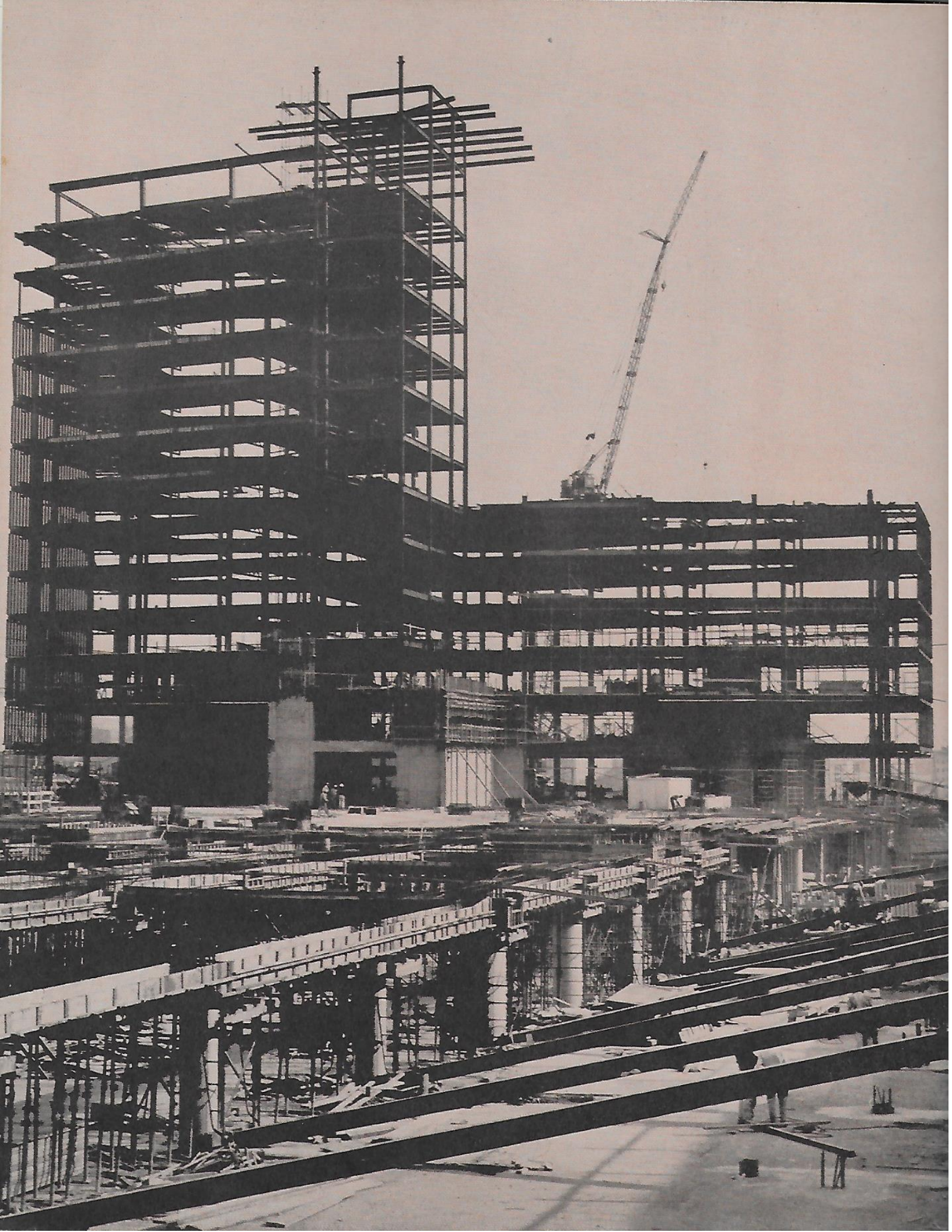
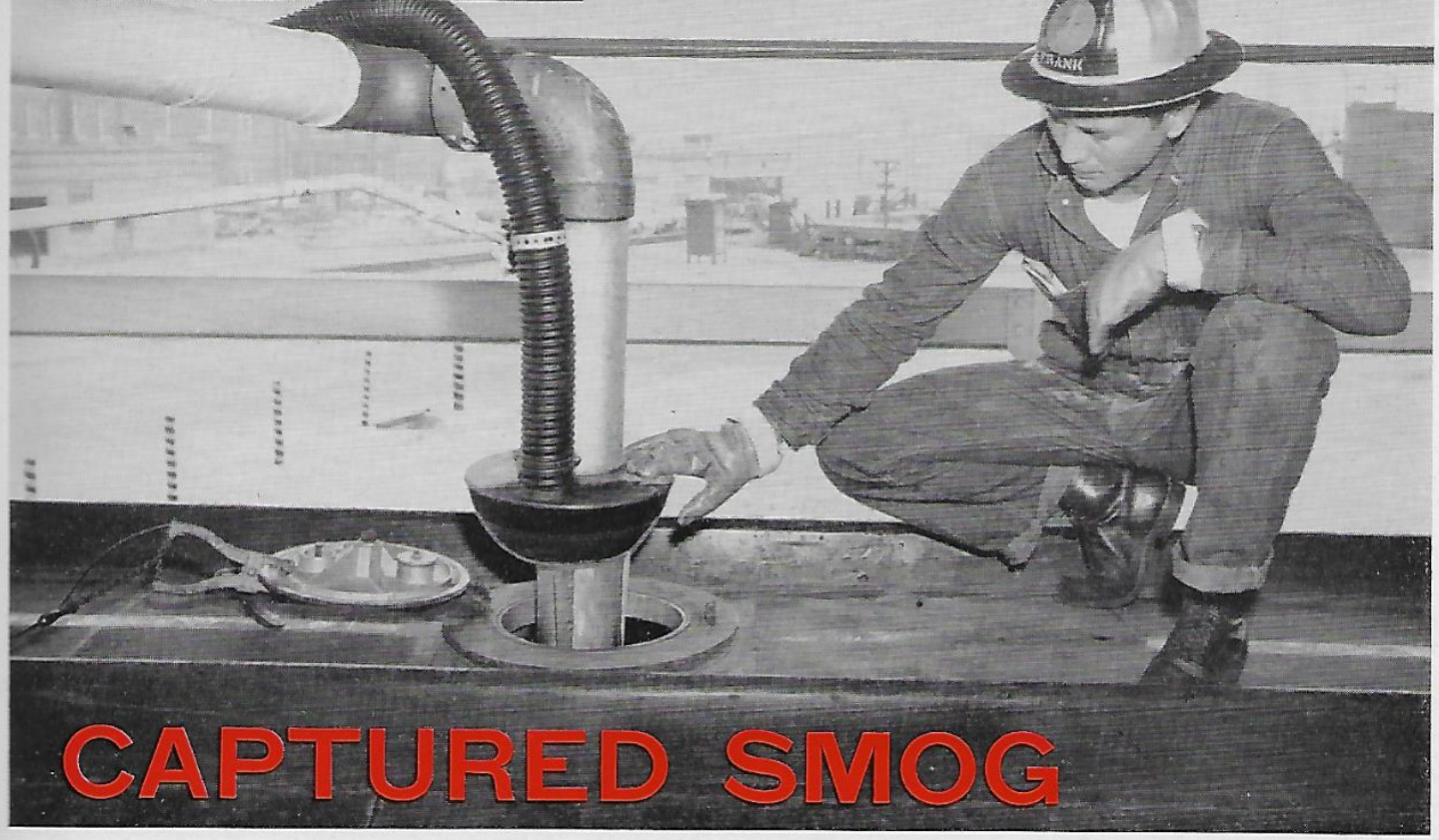




CAPTURED SMOG HELPS PAY ITS WAY

from Gordon Brown

A truck-and-trailer returning from a gasoline delivery to Los Angeles Refinery hardly comes back empty. Its tanks are generally filled with about 8,000 gallons of air and hydrocarbon vapors. If the 20% volume of hydrocarbon vapors in each return load were compressed to liquid form, it would amount to five or six gallons of gasoline.

No longer are these rich vapors exhausted to the atmosphere when the truck-and-trailer is reloaded. Instead, with the help of vapor-recovery equipment recently installed, the hydrocarbons are captured and put to work firing heaters.

When the gasoline loading arm is lowered into the truck's loading hatch, a neoprene-faced plug seals off the truck compartment. Then all vapors displaced during the loading operation are obliged to depart through a vapor hose. They proceed to a vapor surge tank and compressors, and eventually enter the refinery's fuel gas system.

Though the equipment was installed solely to eliminate this minor source of air pollution (smog), our thrifty chemists and engineers were not content. They insisted that the hitchhiking hydrocarbons help pay their own way. / THE END

Loader Frank Upham (above) guides into place the rubber-faced plug used in sealing off tank-truck compartments. As the truck is refilled, petroleum vapors are exhausted through the black flexible hose. Vapors are compressed by the equipment below before proceeding into the refinery fuel gas system.

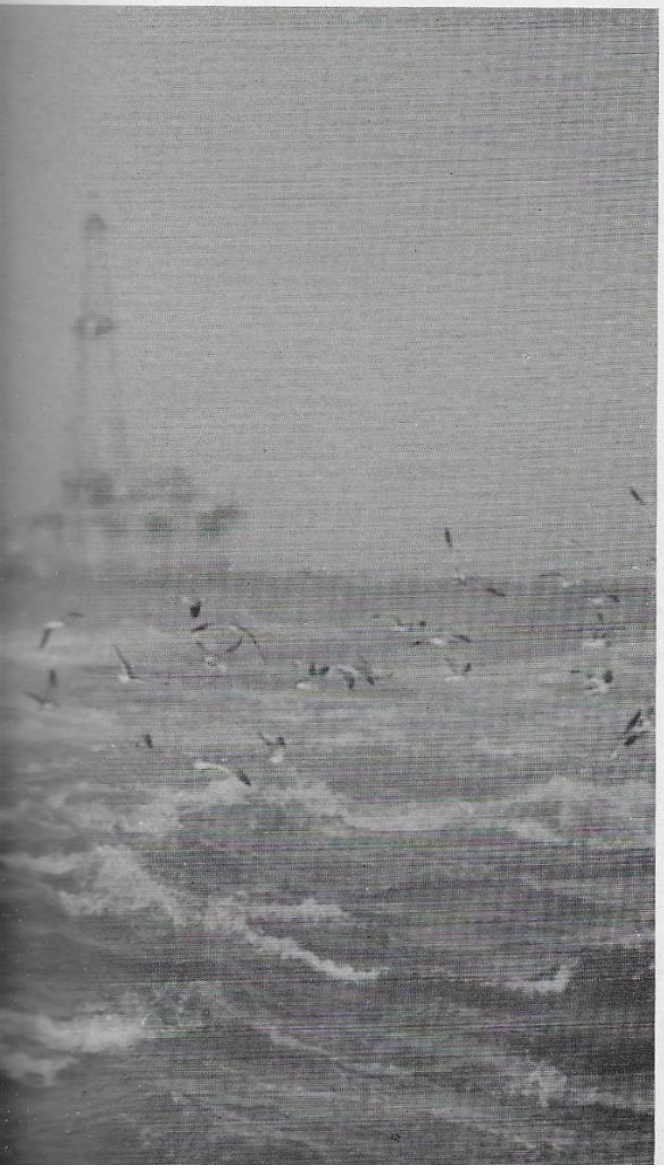
Watch it grow. Christmas Eve of 1956 found the steel framework of Union Oil Center's main building nearly erected. Concrete had been poured for several of the lower floors. The project is exciting wide interest.

Gas bubbles, 10 feet high, marked a wild well in the Gulf of Mexico. Seabirds were attracted to the flaming area by curiosity or the prospects of good fishing. Oilmen knew they had a Tiger by the Tail and they couldn't let go.

TIGER

Gulf Division wins 162-day fight with offshore blowout—

BY THE TAIL



There are rare occasions when oil men wish they had drilled a dry hole instead of a producer. At least such was the case for 162 hectic days on Block 26, six miles offshore in the Gulf of Mexico.

Union Oil was contract-drilling a block of leased ocean bottom off Louisiana's Vermillion Parish coast. Shortly before midnight on June 7, 1956, the contractor's crew reported a "drilling break" at 11,435 feet. Extremely high gas pressure was encountered more than two miles down and, as drillers say, "the well began to flow on the casing."

To meet such emergencies, drilling wells are equipped with stout valves called *blowout preventers*. These were closed and pressure inside the well began to mount—1500—2000—2500—3000—3500—3800 pounds!

Meanwhile, orders went back to the mud pits on the floating tender to increase the weight of the drilling mud from 13.8 to 16.5 pounds per gallon. And specialists from Halliburton Oil Well Cementing Company were summoned.

But before anything could be done to offset the abnormally high gas pressure, real trouble made its appearance. On a lower flange of the blowout pre-

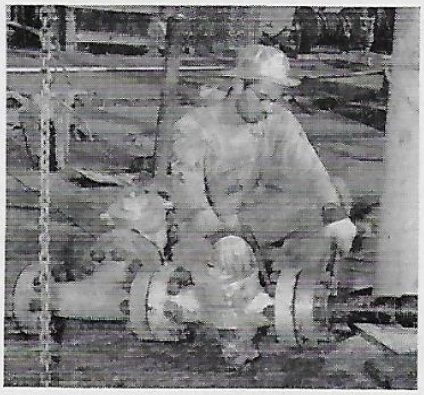
Basil Kantzer, manager of operations, Gulf Division.

venters a leak developed. Gas started hissing through the break, accompanied by a blast of metal-cutting sand. Soon the hiss grew into a roar. Workmen were ordered off the drilling platform. The drilling tender slipped its anchor chains and was towed away. By morning of June 8, OCS-0297 Well No. A-1 platform was abandoned. The well was blowing wild.

In Houston, Texas, that not-so-fine June morning, was a man of world renown in the hazardous business of controlling wild wells. He is Myron Kinley, whose office is in Houston, whose home is in Bel Air, California, and whose job from week to week may be anywhere in the world's oil fields. No other man has approached his record as a successful fighter of oil well fires and blowouts. Learning a dynamiting technique from his father during boyhood, he has added many tricks of his own and spent a lifetime tackling petroleum's worst conflagrations. Now 59 years old and handicapped somewhat by scores of wounds received in battle, he is still considered to be the world's best bet against a wild well.

But Myron Kinley, who frankly dislikes seaborne engagements, found more than his match on Block 26. Arriving with Union Oilers Basil Kantzer and Ed Sands within two or three hours after the well had been abandoned, Kinley helped plan an attack. Several barges had to be loaded with special equipment at Morgan City and moved by tug to the drilling site. This and rigging operations aboard one of the barges required all of June 9 and 10. At daylight, June 11, Kinley and his men made their first sally aboard the drilling platform. What they found was most discouraging. Large volumes of gas were escaping around the outside of the well casing, heaving the water up in spouts 10 feet high. On opening the blowout preventers, they found only a small amount of the gas could be diverted straight upward through the piping. The derrick and platform were beginning to

Engineers and supervisors on the relief well included, from left, Irion Lafargue, Walt Wattigney, Kenneth Chaffin, H. L. Boles, Harry Ellis, Paul Smith, Ed Sands, Billy Evans and Bob Ingram.



Men, left and right, sweat out a two-mile-deep flank attack on gas geyser.

lean a few degrees off vertical. All this was evidence of an under-water rupture in the well—a situation beyond Kinley's reach.

By June 12, all hope of saving the well was exhausted. A few days later, both platform and derrick were swallowed completely by water and the gas-dug crater. To prevent the escaping column of gas from creating havoc elsewhere, the U. S. Naval Air Service was asked to set it afire. They dropped a gasoline tank at the well site and ignited it with tracer bullets.

The ocean-filtered vapors burned silently and spectacularly—tall central flashes and spirals of flame dancing amid a million lesser flares, some of only candle-light significance. Fish came to investigate the fire and the strange new *hydrocarbonated* beverage. Sea gulls circled the flaming area day and night. High overhead, a private cloud, created by the fire's thermal updrafts, hovered over Block 26. And at a respectful distance a group of beaten but undefeated oilmen planned their next avenue of conquest.

Flank Attack

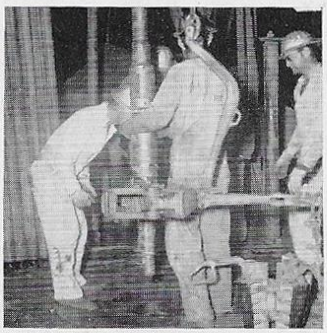
It might have been cheaper to let the gas reserves under Block 26 burn themselves into extinction. But the oil industry no longer solves such problems that easy way. Probably we wouldn't if we could, and couldn't if we would. Despite heavy costs, the drilling contractors and Union Oil resolved to put the cork back in nature's deep underground bottle.

Their sole remaining recourse was by no means sure or simple. It consisted of drilling a relief well at the safe distance of 1500 feet, normally upwind, and trying to intercept the geyser of natural gas. Of course it would have to be a directionally-drilled or curved well and would have to intercept at about the 10,500-foot depth, or just below the casing shoe of the wild well.

In the record time of 37 days, platform and derrick were erected; the tender was towed back and moored to its relief assignment; and the drillers had started making hole. Then followed a most exacting drilling performance.

Imagine drilling, even on dry land, a hole two miles deep and angling off 1500 feet to hit a target no larger than a lamppost. Then add the Gulf of Mexico to your problem and you begin to admire the technical audacity of our engineering age.

A flotilla of pumping and cementing equipment, above, converges at the drilling site as drillers make final inspection of the hole.



Myron Kinley, left, world-renowned conqueror of wild wells, tried, but found this one beyond his reach.

The drilling job was long, costly, tedious, uncertain. It had to be interrupted frequently for surveys to check the course of the hole. There could be no repetition of the first blowout, so every length of pipe and casing was rigidly tested. Seven-inch deep-well casing, capable of withstanding an internal pressure of 11,300 pounds per square inch, was cemented in to a depth of 10,482 feet. Stout blowout preventers were installed and tested numerous times at pressures up to 8,000 pounds. In this manner the relief well was completed to a calculated distance of 100 feet above and 100 feet to one side of the casing shoe in No. A-1 well.

Now came the supreme test. With a flotilla of Halliburton pumping and cementing equipment standing by, the relief well continued drilling nearer its target. Two hundred feet further down suddenly came the drilling break. Circulating mud failed to return to the surface with its cuttings. Contact! A connection had been made with the wild well. The drillers were at grips with the same powerful forces that had ruined No. A-1 well.

Immediately 13 Halliburton pumps went into action, pumping 1,800 barrels of 16.5-pound mud down the hole in an hour and 15 minutes. Then for 36 hours, sea water was tried in place of mud, being pumped down at a rate of 1,500 barrels per hour. Next, in a space of 2½ hours, 3,500 barrels more of 16.5-pound mud followed the sea water.

At this point, hopes were aroused momentarily. The gas fire decreased in intensity and appeared on the verge of going out—only to flare up again and continue burning—but at one-fourth of its former intensity, as if reluctantly giving in.

All the mud on hand had been expended, so the units returned to pumping salt water down for an additional two days. Finally, 4,600 barrels of 18-pound mud was rushed to the scene. This, followed by 3,700 sacks of cement, failed to choke off the gas flow. The fire continued to burn, though in lesser degree.

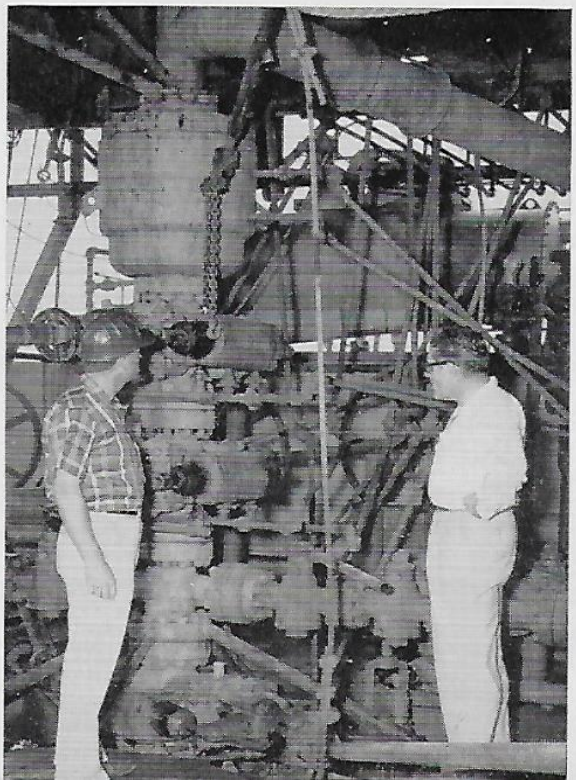
Discovering now that the cement had formed a plug at the bottom of their seven-inch casing, the drillers decided to try attacking from a deeper zone. So, Saturday, November 20, found the relief well drilling at a measured depth of 10,800 feet.

It was at this moment, 162 days after the gas leak first developed, that the spectacular fire-on-water suddenly went out. The thing just *uped* and died. A few *burps* of gas the following Sunday morning gave some cause for fresh alarm. But soon a wonderful peace settled over Block 26. The fish repented of hydrocarbonate and sea birds flew away to other waters. The private cloud disappeared. Men on the tender gazed at the vanishing turbulence with feelings of mixed triumph and relief.

Reconstructing events, the engineers now believe that one or all pumping assaults were effective against the wild well. The continued burning they attribute to surface sands that had become highly charged with the escaping gas. When the surface sands were depleted, the fire went out.

Below, blowout preventers, human and mechanical, size each other up for the last time. At right, a well-survey expert finds the relief well within 100 feet of its crucial assault.

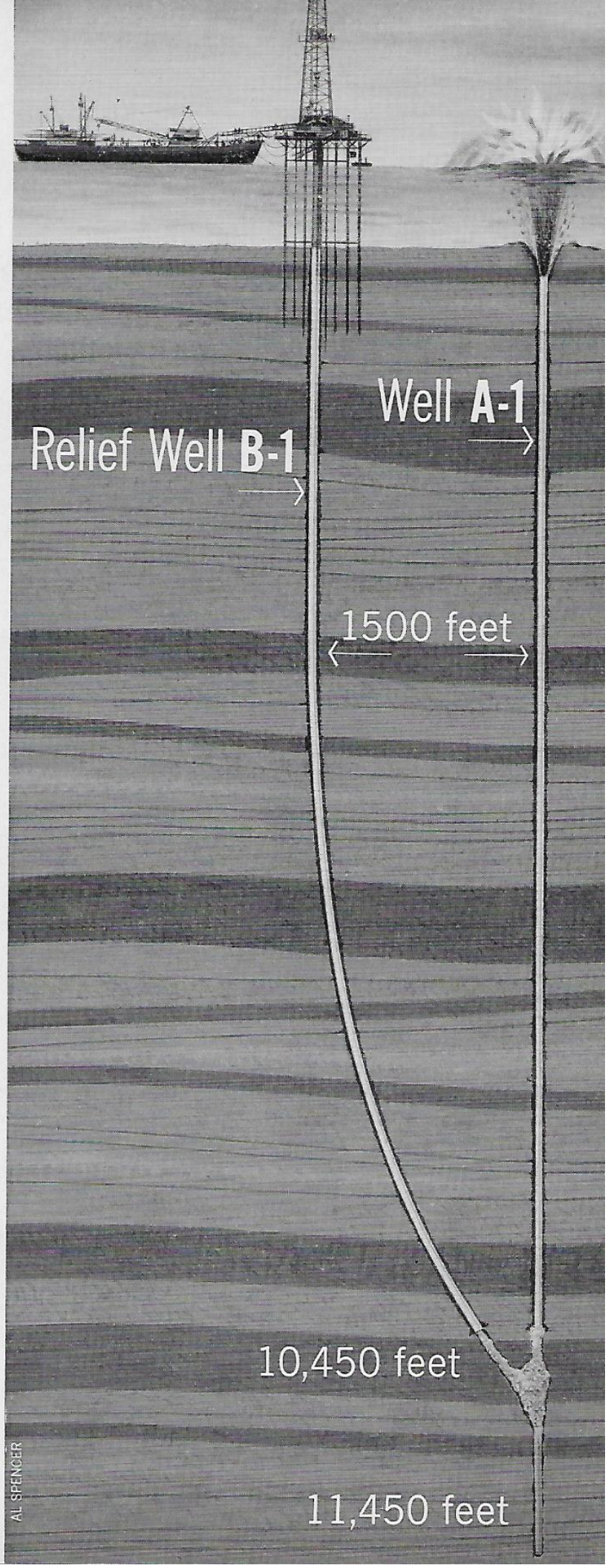
Gull's-eye view of a wild well and relief well gripped in mortal combat.



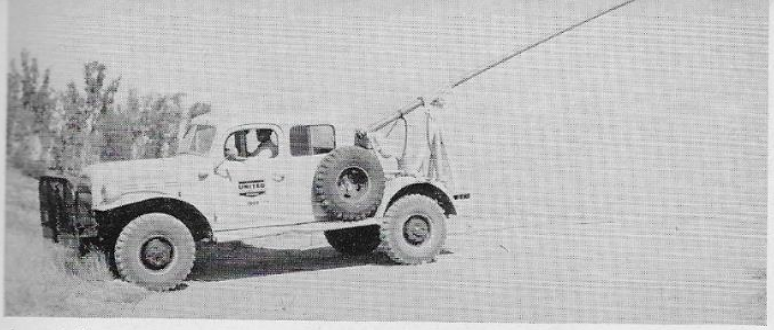
Recent soundings with a fathometer over the blow-out site show a water depth of 125 feet where 26 feet was measured before. Probably both rig and platform are buried beyond recovery under this crater. However, thanks to petroleum industry ingenuity, the reversals of Block 26 are being turned to good account. Already, a new well being drilled from the relief well platform has ambitions of becoming a producer.

/THE END

Better than 10,000 words, as Confucius might have said, is this artist's conception of the successful tiger kill. The wild well had to be attacked two miles down, or in a high-pressure gas-producing zone just beneath its casing shoe. Drilling directionally, the relief well crept to within 100 feet of its objective, girded itself with the stoutest available armor of seven-inch casing, and bored deeper toward trouble. When the tremendous pressure of the wild well was encountered, the relief well held. Sea water, mud and cement were pumped down in relays for several days. The fire gradually waned and died. Now, says the Gulf Division, let's go back down and get production!



The bottom of Pima Mine's open pit is the top of a valuable ore body discovered through geophysical methods. Walter E. Heinrichs, Jr., left, was one of the prospectors chosen by Herbert Hoover, Jr. Another, Robert E. Thurmond, is introduced on a following page.



A mobile magnetometer of United Geophysical design.

Oil prospecting methods lead to discovery of

PIMA MINE

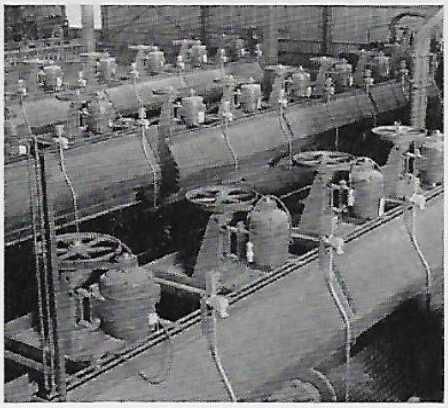
Ten years ago, Herbert Hoover, Jr., then president of United Geophysical Company, planted a challenging question among some of his engineering associates skilled in the techniques of oil exploration. He asked in substance:

Why can't the geophysical methods we are using to locate potential oil structures be adapted to the mining industry's search for new ore bodies?

It has been the practice of mining prospectors to locate mineral deposits by examining exposed layers of rock, called *outcrops,* or by laborious tunneling, or by core-hole drilling. While being necessary, all of these methods have rather narrow limitations. They are not economically adaptable to exploration for minerals hidden under thick layers of *alluvium,* that is, soil, sand, gravel and other such sedimentary deposits. Since much of the earth's mineral wealth is probably concealed under alluvium, Hoover reasoned that geophysics might offer the mining industry some valuable new prospecting tools.

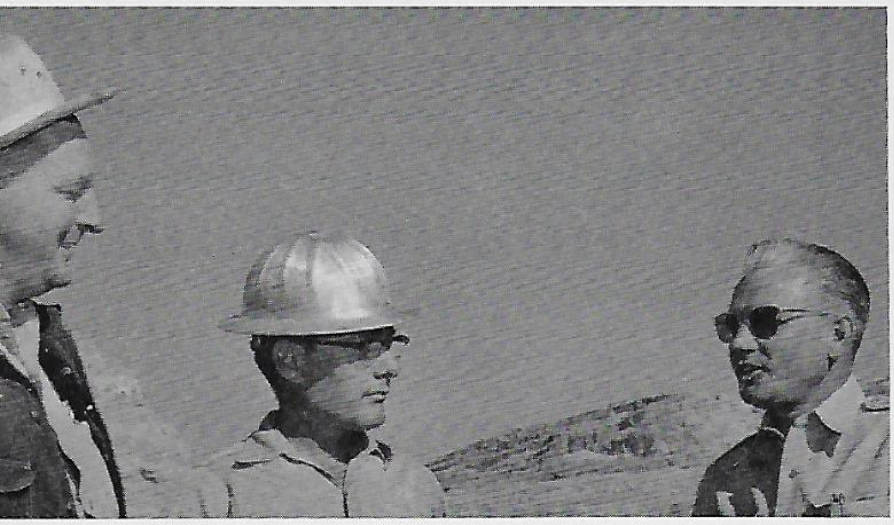
One of the instruments proposed by United Geophysical for tests is the magnetometer. Used extensively in oil exploration, this instrument infers the character and location of subterranean rock layers by measuring the magnetic intensity. Just as the pull of a child's toy magnet is greater when a metallic object is brought close to it, so does the magnetometer indicate greater magnetic intensity in the vicinity of mineralized rock. The magnetometer is most useful in making preliminary surveys of relatively large areas.

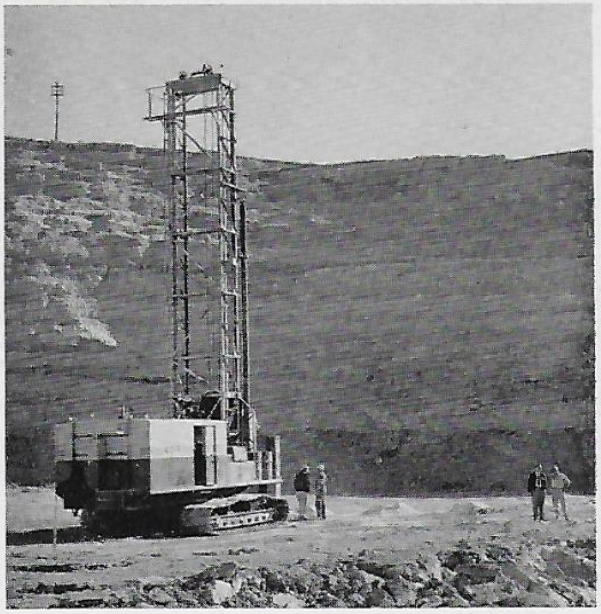
The successful adaptation of geophysical methods to mineral prospecting would depend, Hoover knew, on the caliber of men assigned to the project. He looked the field of possible recruits over very carefully before selecting the first two *sourdoughs* in geophysical history. They were Walter E. Heinrichs, Jr., now manager of our Minerals Exploration Company subsidiary, and Robert E. Thurmond, now mine superintendent of Pima Mine. They appeared to have the technical knowledge, stamina, vigor and resource-



Modern flotation cells are being installed to extract copper from ore.

Below, mine supervisors Pete Leidich, Robert Thurmond and "Drex" Spaulding confer in the pit.





Blast holes being drilled in the ore body, above, will be followed by "shooting."

At right, ore trucks speed between mine and mill pending completion of a rockover skip system.

fulness for such a job.

Heinrichs and Thurmond packed up and headed for the hills in the fall of 1949. They were assigned to an Arizona-New Mexico region where considerable tunnel mining had succeeded near the outcrops and where there were broad deposits of alluvium covering much of the *basement* rock. Here, somewhere beneath the alluvium, might be found copper or silver bearing ore bodies similar to those previously exploited by tunnel mining.

Largely through economic and statistical studies, the region was classified, and some 30 districts were chosen for geophysical testing. Of the 30 districts, the Mineral Hill area in Arizona's Pima County, 20 miles southwest of Tucson, offered the greatest promise. Here the two prospectors, after putting their geophysical tools to work, made attractive interpretations.

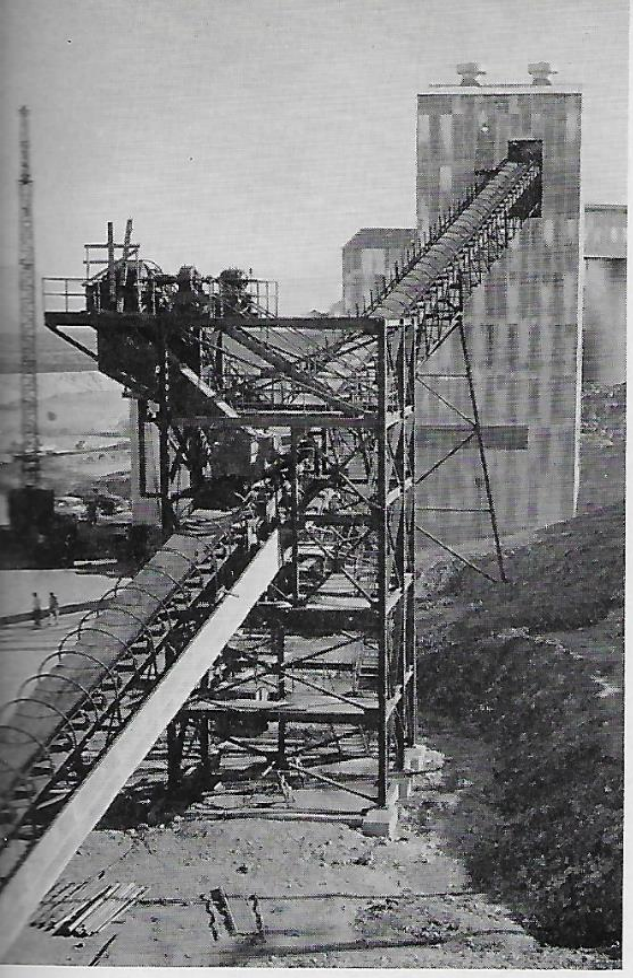
The adapted oil industry instruments pointed out, beneath the alluvium, three ore bodies of possible importance. Two properties were not available to the discoverers, but mineral rights under the third were successfully acquired.

Before a shovelful of earth had been turned, United's instruments gave a remarkably accurate preview of the ore body. They indicated the top layer of ore would be encountered 210 feet deep, plus or minus a 25% margin of error. A shaft subsequently dug through the alluvium actually found the ore at depths of 205 to 215 feet. With similar accuracy the instruments marked the length, breadth and depth of the highly mineralized zone. Core-hole drilling operations later confirmed these geophysical predictions and afforded proof that copper was the principal metal.

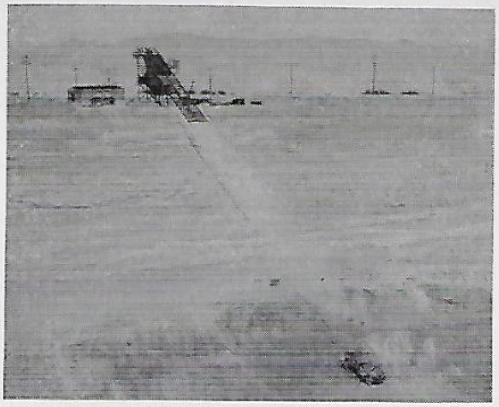
In 1951, Pima Mining Company was incorporated to carry out the mining program. To take charge of this phase, the company beckoned to E. D. "Drex" Spaulding, a University of California engineer with several years of mining experience in the Philippines and Alaska. Spaulding, now resident manager of the mine, supervised the sinking of shafts to the 600-foot level and mining of the ore through a branching series of tunnels. By May, 1953, Pima Mine had produced 26,000 tons of ore containing 3,173,000 pounds of copper. Yet the mine's value had not been fully realized.

Union Oil's Role

Union Oil Company became a part of this mining venture through circumstance. Busy enough trying to



The mill includes primary, secondary and tertiary crushers —rod mills and ball mills— and a flotation unit equal to 200 tons of 25% copper concentrate per day.



Below, shovels mine the ore from the pit bottom. The rock-over skip system, right, when completed, will lift all ore and waste rock out of the pit.

become one of the best oil companies in the business, we were willing to leave mining and other industries to specialists in those fields. However, our acquisition of United Geophysical Company in 1950 came when the prospecting tests were underway. Thereafter, like Topsy of "Uncle Tom's Cabin," Pima Mine "grow'd."

In mid-1954, when Union Oil was attempting to sell its interests in the mine, it was suggested that a halo of low-grade ore surrounding the high-grade zone might be exploited profitably by open-pit mining. The ensuing development program more than confirmed such a possibility; it greatly increased the ore body's latitude and the mine's worth.

In 1955, still insistent about leaving mining to the miners, we disposed of a 75% interest in the Arizona property to Cyprus Mines Corporation, who now have assumed management of Pima Mining Company. They in turn sold a 25% interest to Utah Construction Company, whose equipment during 1956 helped move 200 feet of overburden from the mineral zone to start open-pit operations. In addition to the 25% interest retained by Union Oil, our products enjoy priority in fueling and lubricating the entire project.

It is estimated that Pima Mine can operate at the capacity of its present equipment for at least 10 years. Present development work may more than double this estimate. The mill's yield of concentrate, containing about 25% copper, amounts to 200 tons a day. It is being shipped to El Paso, Texas for smelting.

Thus out of a question expounded 10 years ago has grown a new national asset, a new company and good jobs for more than 200 people. Of greater importance, the entire mining industry has been alerted to the potentialities of geophysical prospecting. Union Oil is proud to have been one of the pioneers in this worthwhile enterprise. /THE END

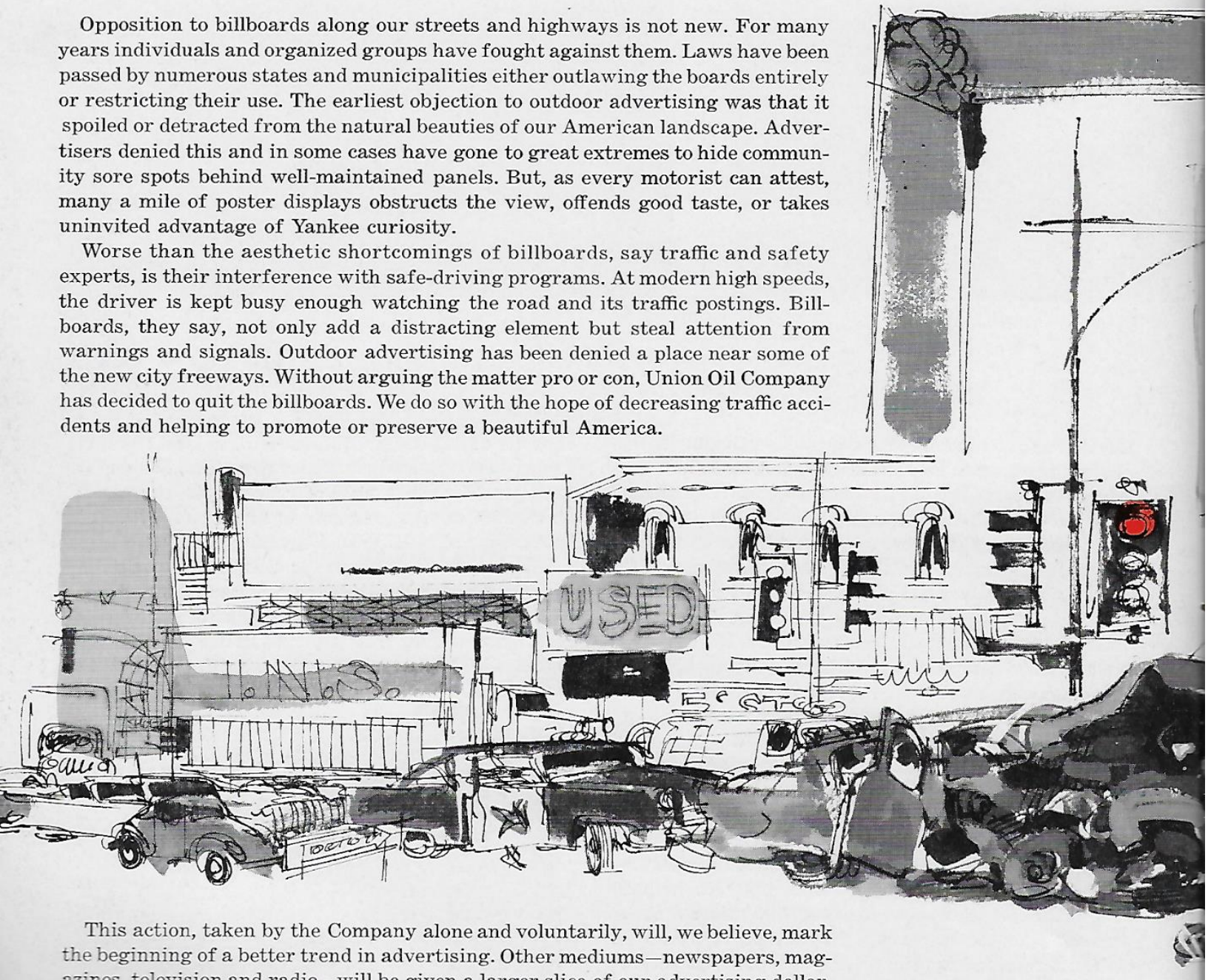
Union Oil retains a 25% interest in Pima Mine and a valuable 100% customer. Salesman J. F. Luzadder of our Tucson Marketing Station helps Mechanical Superintendent M. H. Nicholson with the lubrication of a 50-ton truck.

In support of highway safety
and beautification, Union Oil Company has voluntarily made its

EXIT FROM THE BILLBOAR

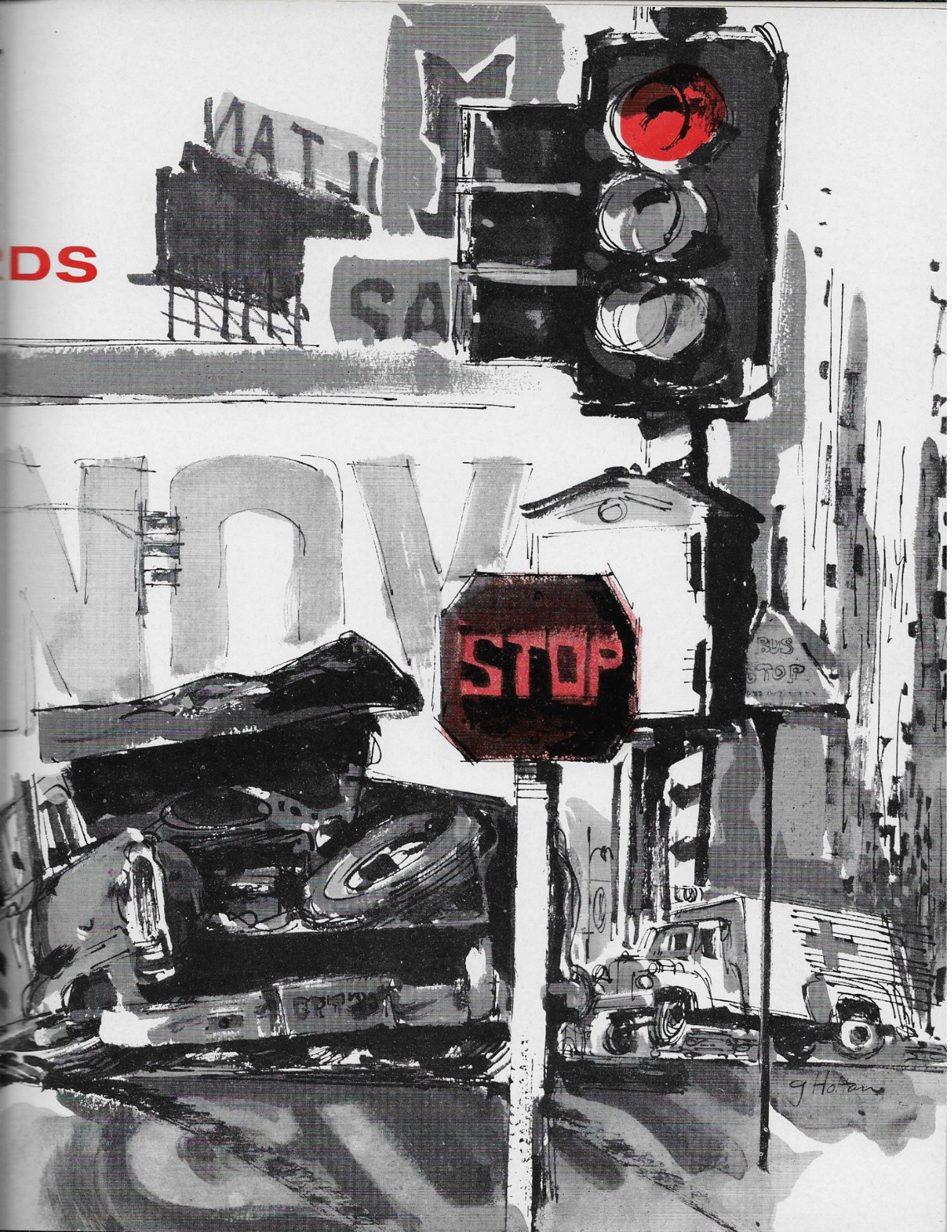
Opposition to billboards along our streets and highways is not new. For many years individuals and organized groups have fought against them. Laws have been passed by numerous states and municipalities either outlawing the boards entirely or restricting their use. The earliest objection to outdoor advertising was that it spoiled or detracted from the natural beauties of our American landscape. Advertisers denied this and in some cases have gone to great extremes to hide community sore spots behind well-maintained panels. But, as every motorist can attest, many a mile of poster displays obstructs the view, offends good taste, or takes uninvited advantage of Yankee curiosity.

Worse than the aesthetic shortcomings of billboards, say traffic and safety experts, is their interference with safe-driving programs. At modern high speeds, the driver is kept busy enough watching the road and its traffic postings. Billboards, they say, not only add a distracting element but steal attention from warnings and signals. Outdoor advertising has been denied a place near some of the new city freeways. Without arguing the matter pro or con, Union Oil Company has decided to quit the billboards. We do so with the hope of decreasing traffic accidents and helping to promote or preserve a beautiful America.



This action, taken by the Company alone and voluntarily, will, we believe, mark the beginning of a better trend in advertising. Other mediums—newspapers, magazines, television and radio—will be given a larger slice of our advertising dollar. But the *finest* billboards have already been made conspicuous by their absence.

/THE END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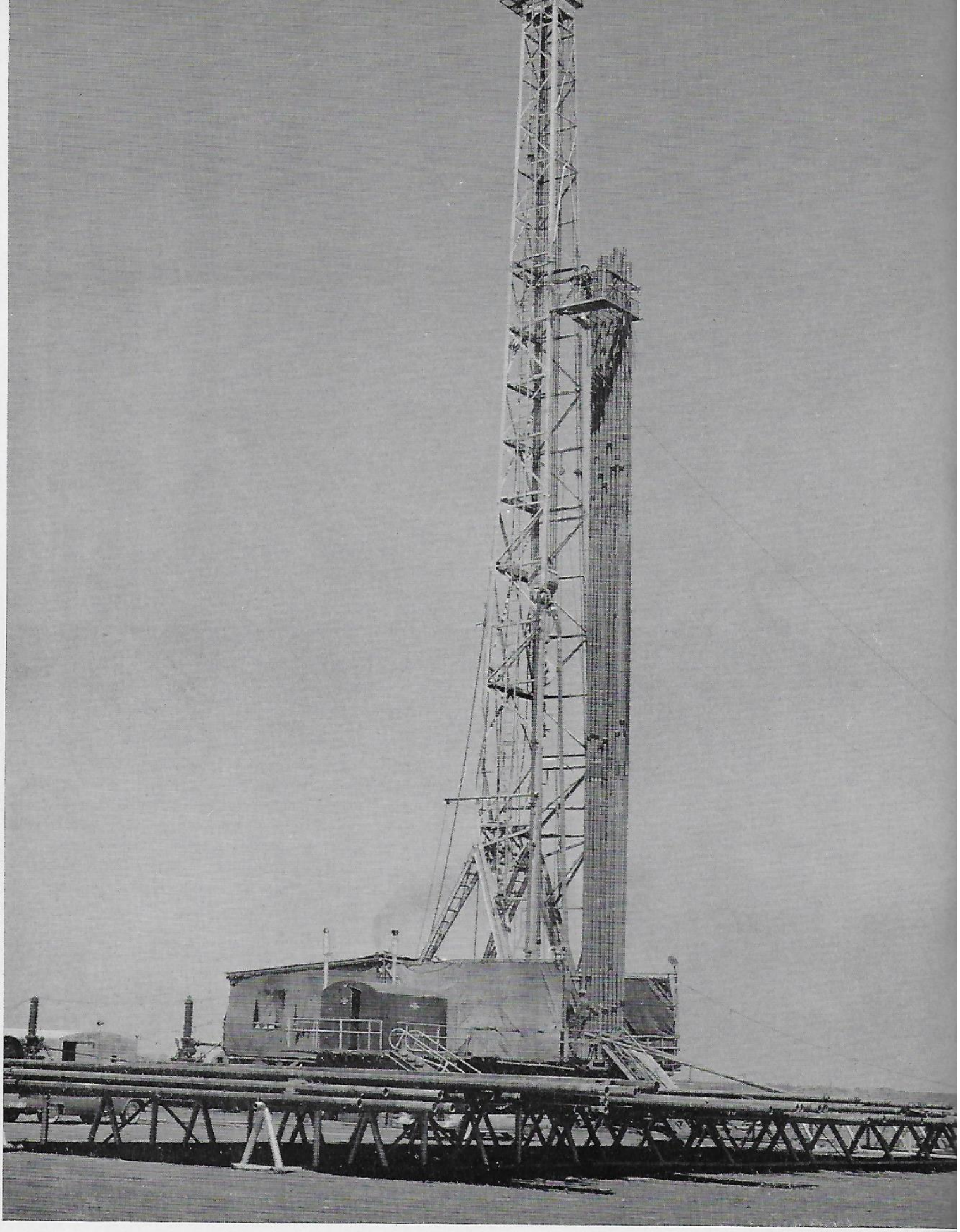


West Texas Division Opens

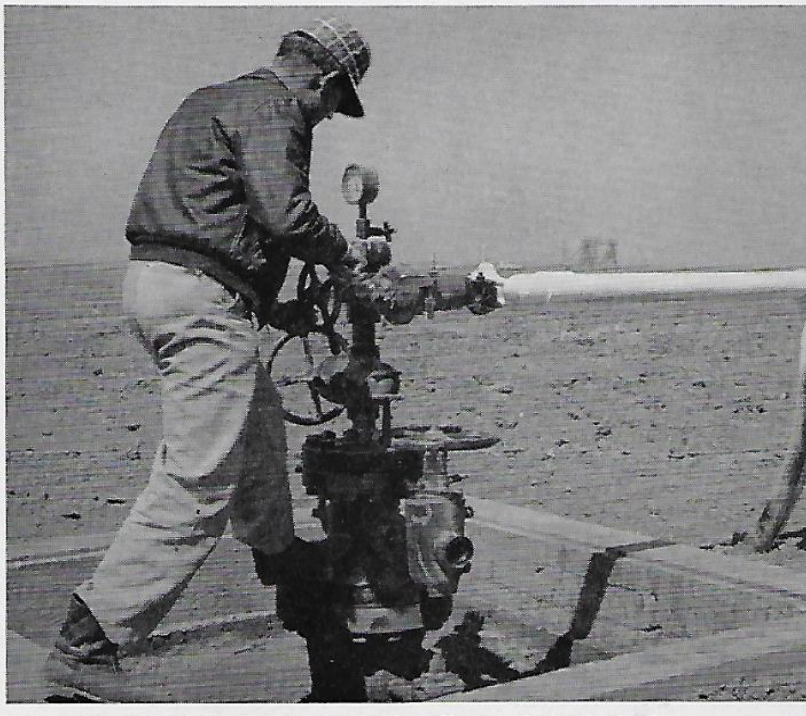
OIL PLAY IN TEXAS PANHANDLE

from W. D. Owens

The Texas Panhandle—that relatively narrow neck of cow country bounded on the north by the Oklahoma Panhandle—has been recognized for many years as a great natural gas area. However, oil discoveries have been few and far between. In fact, when our West Texas Division *spudded in* near Farnsworth in Ochiltree County a year or so ago, we were mildly confident of adding only to the Company's gas reserves.

But oil is where you find it. In November, 1955, the exploratory well, Union No. 1 Buckhaults, penetrated the Upper Morrow sand at 8,000 feet and found oil. It was an extremely waxy crude, so laden with paraffin that sucker rods in the production pipe had to be equipped with rotating paddles to keep the oil flowing. A subsequent well, Union's No. 1 Luthi, completed in February, 1956, tested 884 barrels per day on a half-inch choke, and is rated as one of the Panhandle's best. Its present allowable production, as determined by the State of Texas regulatory commission, is about 101 barrels per day for 16 days of each month.

Following the discovery well of the Farnsworth (Upper Morrow) Field, the West Texas Division drilled 11 development wells. Ten have been completed successfully and the eleventh was scheduled for completion by January 1, 1957. These wells have averaged



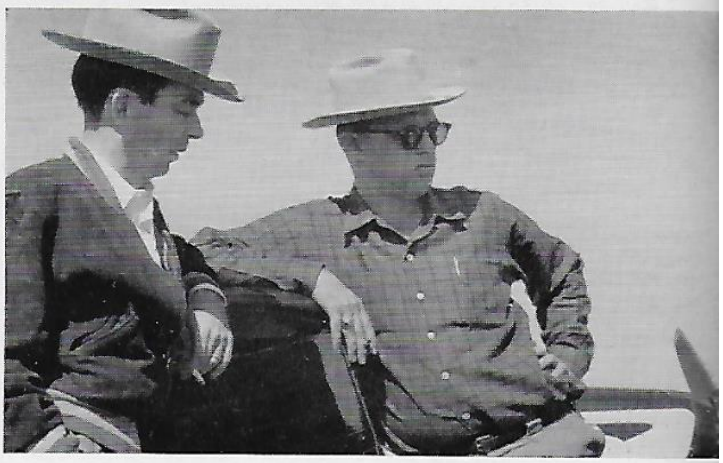
Union No. 1 Luthi in the Texas Panhandle was brought in during February, 1956. It has tested 884 barrels of oil daily on a half-inch choke. Engineer Don Holland is holding it back to the Texas allowable of 101 barrels daily, 16 days per month. Frost on the pipe is evidence of the reduced well-head pressure.

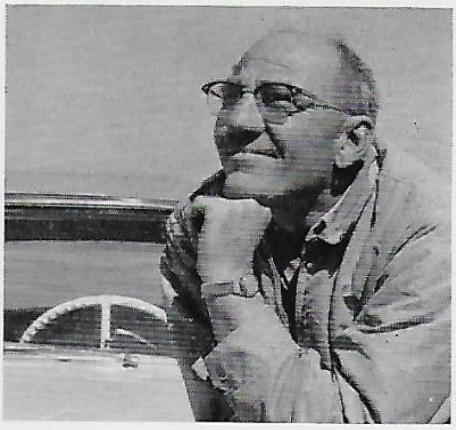
Among those responsible for our Texas Panhandle success are:

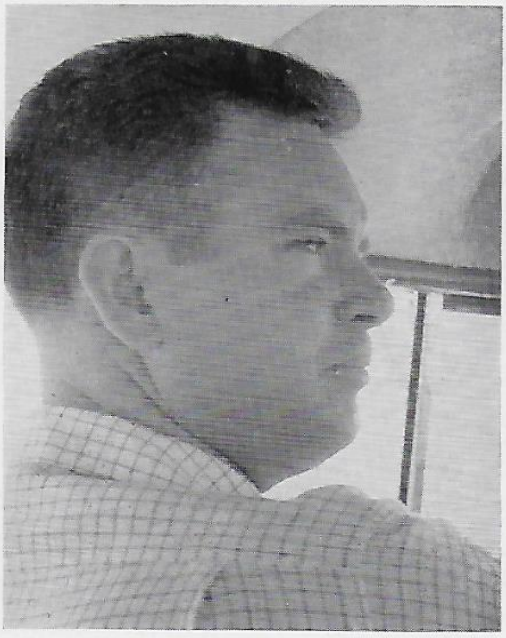
At left, E. R. Atwill, manager of operations, West Texas Division.

At right, Texas Panhandle Geologists R. L. Parker and B. L. Coldren.

Lower left, Farnsworth District Superintendent Charles R. Pierce.







Left, Scout J. Douglas Dyess. Above, Pilot Ernie C. Tyson.

an initial flowing production of 400 barrels each per day. Four additional wells probably will be drilled during the coming year. Reservoir engineers estimate that Union Oil holdings in the Farnsworth Field will yield 3,530,000 barrels of crude, of which about 100,000 barrels thus far have been recovered.

Below the Upper Morrow sand there is known to be a gas producing zone here. Gas reserves, presently estimated at 1.4 billion cubic feet, may increase considerably as the field is extended.

Elsewhere in the Texas Panhandle, in Hansford County, Union recently has completed three wells in the Hansford Gas Field. Each of the wells has an open-flow potential of from 2 to 32 million cubic feet of gas per day. However, the normal gas allowable in Texas is ¼ of the open-flow potential.

Gas producers are obliged to contract the sale of their production to gas transmission companies in accordance with the maximum daily allowable. Union Oil has been able to negotiate a very favorable contract at the rate of 16 cents per thousand cubic feet of gas. The product will be moved by pipeline as far distant as Toronto, Ontario, Canada.

These 1956 discoveries have added significantly to the Company's successes. By the same token, they have greatly extended the vast geographical domain over which our West Texas Division people are constantly *riding herd.*

/THE END

To supply this report with a charming ending, we present: PBX Operator Gloria Dyess, above. And our former Stenographer Lacy Schovajsa, now Mrs. Albert E. Whitehead, Jr and therefore still a loyal Union Oiler.

meet the Abernathy Brothers –

THEY PUMPED A MILLION

from Robert O. Overpeck

UNION TRUCK TERMINAL in Indio, California was selling a good volume of gasoline and diesel fuel when the Abernathy brothers took over in 1953. Total sales for the year reached 350,000 gallons.

But the Abernathys were shooting for higher gallonage and profits. In 1954 they hit 631,874 units. In 1955 their total was 803,975 units. And, more than a month before 1956 ended, they had already passed the million-gallon mark—a rate of increase and rate of sale that have been exceeded by very few service stations.

How did they do it? Well, Clint and his 240-pound kid brother, Wendell, are wise to the "service" part of a service station. Their cafe next door became a pleasant oasis from the Imperial Valley heat. A bunkroom and showers were provided for truck drivers. A hustling Minute Man crew gave every vehicle that entered a thorough checkover and glass-cleaning job. Then the Abernathys did something extraordinary:

They equipped a pickup truck with modern tools, including a pneumatic lug wrench, and made it available 24 hours a day. Hearing of, say a truck with a flat tire, they'd jump in the pickup and deliver their services uninvited.

That's the secret of tripling our gallonage or our income or our happiness anywhere. Triple our service and friendliness. It's a lesson as old as humanity, but we're pleased to learn it again from the Abernathys.

/THE END

In November the Abernathy Brothers had already reached their 1956 goal of one million petroleum gallons sold. Their business tripled in four years.

Success of this Union Truck Terminal in Indio, California is attributed to extraordinary service. For example, their pickup truck below is ready day and night to help any truck driver or motorist in trouble. The Minute Man crew includes, from left, Clint Abernathy, Jake Glazner, Wendell Abernathy, Art Lemming and Joe Freelove (driver).

departmental reports bring you—

BUSINESS HIGHLIGHTS OF THE MONTH

- Exploration schedules 58 wells
- Automation at work in Yorba Linda Field
- The refining of foreign crude
- Union products on Nevada's biggest road job
- Are you interested in being a good boss?

Production

The Company's development drilling program for 1957 very likely will be carried on at an accelerated rate. Drilling in established fields will, of course, be continued. However, a major part of our effort will be directed toward increasing production from discoveries made recently in several Divisions. Some of the areas scheduled for stepped-up development are Red Earth and the general Peace River country in Canada, West Timbalier Bay and our offshore blocks in Louisiana, the Oklahoma and Texas Panhandles, several new fields in Ventura County and the Arvin area in Kern County, California.

from Dudley Tower

Transportation & Distribution

The Pipeline Department has taken a significant step in the field of automation with the initiation of crude oil receipt from another company via *automatic custody transfer*. Positive displacement meters have been installed to receive a constant flow of oil directly from Western Gulf Oil Company's producing properties in the Yorba Linda field into our gathering lines. The constant flow affords a more uniform blend of various crudes handled in this gathering system and improves pipeline operations. The meters also make unnecessary the gauging and sampling of individual lease tanks, and eliminate the need for shipping tanks. Accurate determination of quantity and quality is assured through the use of prover tanks to regularly calibrate the meters, and of automatic line samplers and temperature recorders. We are currently handling 2,000 barrels daily through this installation.

The Company is building a new oil dock in San Diego Harbor. Our old tankship dock was abandoned recently to make way for a large new municipal general cargo dock. Tankship deliveries to San Diego have been discontinued and all bulk stock shipments hereafter will be made by barge.

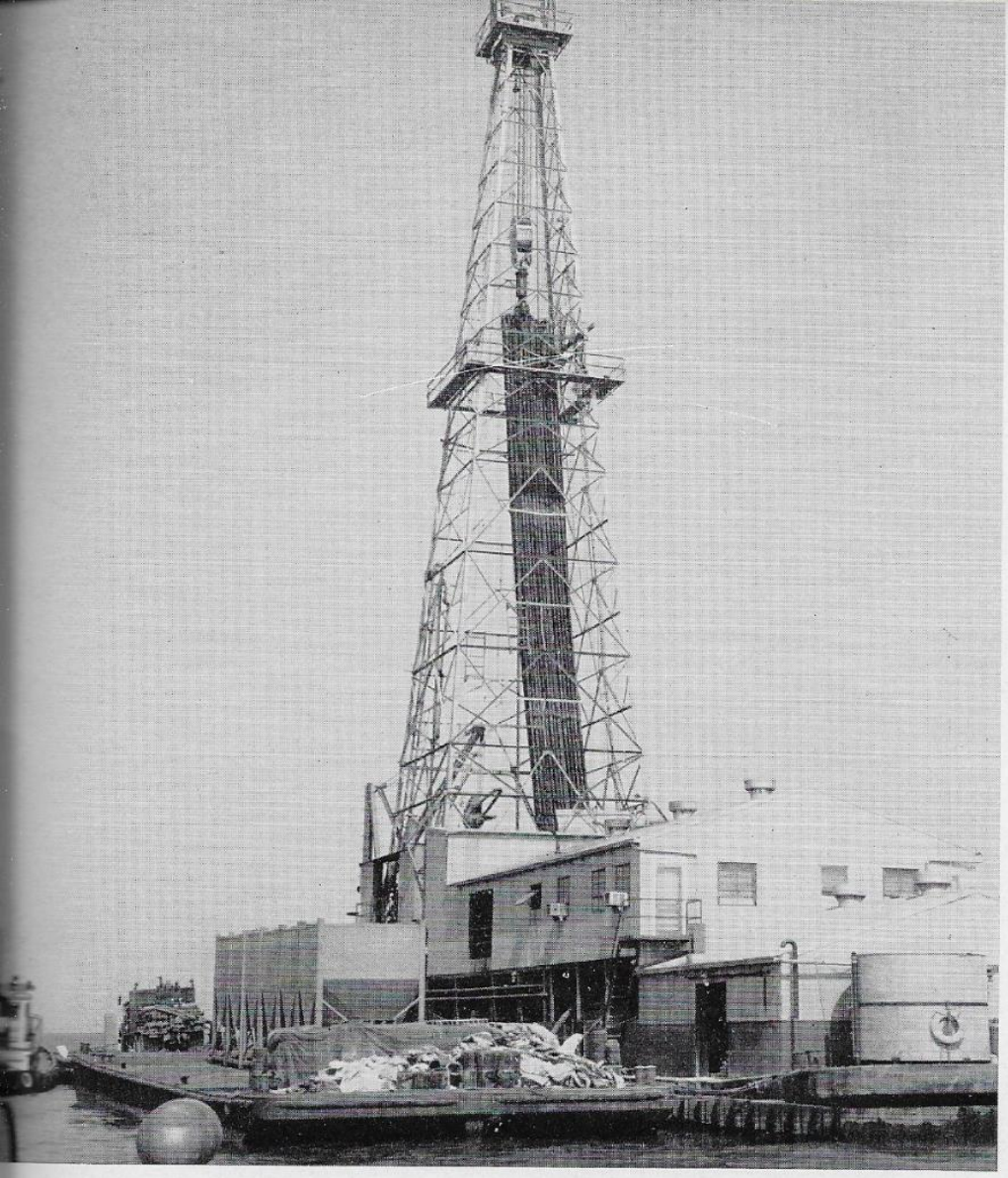
To supplement our supply of California crude oil, we recently began purchasing spot cargoes of Canadian crude. The SS LOMPOC, which operates principally in black-oil service to the Northwest and formerly returned in ballast, is now moving crude oil cargoes from Vancouver, B.C. on the backhaul. This two-way utilization of the LOMPOC amounts to considerably lower transportation costs.

from E. L. Hiatt

Marketing

Union Oil products will be used on the largest earth-moving job ever awarded by the State of Nevada—the Spooner Summit road construction project. The successful bidders are Isbell Construction Company, who 29 years ago built the present Spooner Summit road. Interestingly, their bid on the original project was $210,309 for moving 260,000 tons of earth. On the new project they will move 3,378,120 cubic yards at a cost of $2,467,263.

One of our lesser known but important products is Aristowax. It is used in this country mainly in wax paper and milk cartons; its principal use overseas is for candles. During October, Aristowax sales established a new Company record—2,328 tons. Our four western Territories sold 1,037 tons; Refinery Sales sold 1,117 tons; and



Among new fields slated for development drilling during 1957 is West Timbalier Bay in Lousiana. The drilling rig exploring these waters has survived a hurricane and drilled several oil producers.

174 tons were sold by Central and South America Territory.

On November 1, our new combination wholesale-retail unit at Kailua, T.H., was officially opened under the operation of Kona Petroleum Company. Partners in the company are Fukutaro Kishi, Taro Fujimori, Takeshi Aoyagi and Hideaki Yano. The Kona District, well known for its agricultural and ranching activities, is rapidly becoming a major resort area in the islands.

from Roy Linden

Manufacturing

Los Angeles Refinery has processed three crude oils not produced in California, namely, oils from Canada, Venezuela and Kuwait. As the crudes differ from those normally processed, careful preliminary studies had to be made of their characteristics, quality and quantity. Among questions that had to be answered in advance were:— Are facilities available to receive the crude oil? Can the foreign oil be mixed with domestic crude, or is separate processing necessary? What process units will be required? What process method is most efficient? Will special treating of finished products be necessary to meet specifications? Will refined products from these crudes affect present product quality? The Manufacturing Economics Group had to weigh the financial aspects of importing crude. They also had to determine which refinery was best suited to process the crude, and how the oil could be integrated into planned operations. The answers to these and other questions were essential guides to those charged with profitably manufacturing the *finest*.

Increasing demand for jet aircraft engine fuel raises a question:— What is jet fuel? There are several grades of this product, ranging in boiling point from those of gasoline to kerosene. Unlike aviation gasoline, jet fuel has no high-octane rating requirement. Generally required are low gum content, low freezing point (in some cases below minus —76° F.), and high flash point. The color is usually water white or pale yellow. The fuel must be non-corrosive and must burn without leaving a carbon deposit. Also, it must have a low water tolerance, that is, the quality of minimizing the suspension of water, as water has a strong tendency to hold finely divided rust and dirt particles which could cause filter screens and lines to become plugged.

from J. W. Towler

Research

The oil shale retort in Colorado is undergoing initial break-in. The checking of each piece of equipment has included dry-run operation of the retort's underfeeding rock pump. If final equipment installation and adjustments are completed on schedule during January, actual oil production should commence in February.

The department recently experienced its first lost-time accident in over six years. During this period, our more than 300 employees achieved a Company safety record — 4,500,000 manhours without a lost-time accident. All concerned are proud of this safety record.

from Fred L. Hartley

Comptroller's

The fifth supervisory training program, started by this department November 12 and continuing through next May, has attracted 153 people, of whom 37 are from other departments. They are divided into eight groups, and each group convenes for 10 one-and-one-half-hour sessions. The program's aim is to keep Union Oil supervisors abreast of accredited concepts and techniques of supervision as they relate to our operations. In addition, text material on 10 basic subjects has been forwarded to Division Accountants at Calgary, Denver, Houston and Midland so that other groups may share in the studies.

The Company's first electronic data processing equipment—an IBM Type 650 Magnetic Drum Data Processing Machine—has been installed to augment Home Office data processing and computing facilities. It is intended that the equipment will serve all departments, particularly in accounting, engineering and scientific computing. Systems analysts and supervisory personnel from the several accounting divisions are planning applications of the "650" in processing a large portion of the Company's data handling and recording problems. The objective is to improve our ability to economically accumulate data and to prepare better and more timely financial, accounting, cost and statistical reports needed in our business.

from Max Lorimore

Exploration

Data presented at a recent budget meeting revealed that Union Oil made 15 gas or oil discoveries from 58 exploratory wells during 1956, or a success ratio of one discovery out of every four exploratory wells drilled. Besides the encouraging tests on our exploratory project in the Republic of Costa Rica, several additional discoveries are indicated in wells currently being drilled.

The aggressive exploratory campaign carried on in 1956 will be continued throughout 1957, with $13 million having been programmed for exploratory drilling. The preliminary schedule indicates a well-rounded program in all Divisions. Slated for the first half of 1957 are 8 exploratory wells in the Pacific Coast Division, 13 in the Gulf Division, 4 in the West Texas Division, 2 in the Rocky Mountain Division, 13 Company-operated wells in the Western Canada Division besides 11 partner-operated wells, 4 in the Oklahoma Division, and 3 in our foreign operations. From this 58-well exploratory program should develop several areas of new production and substantial additions to our oil and gas reserves.

from Sam Grinsfelder

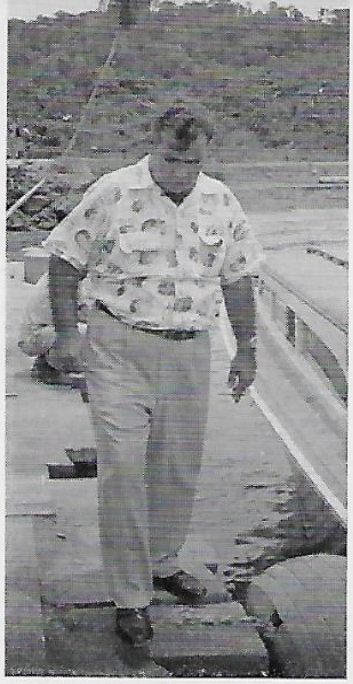
WITH LIMITED CAPITAL OF $138

Twenty-five years ago, Gerry McClellan and Deak Felnagle seemed confident of stretching $138 into a good oil business. In 1956 (above), the partners are congratulated by District Sales Manager R. H. Rockwell (center) for achieving both business and community success.

By some standards of measurement, Inland Petroleum Company is not an industrial giant. The firm numbers only eight people including the two hard-working owners, Jerry McClellan and Deak Felnagle. They operate two large semi-trailer gasoline trucks and one for delivering packaged petroleum products.

From the standpoint of success, however, Inland is far above average. Starting with one small truck and limited capital of $138 in 1931, the company survived both economic depression and war. From a clientele of several scattered gasoline pumps in the Pasadena area, they expanded their services to 20 retail outlets selling a total volume of more than a quarter-million gallons a month. Their office manager is a 24-year man; their other employees have stayed with the job a dozen years or more. Both partners have also found time for hobbies and community activities. McClellan, a boating and handball enthusiast, is just now envying Felnagle a trip round the world.

Most important, their business has increased over 100% since they became distributors of Union Oil products in 1951. /THE END



VIVA EL "ARDILLA"!

from J. J. Lloyd

Heroic Compania Petrolera crew rescues 18 men from Caribbean

If you happen to be a veteran of the African or Normandy invasions, this report may bear a note of sadness. For the "LCT-29-51," also a survivor of those great battles, fights no more. She went to the bottom on December 5, 1956 in shark infested waters of the Caribbean Sea.

Following gallant service during World War II, the ship was renamed "Colorado" and placed in commercial service out of Port Limón on the Atlantic Coast of Costa Rica. She carried anything—copra, live turtles, tractors, what have you? When Compañía Petrolera de Costa Rica was formed to do some oil prospecting for that country and Union Oil, the "Colorado" was on hand to make the original landing of drilling equipment. Since then she has been chartered on numerous occasions to supply our exploratory drilling operations in Costa Rica.

On the fateful morning of December 5, the "Colorado" departed Boca Pacuare, bound for Port Limón with a cargo of logs. A "southeaster," scourge of Caribbean shipping, raced in and caught her several miles at sea. She survived only 30 minutes. Plates that had withstood dive bombing and artillery fire were unequal to the shifting cargo of logs. Seams burst open and angry water rushed in.

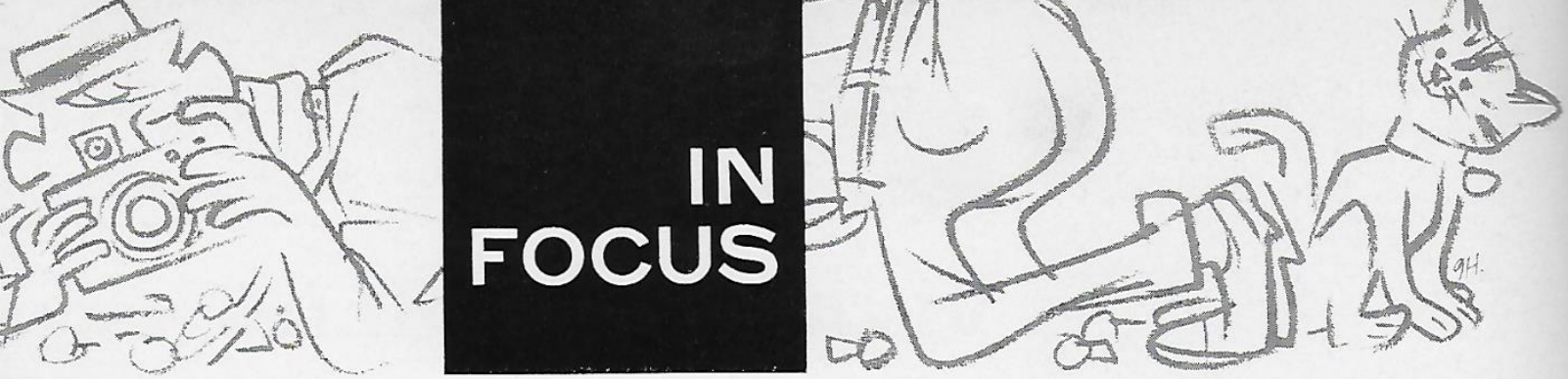
Alarmed by black clouds of the "southeaster" and knowing their "Colorado" to be overdue, owners of the vessel sent chartered Cessna airplanes out to investigate. These soon spotted 18 of the ship's 20-man crew—clinging to floating logs but facing quick exhaustion in the mountainous waves.

One of the airplanes returned to Port Limón with the tragic news. To reach the disaster scene from that point would take the fastest available rescue vessel nearly four hours. So word of the men's plight was flashed to Compañía Petrolera's dock. Could anything be done from the nearer location?

Petrolera's service launch "Ardilla" is a 32-foot plywood craft, built for only 13 passengers and peaceful seas. But her crew, captained by Union Oiler Willie Bodden, quietly disregarded both limitations. Within an hour and a half they had plowed through the "southeaster" to the "Colorado's" grave. One of the airplanes, hovering overhead or darting like a hummingbird in a field of hibiscus, led the launch from survivor to survivor. All except two crew members who went down with the ship were saved.

Arriving at Port Limón several hours later with the 18 prayerfully thankful survivors, the "Ardilla's" men were hailed for their courage and heroism. The Costa Rican press has recognized the rescue as a valiant service to that republic. /THE END

The toast of Central America was Compania Petrolera's good ship the "Ardilla" (right), whose crew, under Captain Willie Bodden (above), rescued 18 sailors from death in the Caribbean.



At Seattle, Jerry Vanderkelen, of Junior Achievement Corporation's Teenco Company signs Union Oilers J. T. Raabe and L. C. Burklund as shareholders. The excellent youth organization aims to develop many of America's future leaders.

FROM J. W. WHITE

At Head Table during the Los Angeles Refinery supervisors' annual banquet held in Long Beach were, from left (seated) Ben Krieger, President A. C. Rubel, guest speaker, and Al Totten; (standing) Walter T. Jameson, John W. Towler, T. A. Dembowski, Fred L. Hartley and K. E. Kingman. Mr. Rubel described some of Union Oil's plans to 148 Association members and guests.

FROM HERB ZIRNITE

"A Better Mousetrap" engages the attention of John Reid, left, and Ray Kreps. They recently completed special training on electronics equipment being added to Union Oil's communications network.

"Royal Road to Sales" started as a Monday morning panel discussion among Union Oil salesmen in Los Angeles. Simulating radio and television panels, it proved so effective among our sales groups that the Sales Executives Club of Los Angeles asked to see it. In photo, from left, Moderator Joe Sanford, Panelists Howard Reeve, Charles Holeman, Oliver Goldsmith and G. J. Korkala perform for an audience of 800. They "stole the show."

FROM TED PROUDFOOT

Clarence H. Abernathy of Los Angeles Refinery conceived the idea of supplying Company service-emblem decals for hard-hats. The idea clicked, decals are available to all Refinery employees.

FROM HERB ZIRNITE

"Gifts from the Heart" were repeated this season at Los Angeles Refinery when 139 pints of blood were contributed to the Red Cross. Donors seated from left, Richard Robb, Murray Hamilton, Kenneth Brock, Ronald McDonald, Irv Caulkins and Ben Bear. Standing is Nurse Theresa Campostrini.

FROM HERB ZIRNITE

Phillip E. Hewitt, left, of Syracuse, New York is congratulated by Regional Manager Thomas D. Orecchio, for having been named "top sales representative" of Eastern Continental Territory. The initiation of a "Club 100" program in July resulted in a 28% net gain in the Territory's sales of oils and greases. Phil exceeded his quota by 237%.

FROM PAUL H. BOYD

In Ensenada, Union Oil Distributor Manuel Ezroj explains to Carrol Luftin the origin of her fiesta title "Miss Royal." She was reigning queen of Fiesta de Ensenada todos Santos.

FROM TED PROUDFOOT

Service Birthdays

EXPLORATION & PRODUCTION — Years of Service

JOHN W. BROWN, *Whittier*.....35
L. WOOD HUTCHASON, *Bakersfield*.35
ANDREW J. ORENS, *Dominguez*.....35
LEONARD WITT, *Dominguez*.....35
IVAN S. WEAVER, *Orcutt*.....25
CARL BLANPIED, *Home Office*.....20
BLANCHE M. KELLEY, *Home Office*...20
DWIRE BOURQUE, *Louisiana*.....15
ROBERT G. McLANE, *Home Office*....15
GERALD D. FAWCETT, *Bakersfield*....10
JOSEPH M. MAXWELL, *Orcutt*.....10
WALTER C. BRORSON, *Montana*.....10

MANUFACTURING

WILTON C. HIRTH, *Wilmington*.....35
JOHN A. FINNEGAN, *Wilmington*....30
WILBUR CRANE, *Wilmington*.....25
ALLAN S. GREENWOOD, *Wilmington* 25
GUY G. TAYLOR, *Wilmington*.....25
HERBERT F. VAN METER, *Oleum*.....25
DONALD B. BRADY, *Oleum*.....15
CHESTER M. EDWARDS, *Oleum*.....15
WILLIAM H. FAIN, *Wilmington*.....15
EUGENE R. FRIESS, *Wilmington*.....15
FRANK VAN ACKER JR., *Wilmington*...15
ALBERT R. ALLEN, *Wilmington*.....10
RALPH C. SANGSTER, *Wilmington*....10
MALCOLM E. WIMPRESS, *Oleum*.....10

COMPTROLLERS

HAROLD A. TOBEY, *San Francisco*....35
HAROLD F. MILLER, *Home Office*.....25
EMILY L. LEMKER, *Home Office*.....20
GRANT T. BURROWS, *Home Office*...10

MARKETING — Years of Service

EDWARD KEIGHTLEY, *Home Office*...30
WILTON I. MARTIN, *Seattle*.....30
CARLOS W. JORDAN, *San Francisco*..25
RUBY C. LINDBERG, *Seattle*.....25
THEO. R. McGILLIARD, *Los Angeles*...25
LESTER C. MARINO, *Oakland*.....20
CARL M. PETERSEN, JR., *San Francisco* 15
PAUL R. SYBRANT, *Phoenix*.....15
HERBERT A. BECKER, *Long Beach*.....10
RICHARD D. PETERSON, *Coos Bay*....10
ANGEL M. PINEDA, *Central America*..10
PHILIP J. RYAN, *San Francisco*.....10
EDWARD H. SCHLEMMER, *Honolulu*...10

PIPELINE

HADEN L. GLENN, *San Luis Obispo*...30
JAMES B. McMILLAN, *San Luis Obispo* 30
CALVIN D. NEWTON, *San Luis Obispo* 10

TAX

DEWEY L. SHEPHERD, *Home Office*...20

RESEARCH

ROBERT J. BARGER, *Brea*.....15
ROBERT W. HALE, *Brea*.....15

BREA CHEMICALS, INC.

ANTON J. TULLENERS, *Brea*.....15

COMMUNICATIONS

CLEO BEAN, *Home Office*.....10

TRANSPORTATION & DISTRIBUTION

THOS. L. CATHERWOOD, *Home Office* 10

AUTOMOTIVE

RICHARD A. DAVIS, *Santa Fe Springs*..10

Retirements

DECEMBER 1, 1956

CLAUDE V. ABBOTT, *Marine Dept.*
October 2, 1932
WILLIE A. BODDEN, *Marine Dept.*
April 27, 1938
HORACE E. CATTERMOLE, *Marine Dept.*
September 4, 1913
RUSSELL H. CYRUS, *Marine Dept.*
July 16, 1923
LEON DeSMETH, *Marine Dept.*
May 22, 1926
CARL H. GYLLBERG, *Marine Dept.*
September 2, 1937
JOHN HAGA, *Marine Dept.*
September 9, 1938
CHARLES E. HESSE, *Marine Dept.*
April 14, 1935
FRED R. HOWELL, *Marine Dept.*
June 13, 1927
JOHN D. KING, *Marine Dept.*
September 20, 1940
LESTER L. LISHMAN, *Marine Dept.*
May 23, 1935
FRED A. NEVINS, *Marine Dept.*
March 1, 1941
WILLIAM H. PETERMAN, *Marine Dept.*
November 28, 1920
LAURITZ I. PETERSEN, *Marine Dept.*
September 20, 1932
JOHN B. STENE, *Marine Dept.*
May 10, 1925
AUSTIN TOMTER, *Marine Dept.*
March 28, 1929
JOSE VIDAL, *Marine Dept.*
March 10, 1930
OTTO WEIDEMANN, *Marine Dept.*
October 25, 1922

JANUARY 1, 1957

EMMA W. BARKER, *Central Territory*
October 16, 1928
ELMER O. BRADSHAW, *Oleum Refinery*
June 10, 1926
JOHN J. KEHOE, *Southern Division Field*
April 26, 1923
CLYDE L. KIRKHAM, *Southern Div. Field*
March 6, 1920
SARA McKENZIE, *Research Department*
May 9, 1944
WILLIAM C. TODD, *Los Angeles Refinery*
May 10, 1943
WALTER R. CUMMINGS, *L.A. Refinery*
May 1, 1923
HARRISON A. DIKE, *Cent. & So. America*
May 29, 1917
RUSSELL D. HADLEY, *Comptrollers*
April 11, 1919
ARTHUR JACKSON, *Central Territory*
June 29, 1933
BYRON L. JOHNSTON, *Maltha Refinery*
October 16, 1917

In Memoriam

EMPLOYEES

GILBERTO ALMENDRAL, *Panama*
July 24, 1956
STEWART N. CLEMONS, *Coast Div. Field*
December 16, 1956
JOHN OWENS DOHERTY, *Cent. Terr.*
November 1, 1956
HARRY W. CARD, *Southern Division Field*
November 3, 1956
LEONARD O. HOUSE, *L.A. Refinery*
December 5, 1956

RETIREES

MARVIN V. ROBINSON, *So. Div. Field*
November 8, 1956
ANNA H. LEONARD, *Comptrollers*
November 18, 1956
JAMES E. KNABB, *Automotive Department*
December 16, 1956

WHAT IS OUR INTEREST ABROAD?

In his speech in New York on Thursday night Vice-President Nixon said: "I believe it is in our interest as well as theirs to assist them in this hour of difficulty and I am confident that there will be strong bipartisan support in the Congress for granting such assistance."

Mr. Nixon is probably right: with a sigh, all sides will agree to bail the British out again, as we have actively been doing for 40 years. This is a habit and perhaps not entirely a bad habit.

Botched Suez Job

But it would be a mistake, we think, to try to go on from there. Because Mr. Nixon, a mouthpiece of the administration, says that we should save the British from the pains of an illicit, botched job in Suez, it doesn't follow that the taxpayers and their representatives in Congress should cry up a new Marshall Plan. But the liberals are already saying that the proposal to pay off the British war deficit (which includes the loss of the oil they stopped by invading Suez) should be expanded into a program to restore the failing European economies and thus put new strength into the western alliance.

This is an inverted way of saying that the United States must submit to blackmail for its own good. It is saying: "We had better resume payments to the British, the French and, of course, to the Israelis, or they will be off on some other military adventure which might embarrass us." Or it is our allies' way of saying: "We have the United States in the bag; we can do what we please and the Americans will go along with us because they have no other place to go. If they won't go with us we can threaten to join the Russian Communists, economically at least."

The London Times said last week that a breach between the United States and Britain would be disastrous to Britain but would be disastrous to the United States, too.

What Disaster?

What is this disaster we face? Does it mean that if we cut down on our annual tribute Britain, France, West Germany, the Scandinavian countries, the Benelux countries and Italy will immediately become allies and satellites of Soviet Communism—such, say, as Poland, Hungary, Czechoslovakia and East Germany? Of course it doesn't. Does it mean that these countries will withdraw their support of the military forces of the NATO in Western Europe? No, because most of these countries already have withdrawn their substantial support, despite all the assistance they have had from us since 1947.

The answers suggest that there are no substantial reasons for continuing to subsidize Western Europe in the manner to which we have accustomed it except the reasons of humanity and Christian charity. We can expect no return for our assistance except the spiritual satisfactions of helping the poor, comforting the sick.

These can be important satisfactions, especially to Americans, but they should not be confused with foreign policy as such. A nation's foreign policy is the expression of its own interests. The liberals ever since the war have told us that our interest is served best by making friends through lavish expenditures; in other words, that foreign countries will submerge their own interests if we give them enough money.

The fallacies of this silly theory have been apparent to some of us for several years, many billions of dollars in the past. The theory completely exploded with the attack on Suez, for when the smoke blew away we could see that our closest allies, the chief beneficiaries of our largess, felt no obligation, moral or otherwise, to adhere to the policy of peacekeeping which we had all agreed to in a charter that countenanced no war except against aggressors.

The Flaw Expressed

The liberals have sensed the flaw in their case and one of their spokesmen, a magazine called the Reporter, denounced the United States in its last issue for a "passive, middle-of-the-road policy" and "peacemongering." Peace is now a nasty word; if money fails to win us friends we should go to war to prove our value to our clients.

Europeans periodically express their concern lest the United States relapse into isolationism, which according to them and their American liberal friends is a kind of barbarism. It is strange that after all these years in which Americans have been weaned from their own interest to the profit of the rest of the world those who feared our isolation most have done their best to resurrect it.

They will get their oil money, to be sure, and Americans will continue to read with the same amusement British and French books about what is wrong with the United States, but we doubt whether all their official propaganda and all the pressure of American internationalists will be able to persuade the majority of the American people—and their representatives in the Congress—that a billion dollars spent to make a friend abroad, or to arm him in our cause, is as well spent as a billion dollars on our own military muscle, which we know will be exercised only in the interest of world peace—our own interest.

An editorial of December 9, 1956, reprinted through courtesy of The Los Angeles Times.

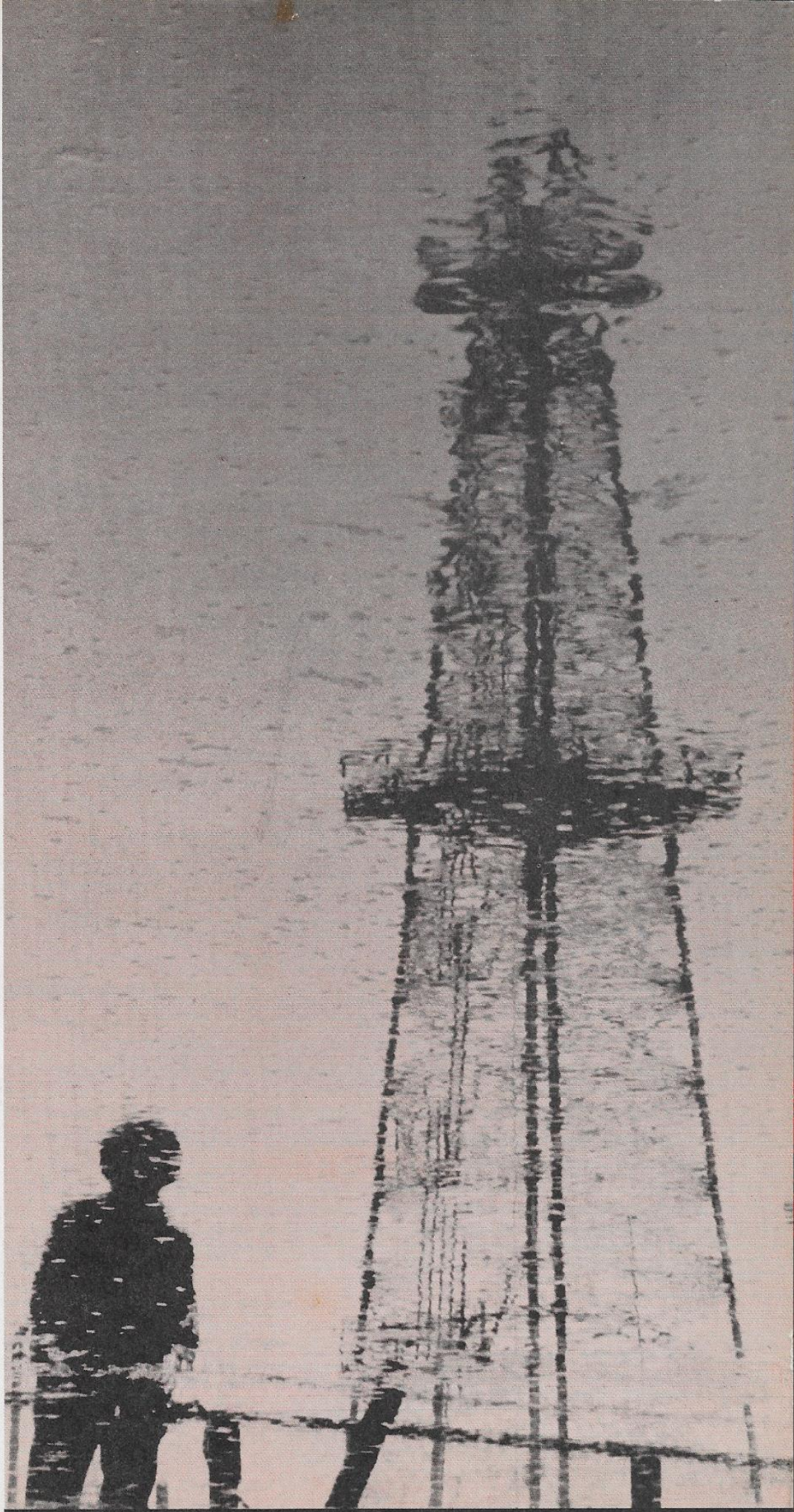
ON TOUR

JANUARY 1957
Volume 19
Number 1

THE COVER is an interpretation by David Stone Martin, internationally famous artist, of the wild-well recently conquered by our Gulf Division.

"ON TOUR" pronounced "on tower," is an oil field expression meaning at work or on duty. Our magazine by that title is published monthly by Union Oil Company of California as a means of keeping Union Oil people informed regarding their company's plans and operations. We invite communications from our readers, whose interests and opinions are carefully weighed in determining editorial policy. Address correspondence to ON TOUR, Union Oil Bldg., 617 West Seventh Street, Los Angeles 17, California.

C. HAINES FINNELL, *Director Public Relations*
THIEL D. COLLETT, *Editor*
ROBERT C. HAGEN, *Assistant Editor*



Dominquez Reflections of a man and derrick in Oil.