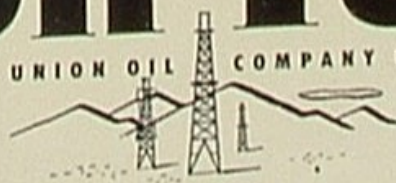


J U N E 1 9 5 5

**SANTA
MARIA
COKER**

On Tour

WITH UNION OIL COMPANY OF CALIFORNIA



On Tour



Volume 17, Number 6

JUNE 1955

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"ON TOUR", pronounced "on tower," is an oil field expression meaning "on duty." Our magazine by that title is published monthly by Union Oil Company of California for the purposes (1) of keeping Union Oil people informed regarding their Company's operations and progress, and (2) of recognizing and encouraging the fine accomplishments of employee groups and individuals. We invite communications from our employee readers, whose thoughts, interests and opinions are carefully weighed in determining editorial policy. Address correspondence to ON TOUR, Union Oil Building, 617 West Seventh Street, Los Angeles 17, Calif.

T. D. Collett, Editor
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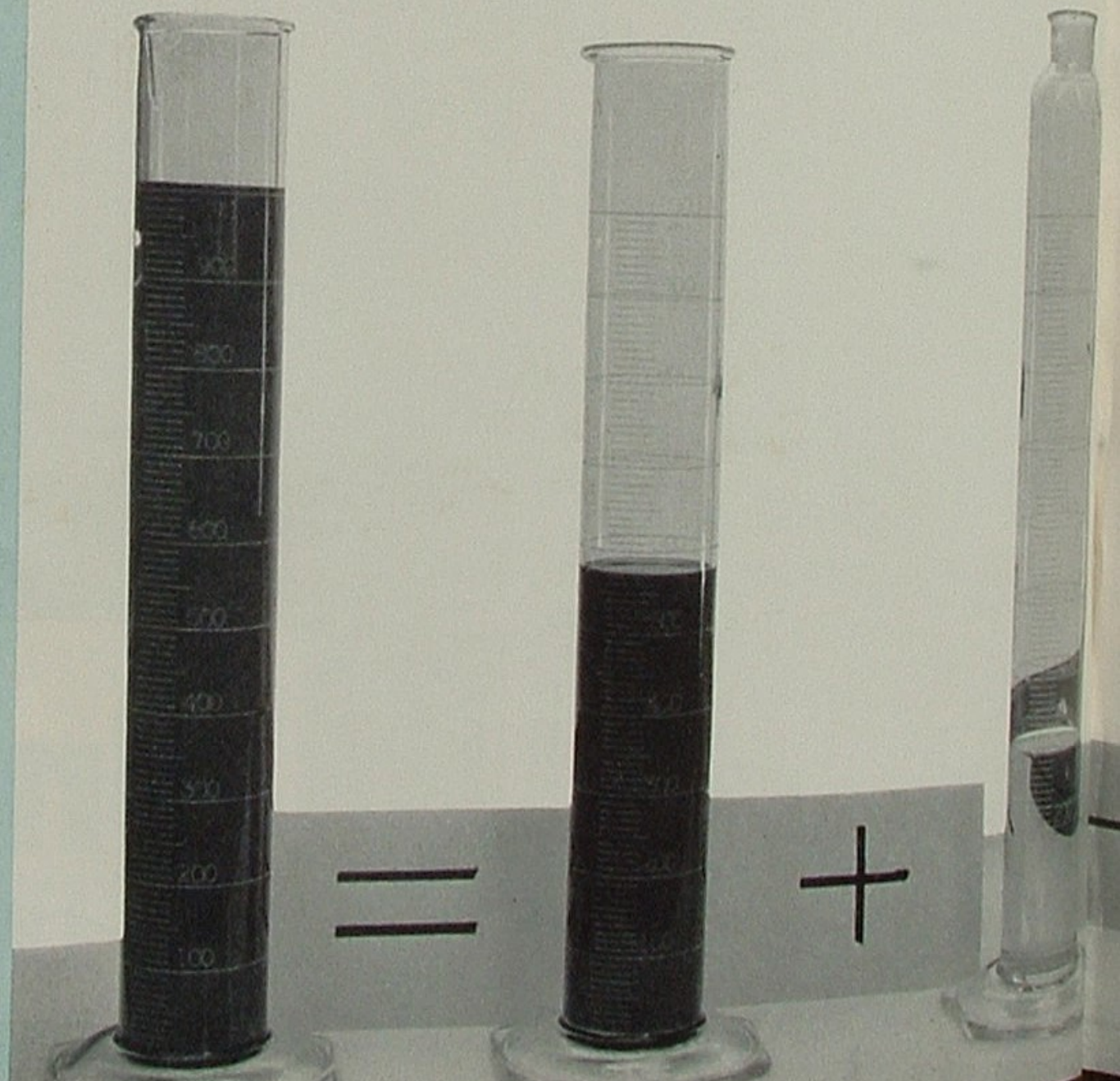
ENGINEERING AND PERSEVERANCE HAVE

OF SANTA MARIA

By Paul Grant

ALTHOUGH the discovery of oil in the Santa Maria Valley area of California during the last several decades has inspired many a triumphant cheer, the oil itself has not. It is an extremely heavy crude averaging about 15° gravity—whose resistance to flow might be compared with that of honey or heavy molasses. In some wells the crude is so heavy that producers have to pump light oil underground as a diluent before the crude will respond to pumping units. Above ground the crude, due to its tendency to remain thick at atmospheric temperatures, is difficult to store and transport. Refining it has always been a costly chore because the crude produces a relatively low percentage of straight-run gasoline and contains troublesome quantities of degrading sulfur. One of its few redeeming qualities is that it yields excellent asphalt.

So, Santa Maria crude long as been one of the Pacific Coast's less desirable petroleum resources. Most oil companies subject it to a minimum of refining—top off its gasoline fractions, and sell the residue as fuel oil



ANCE HAVE ACHIEVED THE REFINEMENT

MARIA CRUDE

By Paul Grant, Engineering Supervisor

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and asphalt. Since both of these latter products are subject to extreme fluctuations in demand, the oil industry of Santa Maria has seen many periodical shut-ins of producing wells.

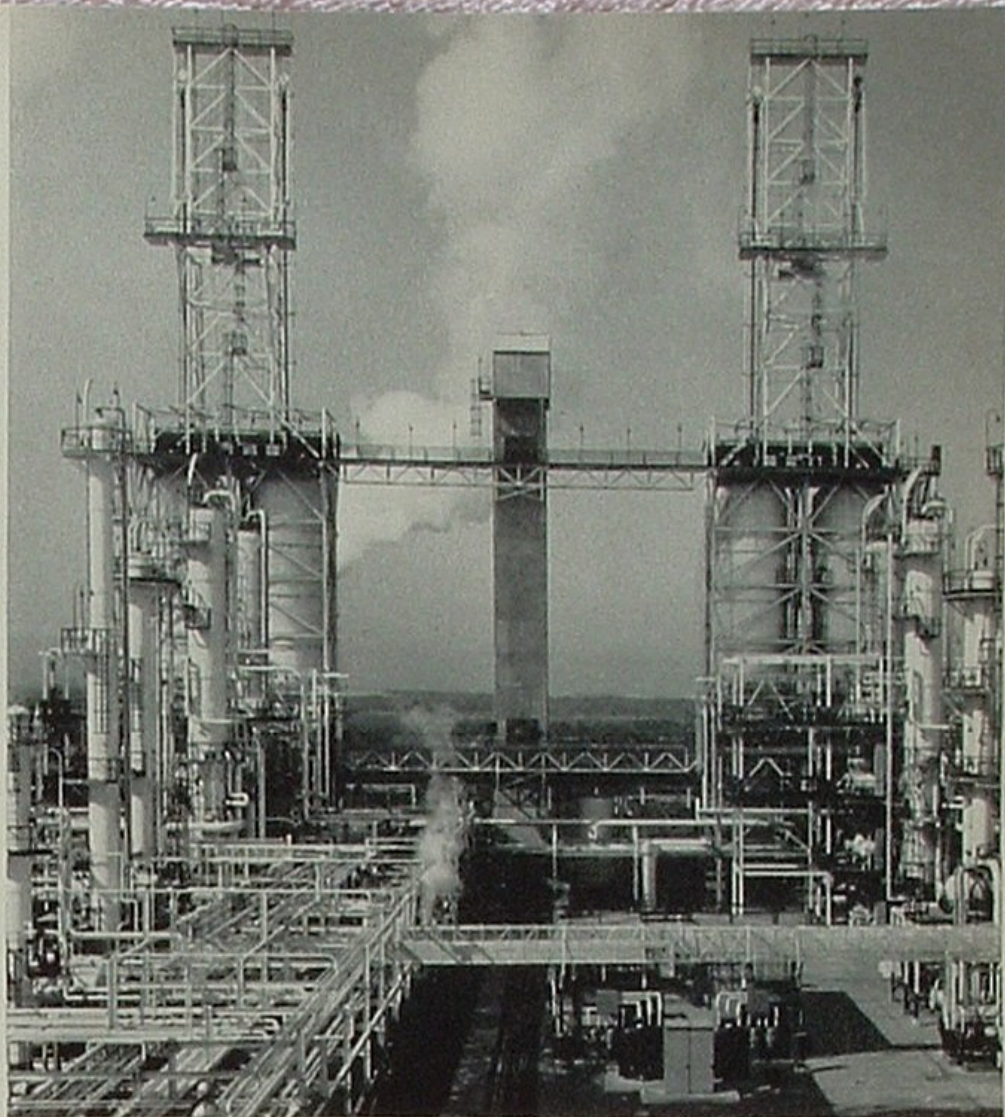
Union Oil Company, being the principal producer in the Santa Maria area, has had its full share of heavy-crude problems. By the same token, we also have had more than an average urge, if not need, to make our investment there yield better dividends.

Apparently, necessity again has been the mother of invention. For today, thanks to engineering perseverance, we are elevating Santa Maria crude from its lowly fuel-oil position to one of top-quality gasoline importance.

The primary factor in this revolutionary change is our new Santa Maria Refinery, erected at a cost of \$16 million. Through the plant's huge twin cokers and other facilities, we are converting Santa Maria crude into two consistently valuable products—gasoline and gas oil. Both, representing nearly 90% of the new plant's crude feed, are shipped to Oleum Refinery. There, after being cracked in Unit 70 or processed in the Unifining-Platforming units previously described in ON TOUR, they become components in the manufacture of highest-quality gasoline. The byproducts coke and sulfur from Santa Maria also are in demand for many commercial uses.

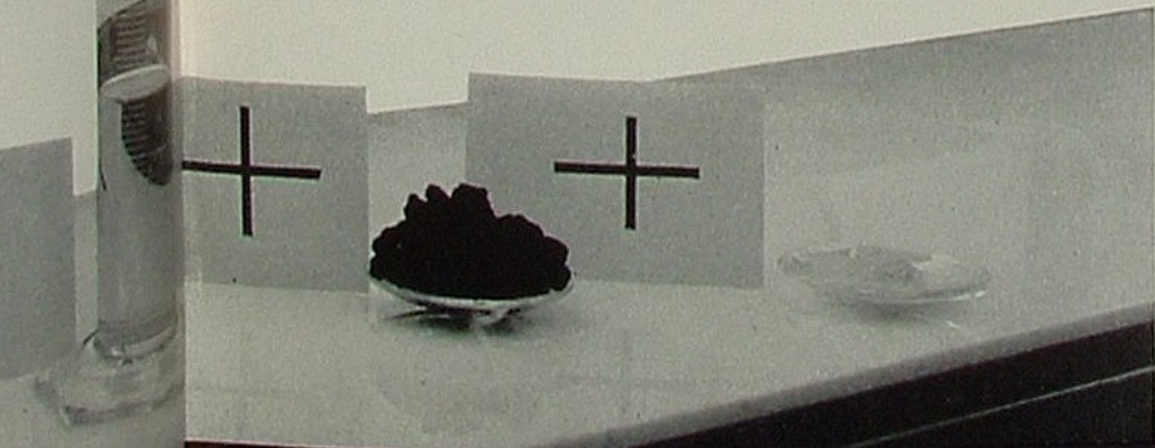
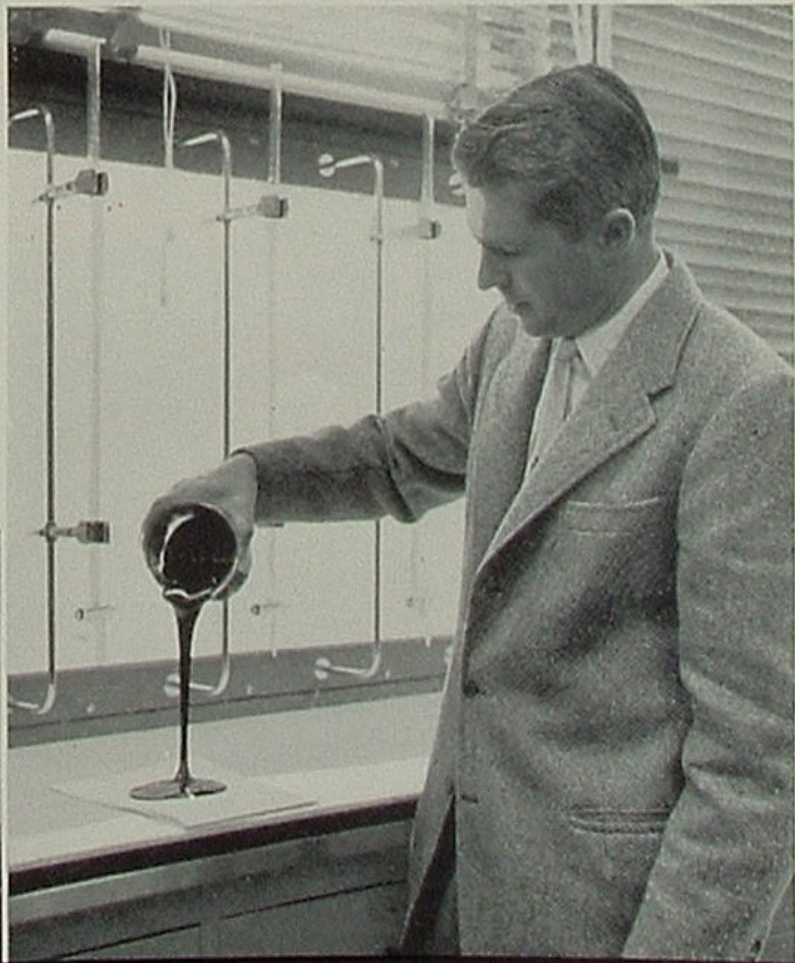
For a description of the coking process now being employed at Santa Maria Refinery to begin this upgrading, please turn to the following pages.

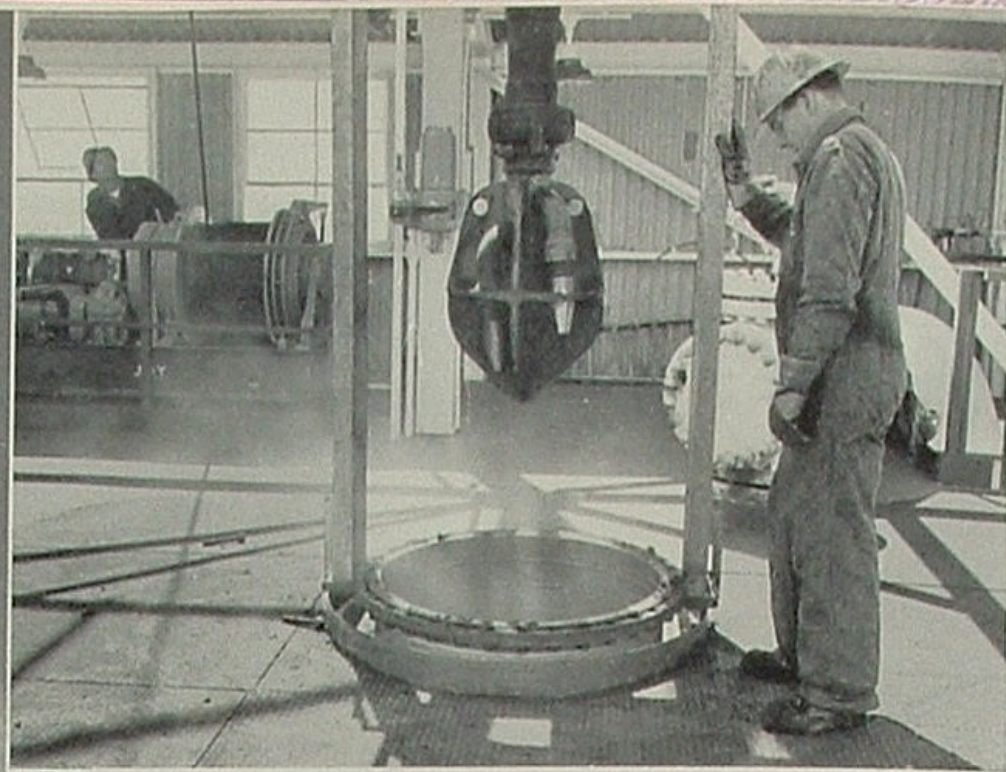
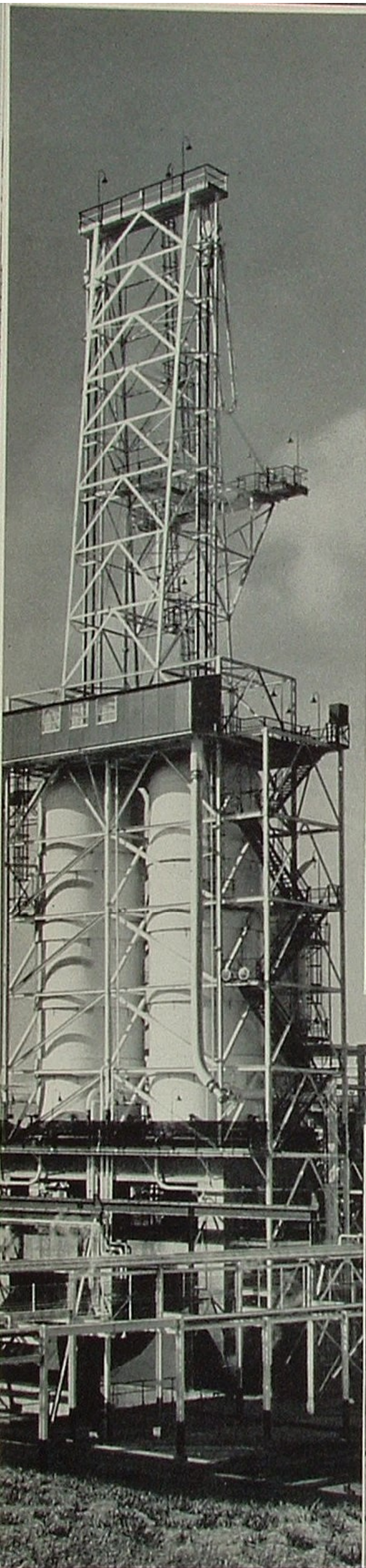
Laboratory vessels, at left, indicate the approximate proportions of gas oil and gasoline obtained by Santa Maria Refinery from each 1,000 CC's of crude feed; also, below, the proportions of byproduct coke and sulfur produced.



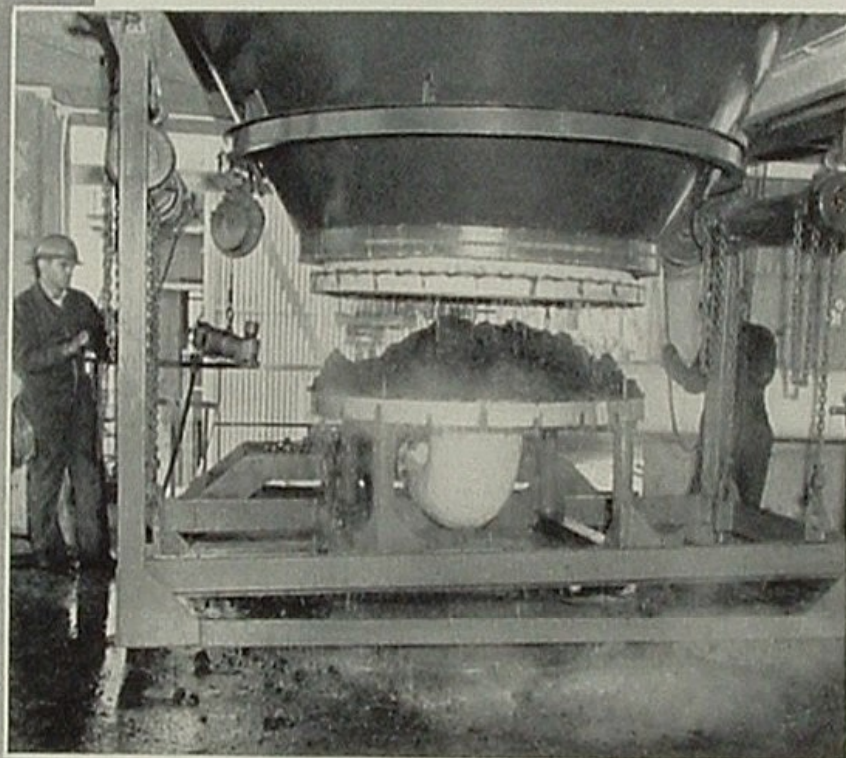
These twin coking units at Santa Maria Refinery have a combined crude capacity of 21,000 barrels per day, from which is obtained 6,700 barrels of gasoline, 11,800 barrels of gas oil, 670 tons of coke, 4.2 million cubic feet of fuel gas, and 42 long tons of sulfur per stream day.

Superintendent W. T. Jameson of the refinery shows us a typical sample of the heavy Santa Maria crude, which our new MP-30 facilities are converting to excellent gasolines.

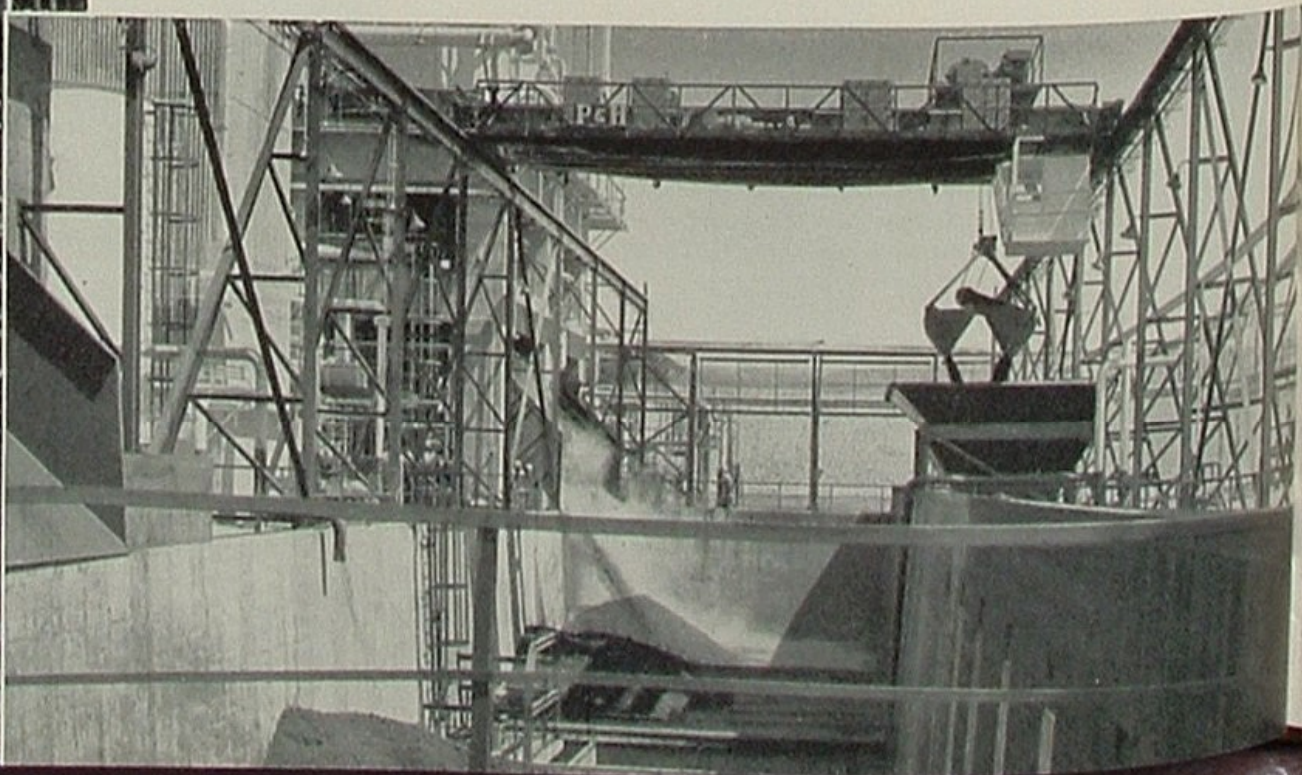




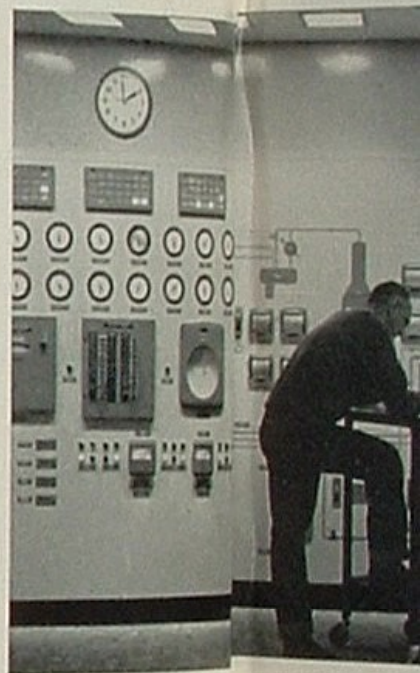
De-coking of the drums is initiated by boring the coke bed with water jets under 2,000 pounds pressure. Operators are seen lowering a drilling mechanism into a drum.



Above, the bottom is being dropped from a coking drum and moved to one side; then the open drum is connected by a telescoping chute with the large coke pit below. When water has drained from the coke through sumps, the dry coke is lifted out by grab-bucket and bridge crane.



"On Super Head"



Above, are operation. B transfer the mo



"On tour" in the coker area are, from left, Assistant Superintendent Norm. Pedersen, Operator Floyd Deck and Head Operator John Seal—properly badged and helmeted.



The operating division of Santa Maria Refinery is comprised of 64 men. Above are operators of the afternoon shift receiving instructions from Engineer O. F. Noss, right.



Above, the control room from which both coking units are operated represents the most advanced instrumentation. Below, byproduct coke drops from the end of a long transfer conveyor for storage pending its eventual use in the manufacture of electrodes, lamp black, and so on.

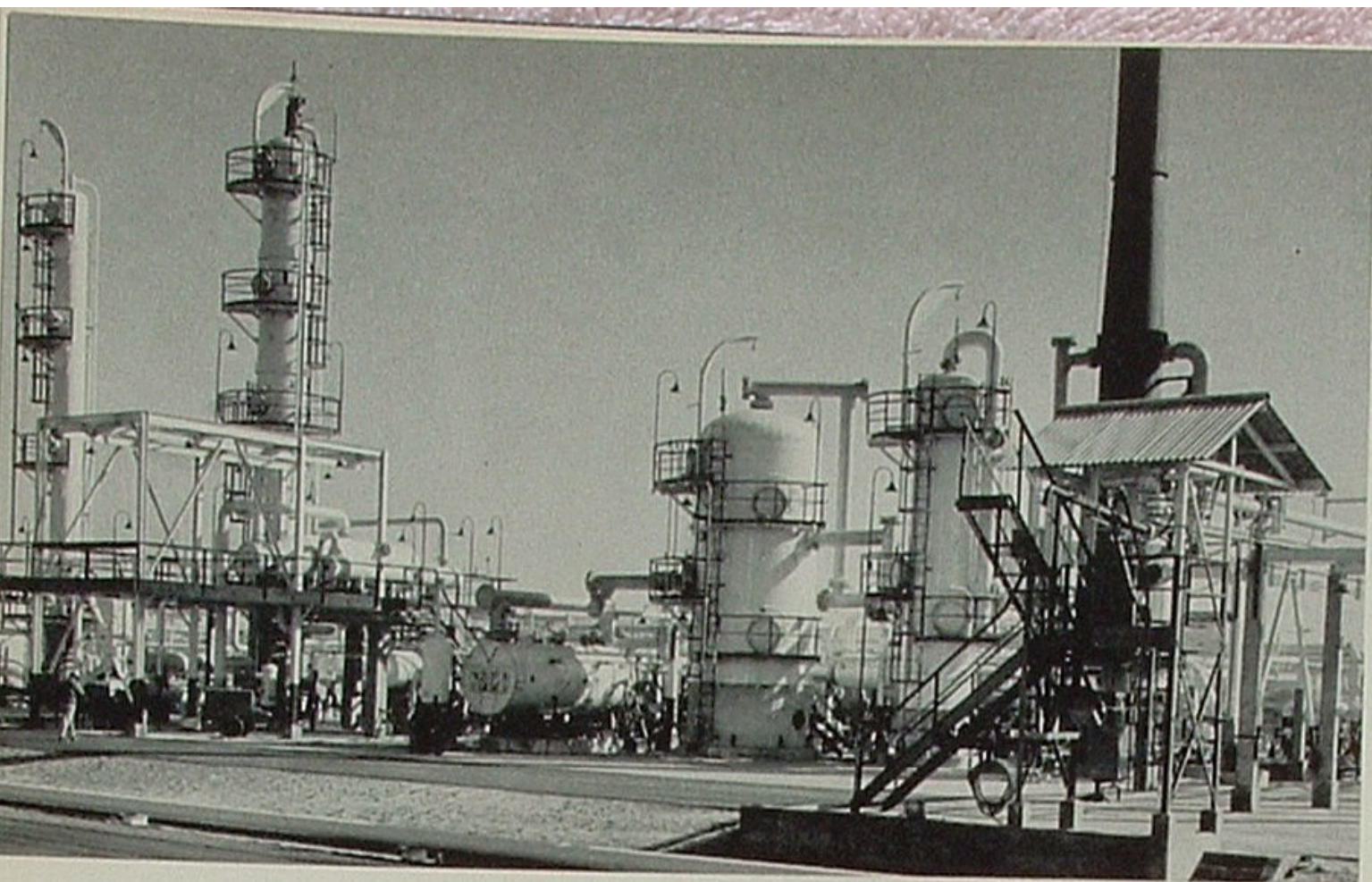


OPERATIONS OF

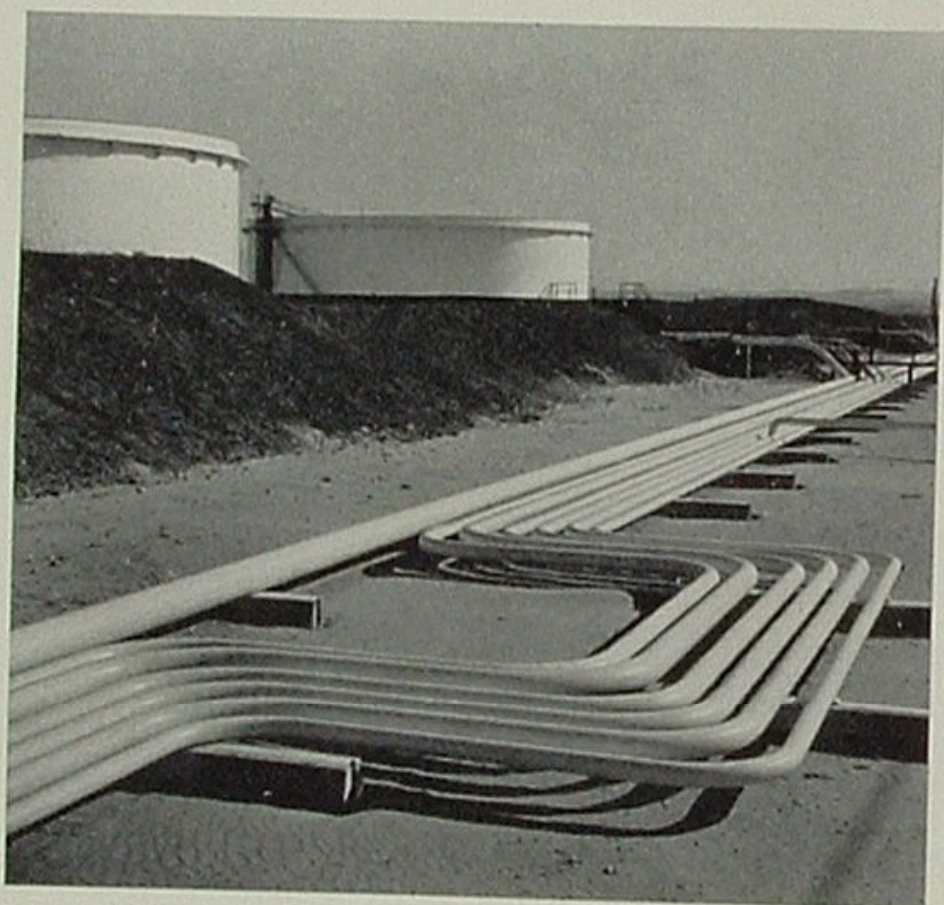
The Santa Maria Coker

COKING, as done at Santa Maria Refinery, consists simply of charging large batches of heated crude oil into coker drums, two of which are seen in the marginal photo at left. Here, at a temperature of 920 degrees, gasoline and gas-oil fractions are vaporized and removed from the crude batch, leaving a residue of solids known as petroleum coke. Some cracking or reforming of molecules taking place during the coking process results in the formation of high-sulfur gas fractions, which subsequently are *sweetened* in a Sulfur Unit and used to supply most of the refinery's fuel requirements. Gasoline and gas oil from the coker are separated by distillation and stabilization before being shipped by pipeline to our marine terminal at Avila and by tankship to Oleum Refinery. Coke is removed from the drum, as described photographically, before being assigned to the R. T. Collier Corporation for eventual use or sale.

The construction of twin cokers here affords ample capacity for the volume of feed involved and assures a steady flow of products. Also, each coker is equipped with two drums so that, while one is shut down for de-coking, the other is in coking operation.

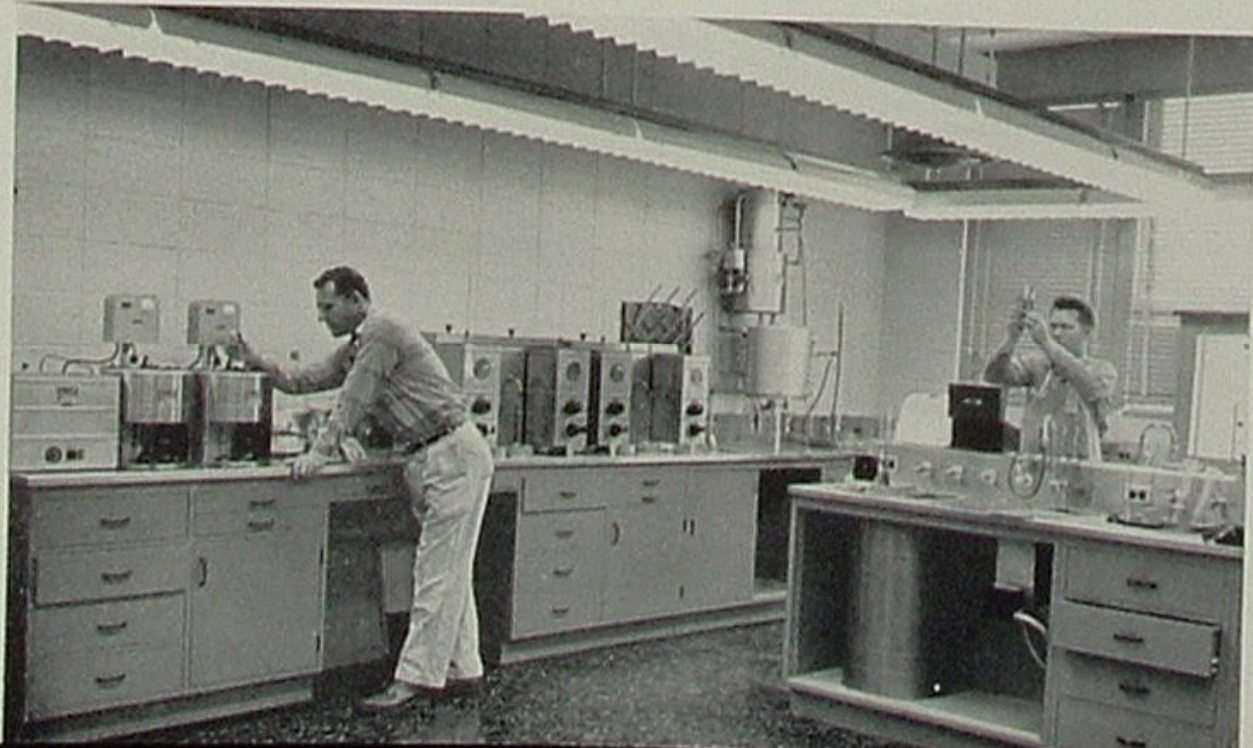


Auxiliary facilities at Santa Maria Refinery include a sulfur plant, left, where fuel gas is treated both to salvage its sulfur and to prevent contamination of the air.



Storage tanks and pipe lines of the refinery are constructed in accordance with the most advanced concepts of efficiency, economy, safety and public-relations appeal.

An immaculate laboratory, staffed by, from left, Carl Gescheider and Ralph Fleming, keeps scientific watch over each cut of oil flowing through the many refining units.



\$175,000 Kit of Tools

TO divide the \$16 million Santa Maria Refinery equally among the 92 Union Oil people employed there is to credit each with a set of tools worth nearly \$175,000! Few people could save that amount of money in an entire lifetime. That is why it is important that we share the credit for this accomplishment with many thousands of thrifty Americans. Their savings, accomplished often times at great sacrifice, are vital to industry's progress.

In return for the confidence vested in us, Santa Maria



Visitors to the refinery are likely to be welcomed by Secretary Audrey Fowler, Receptionist Marie Carson or Personnel Supervisor Jim McDonald—of the office staff.

Head Clerk William Niederhouser and Diane Peterson are responsible for most of the plant's accounting procedures.



Lined up for a photo that may intrigue Union Oilers of future generations are Santa Maria's first maintenance crew, led by Foreman Don Sogard, extreme left. Their machine shop, below, is equipped to handle routine repairs.

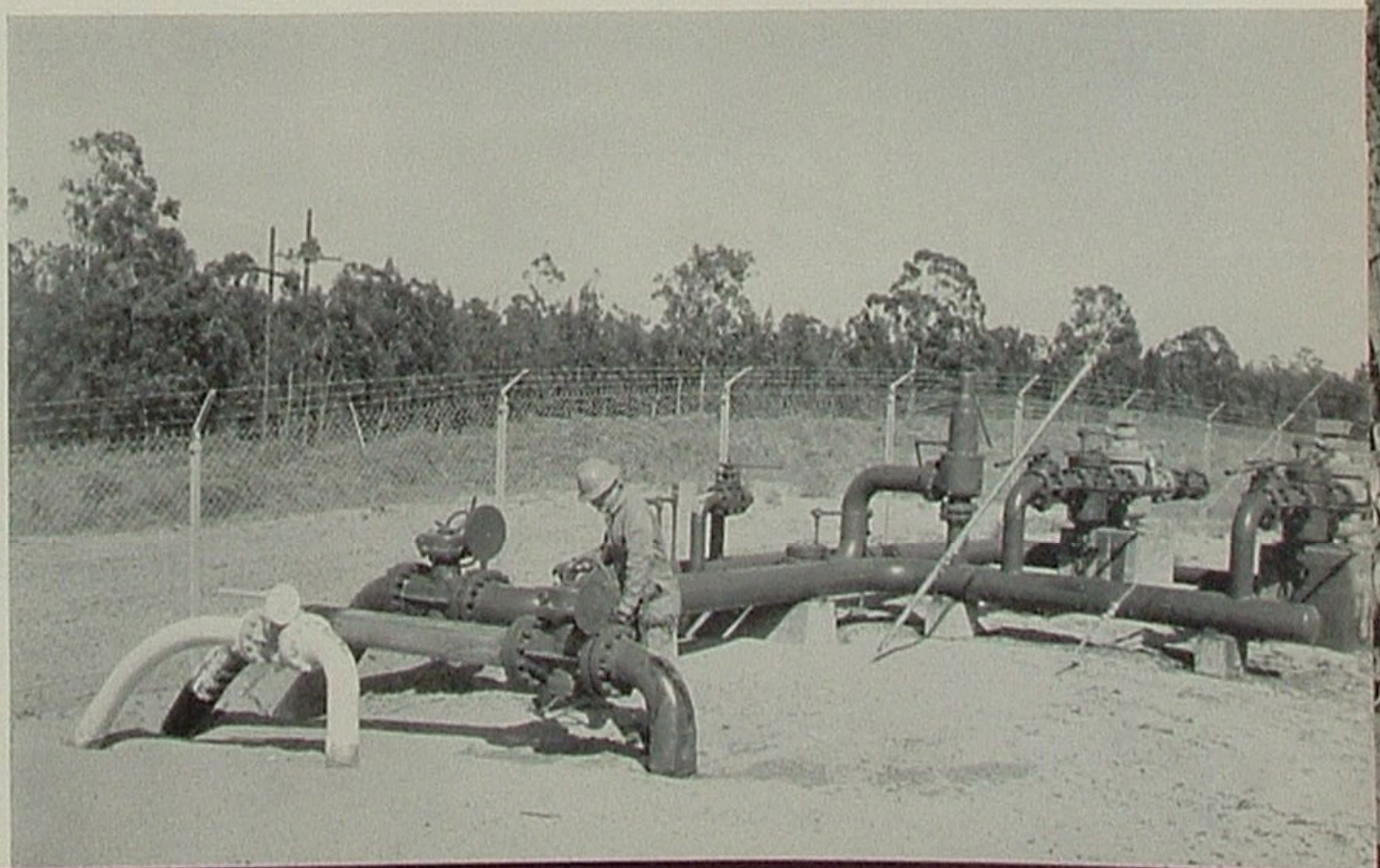
employees with the help of their valuable tools are performing an outstanding service. From raw material formerly considered to be in the "sow's ear" category, they are helping to make products of the "lady's silk purse" variety. They are adding some 7,700 barrels per day net of high-quality gasoline to our former refinery output. And they are bringing a larger measure of prosperity and stability to oil production in Santa Maria Valley.

Union Oil Company is proud of these employees—proud of the refining achievement—and equally proud of the kindly manner in which our newest enterprise is being received.



And this is where Santa Maria crude came in (through the system of lines at right); also where products go out toward Avila (through nearest pipe line). The white line brings supplemental supply of gas into the refinery.

ON TOUR





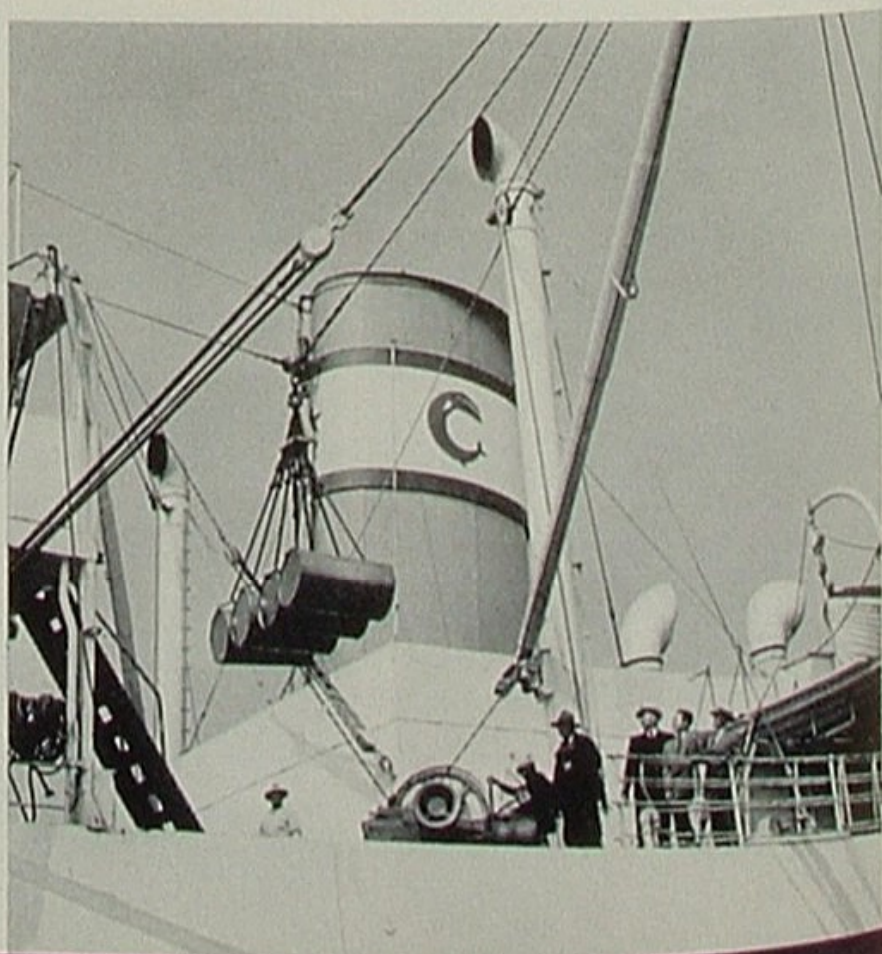
76
PRODUCTS
AID
BOUNTEOUS
NATURE

Some Tahitians go fishing 365 days annually. Using a throw-net called the "upea," they catch numerous types of delicious small fish inside the lovely coral lagoons.

The first shipment of asphalt for Tahiti's new seaside highway was supplied by Union Oil from San Francisco.



The barreled asphalt was loaded aboard the Norwegian motorship "Thorscope" in 1949 for shipment to Papeete.

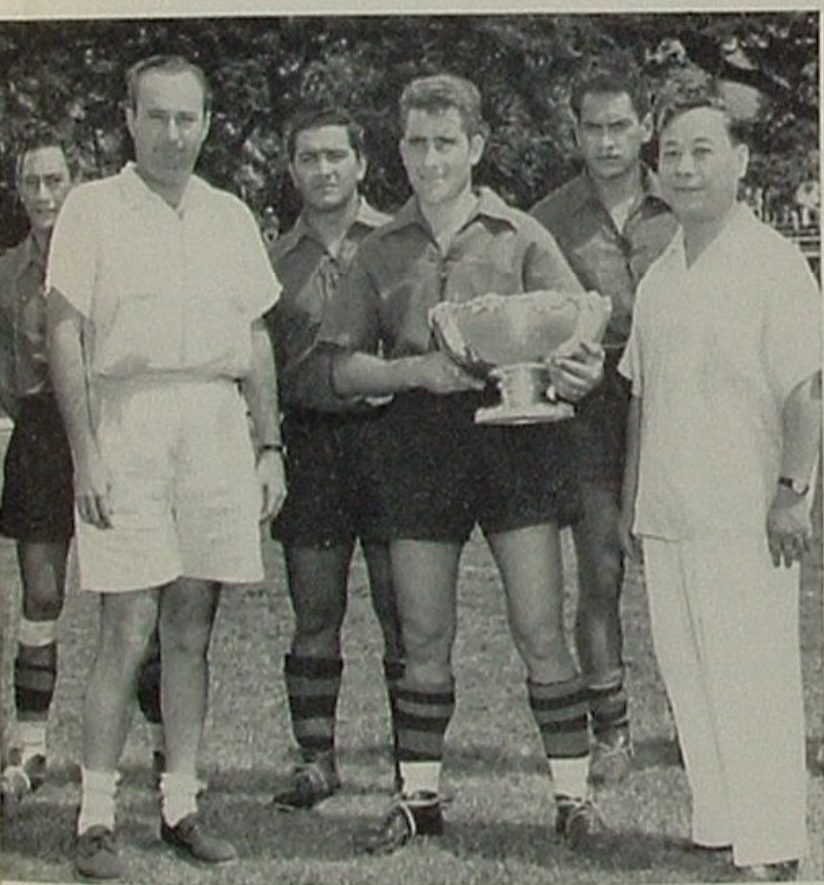


Despite its lush setting, Papeete's barrel-dump storage for petroleum products will soon give way to modern marine terminal bulk storage.



in PARADISIAL TAHITI

By Rene Siu, Representative of Sin Tung Hing



Dressed in tropical whites, Union Oil's Manager of Export Sales Philip Fell, left, and our Distributor Siu Kung Po, right, joined in presenting a trophy to Tahiti's soccer champions. Through the initiative of these two men, tankship service has been proposed to the French.

WHEN requested to tell Union Oil people something about the distribution of your fine products in French Oceania, I remembered self-consciously the many writers who have made a splash in the South Pacific without ever quite reaching shore. Fortunately there have been a few brilliant exceptions, notably Pierre Loti, Robert Louis Stevenson, Herman Melville and, most recently, James N. Hall and Charles Nordhoff, the two who wrote "Mutiny on the Bounty." To these favorite authors of mine I refer you for sketches of the beauty, romance and enchantment of these islands. Suffice it for me to touch upon the trade of Oceania where, mind you, if a man so chooses he can retire at birth and spend a lifetime fishing.

French Oceania, as a glance at some maps will reveal, is composed of five archipelagoes, named the Society, the Tuamotu, the Austral, the Gambier and the Marquesas. All are scattered over an immense expanse of ocean. Many of the islands are mountainous and of volcanic origin, but it is typical to find both mountains and lowlands carpeted with lush tropical vegetation.

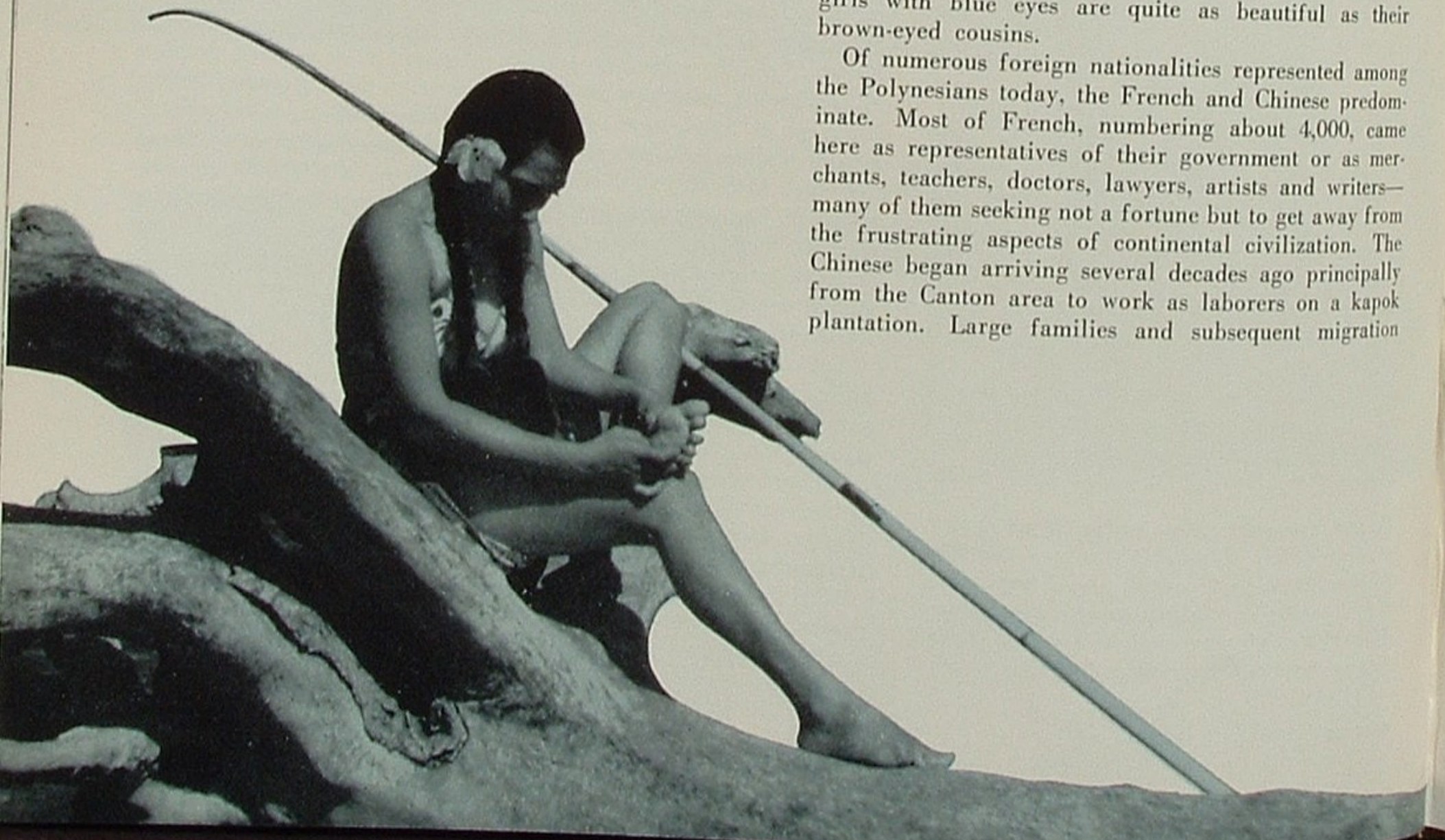
Tahiti with its capital city of Papeete is one of the Society Islands and has become the governmental and trade center of the surrounding French territory. The island, nowhere more than 30 miles wide, is shaped like a ping-pong paddle. Circling it is an immense coral reef which pacifies violent waves of the open ocean, providing the island with a continuous margin of calm lagoon. Occasional openings in the reef, called *passes*, afford entrance channels for the large and small vessels that ply these waters.

Tahiti also boasts one of Oceania's most ambitious highway programs. A motor road, built by the French government, circumscribes the island by way of a flat land strip adjoining the shore. You may



Union Oil products being unloaded at Papeete interrupt only briefly the leisurely tempo of this ocean paradise.

Meanwhile on the island of Moorea, 12 miles from Tahiti, a potential customer wishes she could hitch-hike home.



be interested to know that the first shipment of asphalt for this project was supplied in 1949 by Union Oil Company from San Francisco.

THE POLYNESIANS

Whence came the Polynesians to first inhabit these islands thousands of miles distant from the continents? Some legends and anthropological studies indicate Malaysia as their place of origin. Others suggest a migration from the American continents, which possibility was given credence several years ago by the "Kon Tiki" raft expedition from South America. At any rate, the Polynesians have always been noted for their sailing skill and audacity.

Early voyagers to the islands found the Polynesians a handsome, intelligent people. The men were tall—well conditioned by constant boating and swimming exercise—graceful of movement due to a fondness for interpretive dancing—fine singers—great orators. The women, though not so statuesque, had beautiful brown eyes, long eyelashes, flower-adorned dark hair, graceful hands, and exquisite figures. Only the Polynesian foot "sinned a little by virtue of its width." They were a leisure-loving people, fond of sports, music, talking and dancing. That they were sometimes described as an indolent race can be blamed to the providence of their surroundings. Why climb to pluck a coconut if it will fall of its own accord?

The migration of Europeans and Asians to Oceania wrought great changes particularly among the more handsome islanders. Inter-marriage has all but eliminated pure Tahitian types; nevertheless in many a young man of mixed blood are found the admirable traits of his Tahitian ancestors, and the "vahine mata ninamu" girls with blue eyes are quite as beautiful as their brown-eyed cousins.

Of numerous foreign nationalities represented among the Polynesians today, the French and Chinese predominate. Most of French, numbering about 4,000, came here as representatives of their government or as merchants, teachers, doctors, lawyers, artists and writers—many of them seeking not a fortune but to get away from the frustrating aspects of continental civilization. The Chinese began arriving several decades ago principally from the Canton area to work as laborers on a kapok plantation. Large families and subsequent migration

swelled their numbers until today there are an estimated 10,000 Chinese among the French Polynesians.

Being industrious, frugal and accustomed to the advantages of trade, the Chinese gradually became dominant in the commercial activities of Oceania. Now they handle most of the import-export business and fully 80 per cent of the retail trade. Nearly every Tahitian village depends upon Chinese merchants for their purchases of food and other commodities. Schooners visiting the remotest islands to exchange imported goods for vanilla beans, shells and copra are generally Chinese owned or chartered. These emigrants from south China also reclaimed the swamplands, introduced rice culture and the growing of vegetables, and are today the butchers, bakers, shoemakers, laundrymen and jacks-of-all-trades to the persistently leisure-loving Tahitians.

My father arrived when a very young man from Hong Kong to seek a livelihood in Tahiti. He worked hard for others, saved his money, and finally set up a small mercantile business of his own. Today, under the firm name of Sin Tung Hing, he has extensive business interests in Papeete; carries on schooner trade with the outlying islands; and accounts for a considerable percentage of Tahiti's import-export trade. In this latter capacity he attracted the notice of Union Oil Company and was appointed distributor in 1949.

BUSINESS BY THE BARREL

Our method of transporting petroleum products to and among the South Pacific islands would impress you as being rather primitive. All such products as kerosene, asphalt and even gasoline are carried to Papeete in barrels via ocean freighter. Storage facilities in Tahiti consist of cleared ground in a gorgeous tropical setting where the barrels are piled in neat rows. From here the barrels proceed by schooner to some of the remotest Union Oil customers on earth, or else are emptied into the service station storage tanks of Tahiti.

However, the Minute Man service we now offer in Papeete requires no apologies. Our newest 76 gasoline station is modern and attractive; in fact it is the *finest* service station to be found in thousands of Pacific Ocean leagues. The Tahitian people are grateful for it to the extent of high-volume gasoline purchases per month.

As for the transportation inconveniences and high costs, your Manager of Export Sales, Mr. Philip Fell, visited Tahiti within the past few months expressly to assist us with improvements. He has made recommendations to the local French government which, if approved, will bring marine terminal storage, tankship and motor transport services to Papeete.

TAHITI'S TREE OF LIFE

To discover Oceania in 1955—as did Spaniard de Neyra in 1595, Englishman Wallis in 1767, Frenchman Bougainville in 1768, Englishman Cook in 1769, Englishman Bligh and his crew of the "Bounty" in 1788, and Union



At the South Pacific's finest service station, Proprietor M. Lasserre welcomes a beautiful patron to Minute Man service. Tahiti's new highway is surfaced with Union Oil asphalt and most of its cars are 76 powered and lubricated.

Oil in 1949—is to discover Nature in one of her most provident moods. Here the soil, almost unattended, grows an eternal harvest of delicious fruits and roots. The sea never fails to send a rich and varied gift of fishes. Snow and frost are unbelievable. The diligent sky hardly lets a day pass without watering the foliage and replenishing a thousand streams racing downward from the mountains.

Yes, a mischievous hurricane may on rare occasions snatch the roof from your house, but chances are the roof needs replacing anyway—with fronds from the coconut tree, always plentiful, near at hand, free.

Polynesians owe much to the coconut tree. Although introduced in Oceania in comparatively recent times, it has liked our soil and climate and has paid its way handsomely. Filling the voids between each cluster of Tahitian huts, the tree gives our island much of its inviting tropical lushness. It requires practically no cultivation or attention, yet bears fruit the year around for many seasons.

The harvest consists of gathering coconuts that have dropped from the tree, splitting them, and letting the sun take over the process of manufacturing copra. Then Chinese traders arrive with their ships, weigh the copra, put it in bags, deliver it to the exporter, and finally pay the Tahitians with goods from all quarters of the earth—including petroleum from Union Oil refineries.

So, obviously, the discovery of Oceania by Union Oil products has been a welcome one. It has given the confirmed South Sea Islander more time for that which he enjoys most—leisure. It has enabled the industrious Chinese to accomplish nearly two day's work in one. In time, when coconut fronds shelter a family car beside nearly every Tahitian dwelling, 76 may even shrink the Polynesian foot to "sinless" proportions.



▲ **BOWLING CHAMPIONS** and holders of the Company's Major Burnham Trophy for 1955 are the Brea Research No. 2 team, comprised of, from left, Wayne Smiley, Hooper Linford, Bob Abercrombie, Art Mays and Jim Warren. Their score of 2639 was two points better than that posted by Oleum No. 2 team. Hooper Linford of this team also rolled highest game of the tournament—a 240, while James Cooper, right, of Oleum was high series winner with a score of 581. Sole woman contestant, Virginia Huse (top photo) of Seattle, bowled a highly commendable 518 series.

▲ **SALESMEN OF THE MONTH** in the Los Angeles District were Joseph Kristy and Morris Pivaroff (2nd and 4th from left) who led their tank-truck-salesmen competitors in a Royal Triton and Triton sales contest. Both won gold cuff links, a cash award, a raise and a promotion. Delivery Foreman George Schnittker, left, proudly released the winners to new assignments under DSM Paul H. Boyd, who reveals that his district tank-truck drivers alone have averaged better than a carload a month of canned-oil orders during the past two years.





◀ **TWO PRETTY INCENTIVES** were offered Seattle motorists, at the recent opening of our newest service station, in the persons of Margery Samp, left, of Seattle District and Jill Weinhart of Sales Services. Luring customers to the pump island with friendly smiles and attractive favors, the two girls were credited with helping promote an opening-day gallonage of nearly record proportions.

▶ **EAST MET WEST** during May when five Eastern Continental Territory salesmen won expense-paid trips to the Pacific Coast to tour Union Oil facilities. From left, Marty Manders serves as technical interpreter at Oleum Refinery for William Gamble (Raleigh), C. J. Ramsey (Hartford), Karl Weigel (Chicago), Paul St. Pierre (Houston), Homer Simons (Omaha), Bob Spiro (Home Office) and Aubrey Fraser (Home Office). The five Easterners were top salesmen of Company products in their districts.



▶ **JAPANESE VISITOR** to Oleum Refinery and other Union Oil facilities during May was K. Ishimura, Chief of the Tokyo Industrial Laboratory for the Ministry of Industrial Trade, shown with Frank Jacobs, right, our refinery sales representatives for Central Territory. Mr. Ishimura is studying lab testing methods here and in the industrial centers of Europe.

▶ **W. L. STEWART, JR.**, Senior Vice President of Union Oil, recalled some highly interesting and amusing chapters of Company history while addressing the combined Study Groups of employees in Los Angeles on May 18. Among his welcomers at the auditorium were, from left, Committeemen J. E. Saunders, A. W. Sanborn, J. A. Bernard, L. O. Hargrove, the speaker, H. E. Rathbun, R. A. Nevens, W. R. Craig and G. F. Webster. More than 150 Union Oil men were in attendance.



A \$5,000,000 Question

CAN WE PRODUCE MERCHANTABLE SHALE OIL AT A COST LOW ENOUGH TO MAKE IT COMPETITIVE WITH PETROLEUM?

A TALK TO COLORADOANS BY W. L. STEWART, JR.

MR. CHAIRMAN, members of the Grand Valley Chamber of Commerce:

Thank you for the kind invitation to meet with you tonight. I am happy to be your guest, and I am looking forward to the time when I will be accepted here as one of you—a full fledged member of your Chamber. Union Oil Company believes wholeheartedly in community enterprises and encourages the active participation by its employees in such affairs. We believe in a good neighbor policy and, since we are soon to be your neighbor, we want to be a member of your organization.

If the research and development program we are about to launch here gives us the answers we are seeking, we hope Union Oil Company and Grand Valley will be neighbors for many generations to come. Certainly those of us who have been fortunate enough to sample your hospitality and friendliness are most grateful to those in our company who made the decision 35 years ago to purchase land here, thus enabling some of us to have business in this part of Colorado.

Union Oil Company is old as companies go—but only in years. In October we will be 65 years old. We have assets of over half a billion dollars and employ nearly 9,000 people. The company is fully integrated, has exploration crews in Canada, Central America and many states of the United States. Union Oil produces oil in California, Texas, Louisiana, Montana, Oklahoma, Canada and Colorado, and operates refineries in California, Washington and Montana. It markets petroleum products extensively throughout the Western Hemisphere.

Union Oil Company has offices in Denver which are the headquarters for our Rocky Mountain Division exploration and production department. I tell you this so that you may know that we are no newcomers to Colorado or to the oil business, and do embark on this new step in an old project with substantial experience, resources and skills.

I know each of you is interested in what Union Oil plans to do about shale. I can fully appreciate this interest since you have in the shale deposits here probably the greatest concentration of potential energy to be found any place in the world. These deposits are capable of producing billions of barrels of high quality liquid fuels as well as large quantities of sulfur and other chemicals.

I need not stress to you the potential value of this shale. However, I do want to be strictly frank with you, discuss our plans openly, so that there can be no misunderstanding. The very last thing in the world we want to do is raise any false hopes or make any extravagant statements. I believe many of you had your fill of that during earlier days of shale when enthusiasm ran rampant, when great projects were talked about, and rarely got out of the talking stage, and you saw dreams dashed to pieces.

All this we want to avoid. And we believe we can avoid it by simply laying the facts, as we know them, before you.

We want no repetition of those hectic days in the early twenties when several hundred stock promotion companies were in existence, all with the avowed purpose of mak-

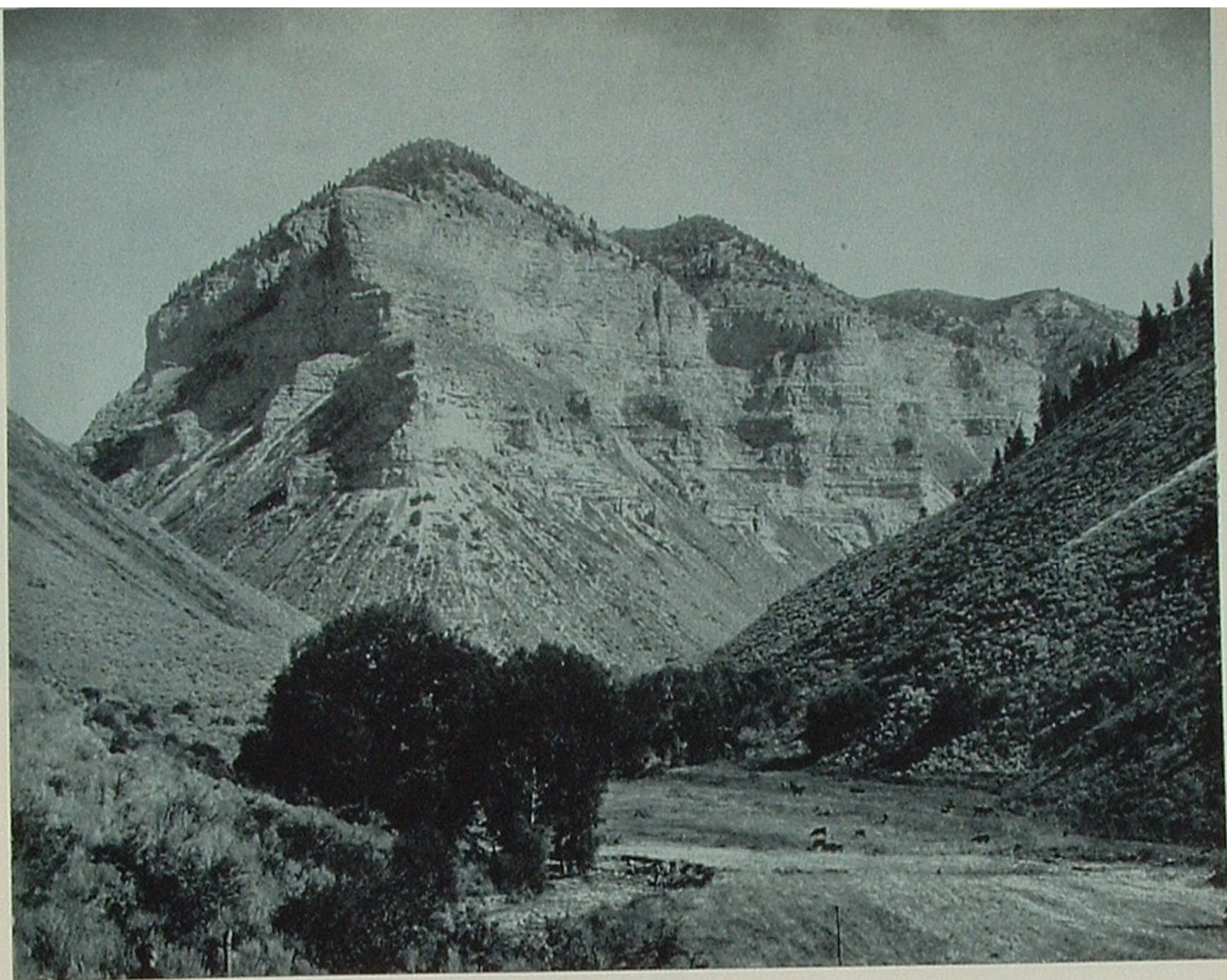
ing commercial quantities of oil from Colorado shale. As some of you may well recall, a majority of these companies had only the vaguest ideas about the processes needed to produce oil from shale, and although most built some sort of a retort, very few ever actually produced more than a barrel or two of oil.

You may be interested to know that shale oil was being produced commercially in France as early as 1830, and by 1850 a sizable industry existed in Scotland, and a few plants were in operation along our own Atlantic seaboard. But the discovery of petroleum in Pennsylvania in 1859 soon forced these plants out of business. Only a few of the foreign operations, the best known of which are in Sweden and Scotland, survive, and these with the help of government subsidies.

But in this country, hopes and dreams of discovering an economical way to produce shale oil continued. True, those hopes became more vivid from time to time as there were threatened shortages of petroleum or as prices for oil at the well were materially increased. In the past when prices of petroleum rose higher and higher, interest in shale oil increased, but when new sources of domestic petroleum were discovered, the interest in oil shale waned, research plans were put on the shelf, general activity in shale all but ceased.

Today, however, I believe we have passed beyond the point where the discovery of new sources of petroleum can much longer postpone the development of a shale oil industry.

That is why Union Oil Company is spending five million dollars on an intensive two-year full-scale re-



If the answer to our \$5,000,000 question is "yes," this mountain of oil shale in Colorado may become one of the foremost shale oil resources of the nation and Union Oil.

search program to find the answer to a single question: Can we produce merchantable shale oil at a cost low enough to make it competitive with petroleum?

That is not a new question with us. Union Oil Company entered the shale picture early in 1920 when the company's directors decided it would be prudent to augment our crude oil reserve with an oil shale reserve. After a survey in the summer of 1920, we made an initial purchase of 8,000 acres of oil shale lands near Grand Valley. We have continued selective buying in the Grand Valley area and now own approximately 50,000 acres.

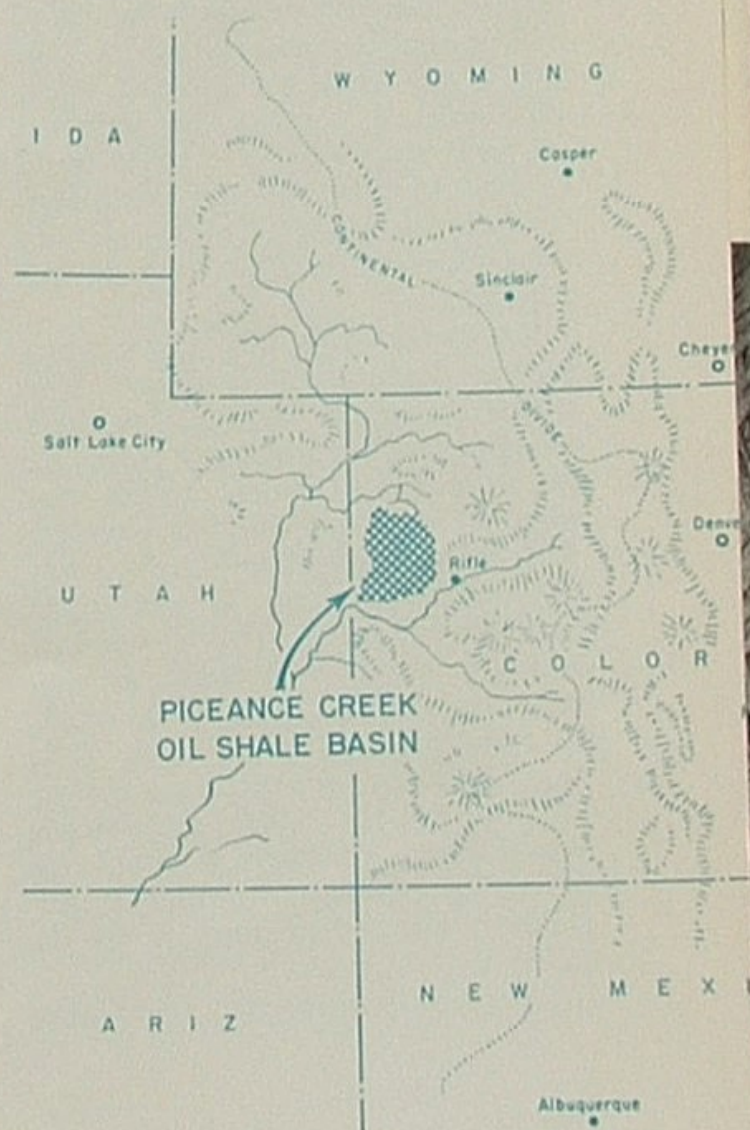
Throughout the '20's, Union Oil's research people made many evaluations of our shale properties and also studied in detail the developments of others working in this then-booming field. In assaying our holdings, we made the first complete

vertical-cut analysis of the entire oil shale formation, analyzing some 500 separate samples.

Union Oil also did a limited amount of shale oil refining research between 1921 and 1928, although very little seems to have come of it.

And then, like the rest of the oil industry, our attention was forcibly turned to crude oil. The scarcity of 1920 had become the glut of 1930. Shale oil was forced out of the picture.

It was not until late in 1942 that Union Oil Company again became interested in the commercial possibilities of oil shale. A study of progress since 1928 brought out that retorting was still impractical, except in small batches, and that there had been virtually no investigations of modern refining techniques applied to shale oil. Consequently, in the spring of 1943 we started our shale research program anew.



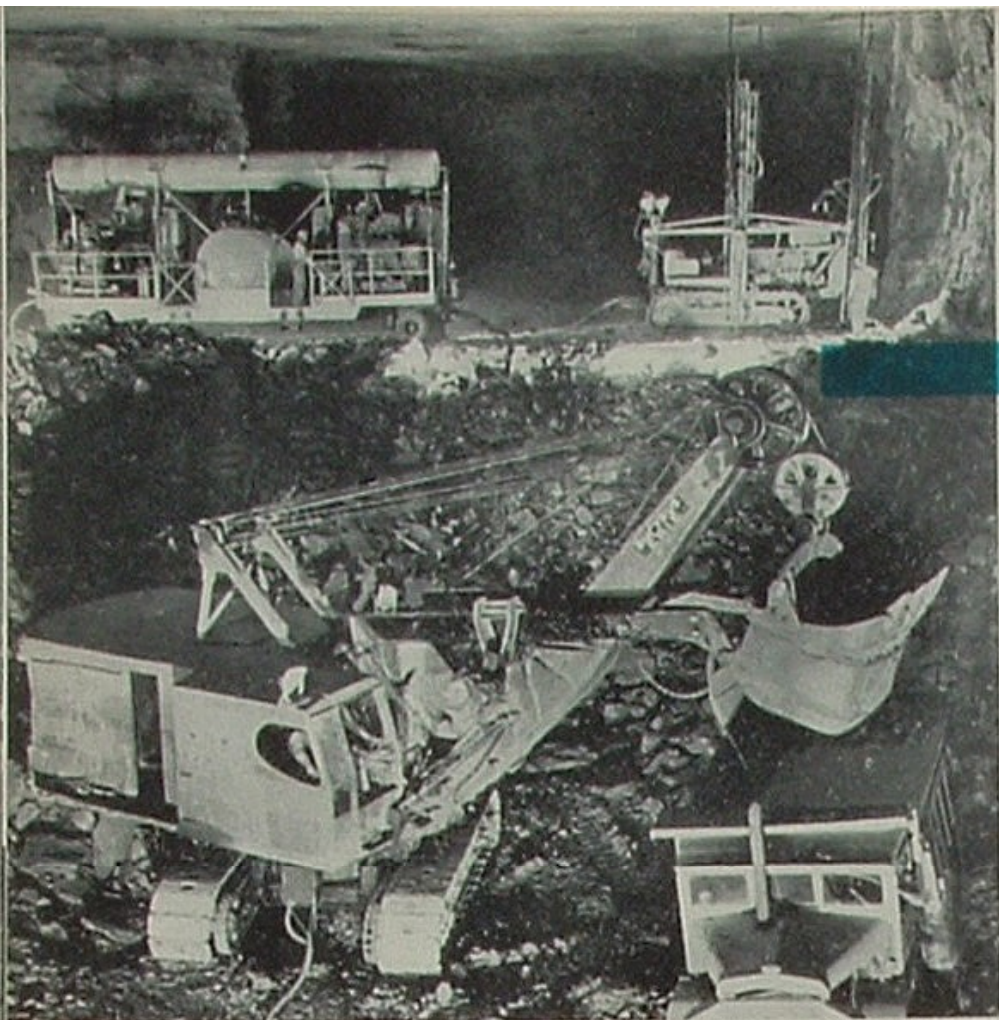
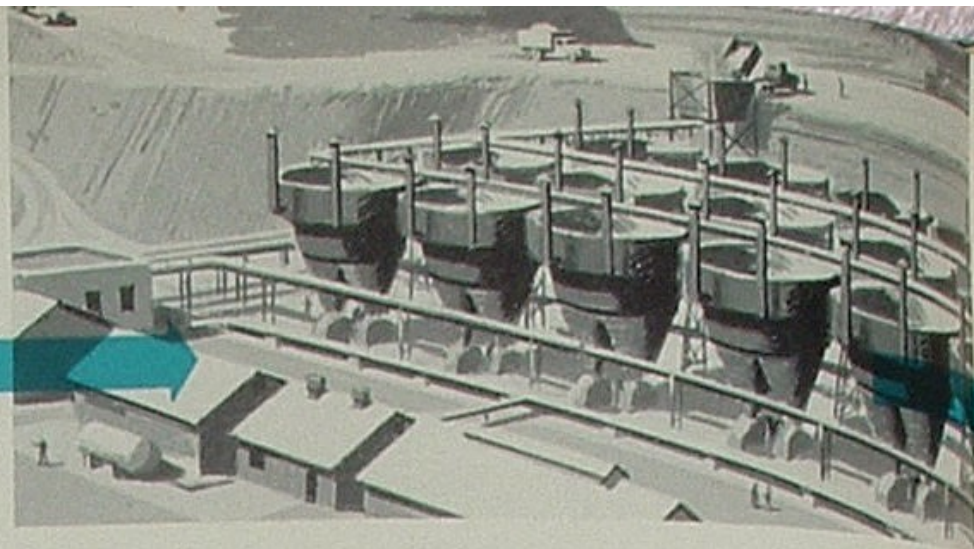


Photo courtesy U. S. Bureau of Mines



Four proposed steps in the manufacture of petroleum products from shale oil are, as illustrated from left, highly mechanized mining in room-and-pillar mines; production of liquid oil from the crushed shale by Union Oil's retorting method; coking of the oil to remove its heavy fractions; and hydrogenation of the de-coked product to produce gasoline free of nitrogen and sulfur.

The principal result of this work was the development in 1944, by Dr. Clyde Berg of our Research Department, of a small two-ton-per-day continuous retort. This retort operated efficiently, and after considerable experimentation and modification, including the building of a larger pilot plant, we decided that it met all the known requirements of a large-scale commercial retort. This belief was further confirmed when the Union Oil retort was selected as the basis of a detailed study made in 1951 by the National Petroleum Council, an industry group serving as advisor to the Secretary of the Interior.

On the refining side, Union's research department has also pioneered in converting the raw shale oil—the product obtained from the retort—a black, heavy, highly viscous oil with undesirable amounts of nitrogen and sulfur—into a product that readily can be refined in existing refineries. This processing, which is known technically as catalytic reforming, or hydrogenation, is accomplished with Union Oil's new Unifining process. As a matter of interest, the Unifining process was developed initially to enable us to refine the heavy, high-sulfur crude oils found in some of the oil fields of California.

Periodically since our retort was

developed we have made rough evaluations of the economics of producing commercial products from our oil shale deposits. By these evaluations we have kept abreast of changing technology and of changing economic conditions. It is both our desire and our responsibility to enter the oil shale business when the time is right.

Our most recent evaluation, made last winter, convinced us that a combination of events was rapidly pushing oil shale to the front. First, mining costs had been substantially reduced through research by the Bureau of Mines (and I'd like to pause here to pay tribute to Boyd Guthrie who has been in charge of the Bureau's work at Rifle since its inception). Second, retorting has become practical and economical through development of the Union Oil retort. Third, the refining of raw shale oil has been simplified by Union Oil's Unifining process. And fourth, we found ourselves faced with a continually rising cost of finding and developing new sources of crude oil in the United States.

After a careful study of these factors, our Board of Directors decided in January of this year to invest five million dollars in a two-year oil shale research and development program to find the answer to that single question: Can we produce

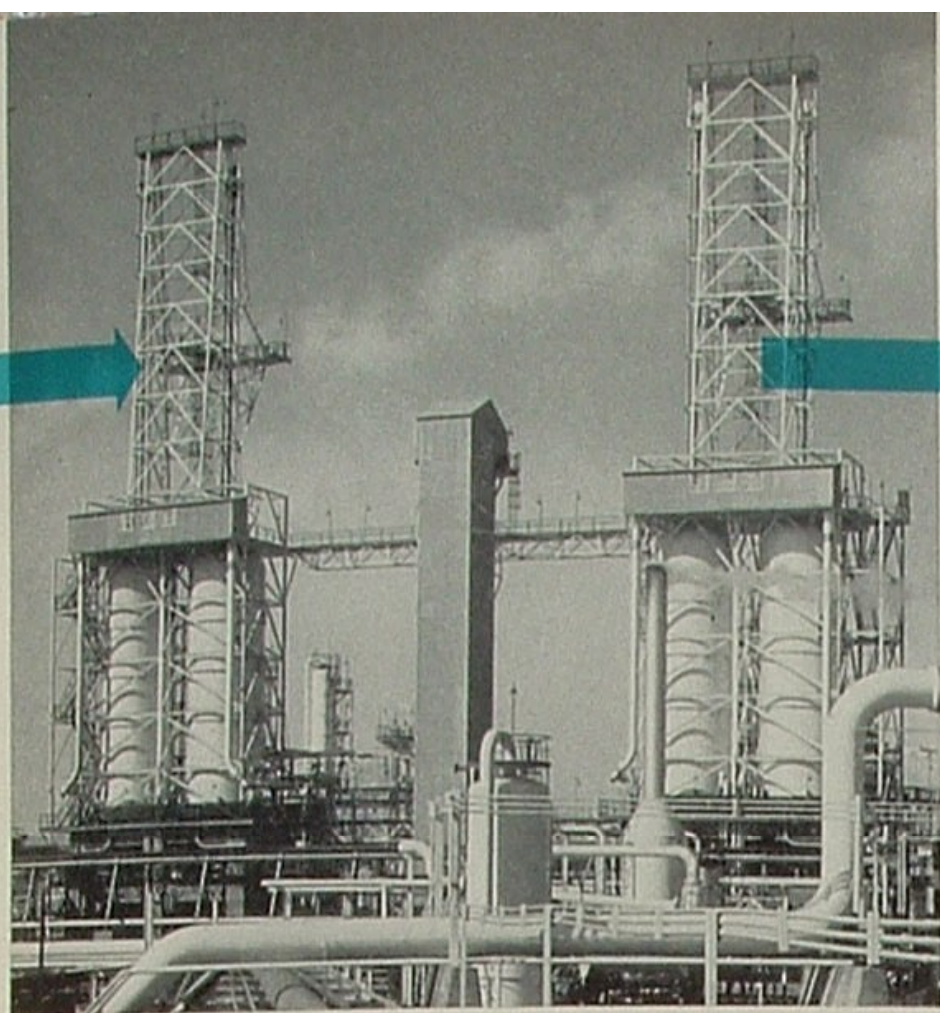
merchantable shale oil at a cost low enough to make it competitive with petroleum?

The basic aim of our program is to prove the Union Oil retort at its full scale operating level. We believe this level to be about 1,000 tons a day. Although our pilot plant research has convinced us that the retort is practical, we cannot afford the mistakes of the pioneers of 35 years ago. The only way we can really be certain that a full size retort will work is simply to build one and operate it.

We plan to build this retort on our property near Grand Valley and to operate it long enough, probably about a year, to prove its design and firm up operating costs. The Stearns-Roger Manufacturing Company of Denver has been selected as general contractor and they expect to start fabrication of the retort on our property this fall. Our timetable calls for initial test operations shortly after next January.

A second part of our program is the study of the manufacturing procedures for producing commercial products from oil shale. This phase of the project will be conducted in our California laboratories.

A third part of the program is the study of mining methods. We have not yet specified the full scope of this study, and I mention it only to



indicate that some mining work is contemplated. We are fortunate to have associated with us as consultant your own Dr. Tell Ertl, probably the best known authority on oil shale in this country, if not in the world.

The principal area affected by our project will be the region around Grand Valley and Rifle. Although all of Colorado should benefit in some way from our five million dollar program, our presence will be most evident in this area.

While we will contract out virtually all phases of the site preparation and retort construction, the actual operation of the retort will be by Union Oil employees. Apart from the contractor's personnel, we expect to maintain a crew of approximately 20 in the Grand Valley area for about 12 months, probably starting late this year.

We are *not* undertaking a commercial operation; we are seeking answers to questions that must be answered before a commercial operation is indicated. We believe that this program will take about two years and cost about five million dollars, perhaps half of which will be spent in constructing and operating our retort in Colorado.

It is only fair now that you ask, "And what if we do find the answers

we seek and a commercial operation is indicated?"

Union Oil and other companies will invest the substantial amounts of capital needed to produce and market shale oil only when the prospective profits are such that the investment is attractive. No amount of publicity, no amount of wishing, or talking, or hoping, can overcome this requirement.

When the day comes that oil shale is a major Colorado industry it will be because of just one thing. It will be because oil shale will be a profitable place for private enterprise to invest its risk capital.

And before oil shale is a major Colorado industry, there must first be established technology capable of producing products at a cost competitive with products from crude oil. Our present research and development program is aimed at this requirement.

Second, oil shale must be given equitable tax treatment.

Third, there must be adequate guarantees that an oil shale industry will have sufficient water to support itself, its workers and their families, and the other industries that would be attracted to the area.

Although there are more, I mention just these three to illustrate some of the problems of industrial development.

But suppose the industry does develop. What then? What could this mean to Colorado? There have been almost as many speculations about this subject as there were speculators 35 years ago, and in the role of speculator, I offer some statistics on population growth.

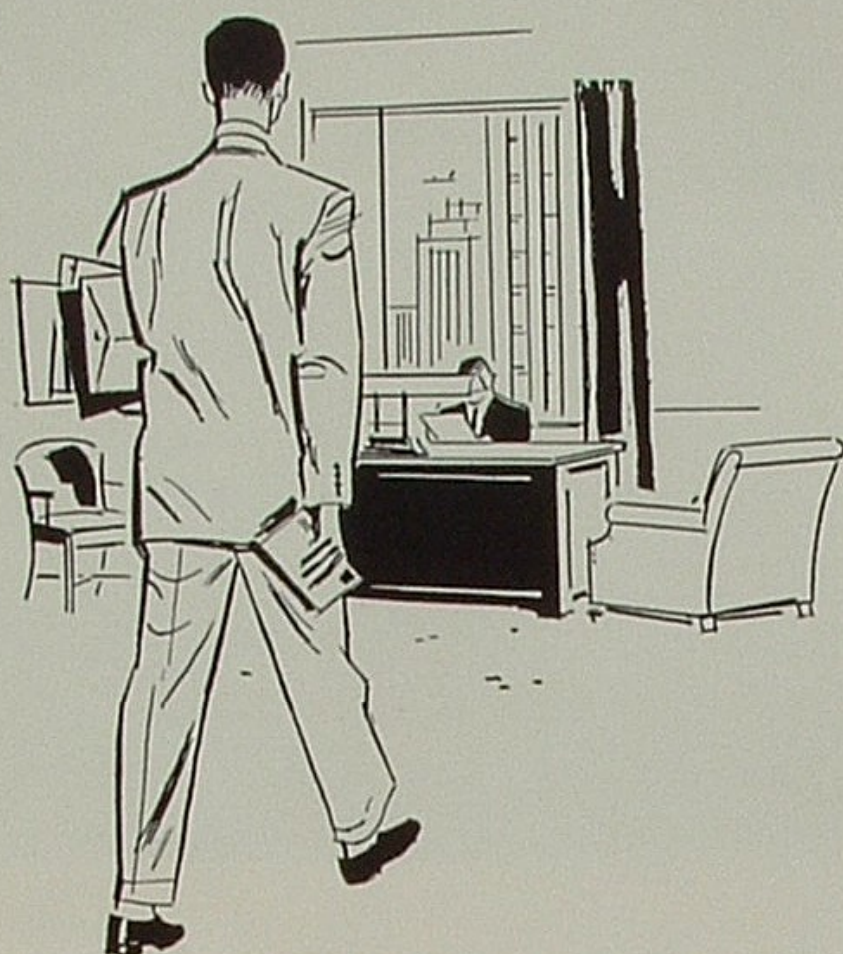
We can expect that an industry producing 100,000 barrels of shale oil a day might ultimately add in the order of 35,000 people to the Rifle-Grand Valley-DeBeque area. And if the industry reached 2,000,000 barrels a day—a level of production that could be sustained for perhaps 500 years—the population of the oil shale area might grow to 1,000,000 people. Colorado's present population, by contrast, is 1,400,000.

As a concluding thought, let me emphasize that Union Oil Company has high hopes for oil shale. We have held our shale cards for 35 years and we are now betting a five million dollar stack of chips that commercial development is not far in the future.

Finally, I'd like to thank you here tonight for your many kind offers of assistance. The Union Oil Company has a warm feeling for your state. You have all been most kind and generous in your welcome of us to Grand Valley. I hope that our stay proves mutually profitable for us all and for generations yet to come.

To the New Office Boy

... a word of encouragement



WELL, young fellow, you're starting where many another prospective president started—right at the bottom! But it's a good place to start. You'll not only learn the business from the bottom up, but you'll be on common ground with a lot of fine people—people without whose help you cannot climb to the top.

Learn the oil business well—every facet of it from *roughnecking* to presiding over a meeting of the board. And earn the confidence and respect of every person you meet on your daily rounds.

It isn't an easy road to the top. There's much to learn—so much that you'll spend most of your spare time and even a lot of your rest time studying. You'll need almost an expert's knowledge of chemical and petroleum engineering, transportation, marketing, business administration. You'll have to know a score of other industries almost as well as your own. You'll have to sharpen your wits, your memory, your working habits, your poise, your ability to communicate with and influence others. And, in general, you'll have to excel quite an army of young men who are willing to attain the presidency ahead of you.

Of course there will be rewards along the way—more dignified titles than that of office boy, increasing responsibility, less order-taking and more order-giving, higher pay . . .

Did I say higher pay? Well, I'd better qualify that one. Time was in this country when a man could step

from his threshold, roll up his sleeves, go to work, and take home practically the entire fruits of his labor. But times have changed. Somewhere along the line someone sold our lawmakers the strange idea that if a man hews down only one tree he is entitled to it, but if he hews down more than one tree he must contribute an increasing proportion of his labor to people he has never seen, primarily the lawmakers.

You're not a logger of course, but the same strange rule applies to every category of American producer. Last year, for example, there were some 50 million producers or *tree-hewers* in these United States. On their total income of \$271 billion they paid a total income tax of \$30 billion. It was a mighty big tax no matter how you look at it, but let's see how *justly* it was divided:

Of the 50 million taxpayers, nearly 30 million were one-tree hewers—folks who, under our competitive system of job-finding and job-doing, earned under \$5,000 annually. On an income of \$85 billion, they paid a tax of nearly \$5 billion. Or 59% of the people paid 16% of the tax.

The two-tree folks, numbering 17 million and earning between \$5,000 and \$10,000 per family, were somewhat harder hit. On \$117 billion of earned income, they paid a tax of \$11 billion. Or 34% of the people paid 39% of the tax.

The three, four and five-tree hewers, numbering about 3 million and earning from \$10,000 to \$25,000 annually, had a total income of \$46 billion and paid over \$6 billion to the government in income taxes. Here 6% of the people paid 21% of the tax.

The five to ten-tree hewers, earning \$25,000 to \$50,000 yearly, numbered 420,000. Their total tax bill was over

\$3 billion on an income of \$14 billion. Or, less than 1% of the people paid more than 11% of the tax.

Finally, the so-called rich—earning above \$50,000 annually—of whom there are only 110,000 in the United States, had an income of slightly under \$10 billion, and paid over \$4 billion in income taxes. In this case, a mere 2/10% of the people paid 14% of the tax.

It's obvious that if our lawmakers carried this soak-the-rich program a little farther and placed a 100% tax on the higher income brackets, no one would be helped substantially. It would decrease the income taxes of all other groups only some 14% at most, and they'd have 110,000 "rich" families on their hands either to banish or feed and clothe.

A question I'd like to ask is this: What incentive is there today for a young man like yourself to either aspire or progress, knowing that the more you produce the greater will be the demands placed upon you by a greedy tax system? Every salary increase you receive will be accompanied by an increasingly out-of-proportion tax bite until, at the president's level, you'll be turning more than half of your annual salary over to the income-tax collectors. It's not an encouraging prospect.

Neither was it a very triumphant victory recently when a woman won \$375,000 in a national contest only to find that she would have to pay \$300,000 or so in income taxes. Nor was the young essayist made happy some time ago upon discovering that a free trip he had won for himself and his parents to the launching of a Union Oil tankship in Baltimore was not free of income tax; the tax alone nearly prohibited their going.

But this is my word of advice to you: Don't despair. Start fighting for fair play in every walk of life, including taxation. It is essential to your future, more essential to the generation that will follow you, and most essential to the future of your country. Heavy and unjust taxation—one of the very evils out of which the early American colonies fought their determined way—is with us more burdensome and unjust than during the darkest days of the Revolution.

Remember that our present tax injustices mushroomed into existence chiefly during periods of war, when large numbers of men were drafted into military service, and it was felt that those remaining in industry should be obliged to make financial sacrifices instead of war profits. But the tax sacrifices, like most other tax obligations, seem to have been perpetuated. They long have outlived hostilities and the emergencies in which they were conceived.

Remember this also, that wealth earned in cooperation and competition with your fellow Americans ought to be something worth striving for and honorably regarded once it is attained. Moreover, seldom have our successful men of industry squandered their wealth; rather, they

have turned most of it into tools, enabling thousands of others to become hewers of more than one tree. From the wealth of industrial leaders have come countless of the world's greatest schools, hospitals, philanthropies and cultural achievements. Wealth in wise hands has always been a great and necessary asset to this nation.

So, take courage despite our weary tax forecast of your tomorrow. Insist on a restoration of Constitutional tax justice. Do it now while you're in the 59% majority of one-tree hewers—that great group of American people who have consistently supported fair play. If you wait until you're president, it will be too late!

Ben Fairless

SOME years ago there was a lot of unemployment in the country and General Coxey was in Massillon, Ohio, gathering an army of unemployed to march again on Washington to protest hard times.

A young man named Ben Fairless took an interurban into the town to see what was going on. But along the way he noticed workmen clearing the site for a new Central Steel company plant just outside the town. Young Fairless hopped off the train and got himself employed then and there.

During the years when other men thought that the new frontiers and far horizons were no longer a part of the American scene, Ben Fairless kept making his own opportunities; during the times when people looked to Government for the main chance Ben Fairless looked only to himself, to his company, and to the people who tended the furnaces, who poured the steel and who sold it.

Mr. Fairless was a reasonable man who understood another's problems but who also stood his ground when he thought that he was right. Thus he led the successful fight against Government seizure of the steel companies. Thus he led the fight within his company for better understanding with its labor force and union. He did much to end the remoteness with which labor and management had long regarded one another.

Many maxims will be drawn about opportunity from the career of this man who went from a coal miner's modest home in Pigeon Run in Ohio to the job of heading up the vast complex that makes United States Steel the largest in the world.

And doubtless the maxims will all be true for the opportunities are always there for an able man who sees them. But they serve best the man who makes his own chance while others look to Washington.

Quoted from the Wall Street Journal



● INDUSTRIAL RELATIONS

Some employees have asked why the Company increased wages on the West Coast during March by a percentage (4½%), whereas, according to news reports, other companies, particularly in the East, mentioned cents per hour increases (10c).

There have been 12 general increases in the West Coast oil industry since 1941, of which 7 have been of the "flat" or "cents-per-hour" type. These "flat" increases, preserving the same amount in money between wage grades, have the effect of diminishing the relative advantage enjoyed by skilled employees over those in beginning jobs.

Over the years the cumulative effect has been serious. For example, in the West Coast oil industry, a utilityman (skilled laboring grade) could look forward, in 1940, to attaining a wage as a top-skilled operator that exceeded his 1940 wage by over 50%. By 1955, as a result of "flat" increases, he could look forward to a top operator's wage that exceeded his 1955 wage by only 31%. Similar but less serious narrowings had occurred in the East and Mid-Continent over the same period.

Had the Company increased wages 10 cents per hour on the West Coast this year, the rate of pay for top-skilled jobs in refineries would have fallen further to only 29% above beginning rates. The Company chose instead to increase wages on a percentage basis. This resulted in a wage increase to a top refinery operator, for example, of 15 cents more per day (about \$40 more per year) than he would have received from a 10-cents-per-hour increase.

It is hoped that through adjustments of this kind each employee will be given a greater incentive to increase his skills, better prepare himself for added responsibility, and reach for the higher-paid jobs.

from W. C. Stevenson

● PURCHASING

During the past year, the Purchasing Department has sold, for \$670,000, enough scrap and obsolete material to fill 375 40-ton freight cars. In addition to these actual sales,

many pieces of equipment considered unusable in one department have been transferred to other departments where the items were needed.

Surplus and scrap—such as worn out tanks, abandoned pipe lines, obsolete units, old buildings, etc.—often have to be removed to make room for new equipment. Other sources of surplus material are excess stock and obsolete spare parts in various inventories. Early disposal of such surpluses reduces Company costs in many directions, including construction and operating expenditures, taxes, storage and accounting.

from C. S. Perkins

● TRANSPORTATION & DISTRIBUTION

Our crude oil pipe line from Torrey Field to Los Angeles has been completed and placed in service. This new line is an extension of our Santa Clara Valley pipe line system and will handle the entire volume of Company crude oil produced and purchased in that area. The 12-inch diameter line is 65 miles in length and, with a single pump station at Torrey, will transport 50,000 barrels of crude per day. The capacity can be increased to 70,000 barrels per day if required by installing a booster pump station midway between Torrey and Los Angeles Refinery. With this line in operation, we have discontinued crude oil shipments by tanker from Ventura to Los Angeles.

Four additional 10,000-barrel capacity gasoline storage tanks have been placed in service at our Rosecrans Terminal in the Los Angeles area. This installation provides a total of eight tanks, with a combined capacity of 80,000 barrels, into which the various climatized grades of Royal 76 and 7600 Regular gasolines are delivered via products pipe line from Los Angeles Refinery. The volume shipped through this terminal has doubled during the past five years to a present average of approximately 19,000 barrels per day.

from E. L. Hiatt

● MANUFACTURING

Oleum Refinery is now receiving regular shipments of coker gas oil from Santa Maria Refinery. About 11,500 barrels per day of gas oil is thermally cracked at Oleum's Unit 70, producing high-sulfur, cracked gasoline stock, cracked gas oil and residuum. The cracked gasoline stock is further processed by desulfurization at the Unifining Plant, and is then sent to the Platforming Unit for conversion to the high-octane stock from which Royal 76 gasoline is blended. The gas oil and residuum from Unit 70 will be blended into fuels oils. High-sulfur gasoline stock received from Santa Maria Refinery is also processed in the Unifining and Platforming Units.

The main entrance to Oleum Refinery is on a curving grade of the state highway, so presents a traffic hazard. As a consequence, this entrance is being relocated on a straight section of the highway at the westerly side of our refinery property. Traffic signals and a diversion traffic lane are also included in the project.

Preliminary work is underway for improvements at the Los Angeles Refinery Marine Terminal. Dredging at Berths 148 and 149 is in progress, and preparatory work has commenced for the on-shore facilities. It is anticipated that actual construction of the new wharf by the City of Los Angeles Harbor Department will begin in a few weeks.

from K. E. Kingman

● FIELD

Since discovery by the Company early this year of the Bourdieu Pool southeast of the Gujarral Field in Fresno County, California, this area has become one of great activity. Two additional wells, both very satisfactory producers, have been completed in Gatchell zone sands at approximately 11,000 feet, and two strings of tools are being used in developing the Company's properties in this horizon. The discovery well also penetrated a shallower sand, since named the Sanger sand, at approximately 8,500 feet, and operations have been started on a third well to determine the productive possibilities of this interval.

To the northeast, new life has been given the old Gujarral Hills Field by the successful testing of an oil sand, termed the Smith sand, at approximately 7,800 feet. At this writing, four Company wells, which had declined to non-commercial production from the deeper Allison sands, have been recompleted in the Smith sand for initial flow production of around 500 barrels per day each. It is anticipated that additional wells will be recompleted in this zone.

The general Coalinga-Kettleman area, where these activities are taking place, is still considered to have excellent exploratory possibilities. Union Oil holds quite extensive leaseholds on several promising pros-

pects, some of which will be tested by drilling in the near future. The excellent quality of crude here makes this exploration program particularly attractive.

from Sam Grinsfelder

● RESEARCH

Through the initiative of Southwest Territory, the first prototype combination vapor-recovery and loading arm has been placed in operation at the Rosecrans Terminal, and has received design and operating approval from the Los Angeles Air Pollution Control District. This method of eliminating gasoline vapor emission into the atmosphere during truck loading operations does not require modification of the trucks. Marketing plans to install 26 such loading arms at Rosecrans.

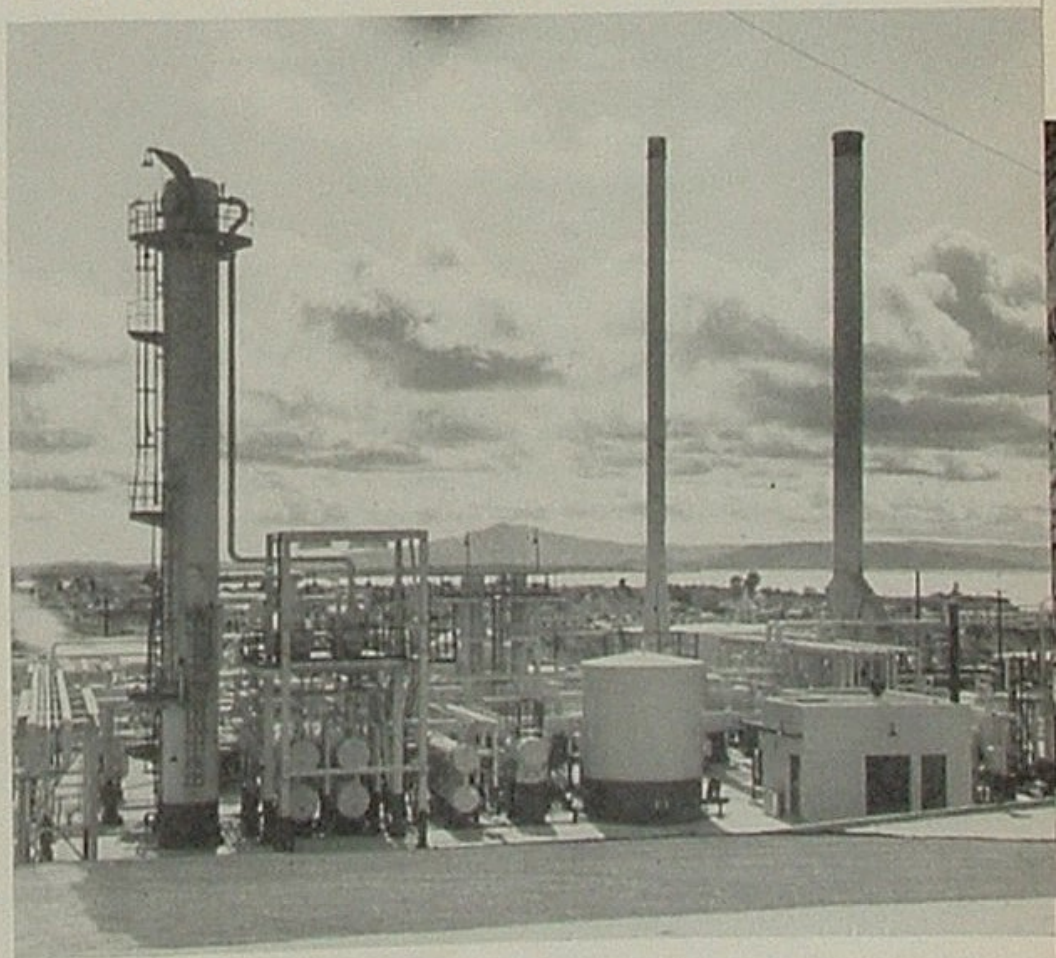
The Atlantic Refining Company of Philadelphia was recently licensed to use Union Oil's Unifining process.

A paper entitled "Unifining—A Proven Refining Technique" was presented by G. H. Hemmen to the session on processes during the 20th midyear meeting of the A. P. I. Division of Refining at St. Louis. A. E. Kelley was co-author of this paper.

Appearing before an AICE meeting in Houston recently, our Dr. J. W. Wilson reported on the mechanics of oil and gas flow under conditions simulating those in oil producing reservoirs.

from Fred L. Hartley

The completion of this Sulfur Recovery Unit at Oleum in April concludes the MP-30 program at that location. The unit converts hydrogen sulfide gas from the Refinery's fuel gas system to elemental sulfur, kept liquid at 285° F.



● MARKETING

Enlargement of the Company's office building on Rincon Hill in San Francisco is being brought to an attractive completion. The former tower, now demolished, has been replaced with a three-sided shaft, which rises 190 feet above the first floor, or 48 feet higher than its predecessor. The 42-foot wide faces of the tower are finished in white enamel, with a 10-foot blue center stripe rising to a 40-foot orange and blue "76" near the top. A rectangle on each tower face will report the time of day.

One of the largest single bulk shipments ever made from Union Oil docks consisted of 230,000 barrels of fuel oil loaded in April at Los Angeles Refinery Marine Terminal aboard the SS PETRO QUEEN.

The Company has been awarded contracts to supply approximately 3½ million barrels of gasoline and fuel oils for West Coast military cargo requirements. The

deliveries, to be made during the last half of 1955, will represent almost 50% of the total called for in these bids.

The appointment of the Pure-Pak Division of Ex-Cell-O Corporation as exclusive distributor of Aristo Dairy Wax in our three western territories and Glacier Division has been announced. The Pure-Pak Division manufactures a special machine for the dairy industry which forms, waxes and fills milk cartons in a single operation.

Eastern Continental Territory have started a sales campaign called the "Sunshine Special." It is open to all representatives in the Territory, whose top man for each quarter in each of the five regions wins a trip to the West Coast. Since many of our eastern representatives have never been out west, the campaign will afford the winners an intimate appreciation of our facilities and operations.

from Roy Linden

In Tribute to the Memory of Gurney Elwood Newlin

It is with deep sorrow that we, the Directors of Union Oil Company of California, in meeting assembled this 31st day of May, 1955, record the death on May 4, 1955 of Gurney Elwood Newlin, the Company's senior director and one of California's most distinguished citizens. His was a full, useful, and honored life in a community whose growth and development were greatly benefited by his energy, devotion, and unselfish service.

Having served as a Director of the Company for an even longer period than its founders, his wise counsel and experienced advice contributed in substantial measure for almost four decades toward guiding the Company's activities through two world wars and several periods of severe economic tension.

His profound sense of fairness, keen ability, and unimpeachable integrity distinguished him as an outstanding leader of the legal profession. His charm, vitality, and warm human qualities won for him the affection and friendship of many men who were associated with him as an attorney, executive, and civic leader. His constant adherence to the high principles for which he stood has left a rich heritage of example and inspiration.

In the death of Gurney Newlin the Union Oil Company and its Board of Directors have suffered the loss of a great friend and associate, and they do hereby express for themselves individually and on behalf of the Shareholders and Employees a deep reverence and respect for him. He will always be affectionately remembered by all those who were associated with him.



The late Gurney Elwood Newlin

Now be it resolved that this tribute to the memory of Gurney Elwood Newlin be recorded in the minutes of the Company, and an engrossed copy be presented to the bereaved family as a token of the high esteem in which he was held by his associates in the Company.



SERVICE BIRTHDAY AWARDS

JUNE 1955

EXPLORATION & PRODUCTION

Black, Ray L., Orcutt	35
Ruoff, Rudolph E., Domnigues	35
Jensen, Sam., Orcutt	20
Ballard, Robert L., Texas	15
Murrell, Pauline H., Whittier	10
Nash, Edgar, Rocky Mountain	10

MANUFACTURING

Ahern, William P., Oleum	35
Kelly, Thomas J., Wilmington	30
Lowery, Mansfield B., Oleum	30
Smith, Frank E., Jr., Oleum	30
Hansen, Louie, Oleum	25
Harding, Wayne G., Wilmington	25
Paul, Peter F., Wilmington	25
Grant, Jack, Wilmington	25
Falk, Clarence R., Oleum	20
Hall, Clarence E., Oleum	20
Spanan, Richard, Wilmington	20
Jameson, Walter T., Santa Maria	15
Thomson, Matthew S., Oleum	15
Barber, Joe L., Wilmington	10
Coates, James E., Wilmington	10
Hester, Robert J., Wilmington	10
McClellin, Dennis B., Oleum	10
Malensek, Tony A., Oleum	10
Stafford, Walter F., Oleum	10

MARKETING

Mitbo, Minnie, Seattle	35
Bryan, Margaret, Los Angeles	25
Cole, John H., Jr., Tucson	25
Jack, Alfred B., Sacramento	25
Martin, Ralph V., Oakland	25
Campau, Alexander K., Los Angeles.....	20
Carson, Wilbur, Pasadena	20
Eliason, Helen M., Los Angeles	20
Murray, Hilda E., San Francisco	20
Peterson, Oliver E., Los Angeles	20
Spooner, Robert G., Portland	20
Woodworth, Theodora J., San Francisco	20
Herrman, George F., San Jose	15
Lea, Kenneth H., Juneau	15
Badgley, Katherine A., Home Office	10
Bonewitz, Kenneth L., Portland	10

Center, William J., San Diego	10
Leifeste, Elizabeth C., Home Office	10
Johnson, Alexander, Oregon	10
Legacy, Lester D., Seattle	10
Marson, Elsie M., San Francisco	10
Meier, Ruth M., Los Angeles	10
Molzahn, Elmer E., Seattle	10
Wise, John R., Honolulu	10

PIPELINE

Estrada, Rudolph P., San Luis Obispo....	35
Woolway, George G., Santa Fe Springs	25
Gearhart, Charles G., San Luis Obispo	10

COMPTROLLER

Moran, Sam A., Home Office	35
Wark, John J., Home Office	20
Zanzot, Harold C., Home Office	20

AUTOMOTIVE

Thompson, Robert W., Santa Fe Springs	35
Clark, Major P., Santa Fe Springs	20
Tompkins, Alfred A., Santa Fe Springs..	20

RESEARCH & PROCESS

McCreary, Chester L., Brea	30
Emerson, Howard D., Brea	25
Scott, Frederick S., Brea	25
Backlund, Peter S., Brea	15
Doyle, Paul K., Brea	15
Fischer, Paul W., Brea	15
Huffman, Hal C., Brea	15
McKinnis, Arthur C., Brea	15
Hubbard, George R., Wilmington	10

CREDIT

Brown, Olga M., Home Office	25
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TAX

Pictor, Angela, Home Office	25
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MARINE

Pohl, William F., Home Office	15
Hutchins, Hale L., Wilmington	10

Retirements



A grateful Company and a host of well-wishing employees are bidding farewell to the following Union Oilers who have concluded long careers of Company service and are retiring:

LAWRENCE WOLFF

Marketing Department
Employed 5/13/12—Retired 6/1/55

PORTER S. CLEVINGER

Southwest Territory
Employed 8/19/15—Retired 6/1/55

FRANK H. RICHARDS

Field Department
Employed 6/10/18—Retired 6/1/55

RUDOLPH E. RUOFF

Field Department
Employed 6/1/20—Retired 6/1/55

WILLIAM E. MORLAN

Pipe Line Department
Employed 10/30/22—Retired 6/1/55

RUTH L. CARPENTER

Southwest Territory
Employed 6/25/23—Retired 6/1/55

DEWEY G. WHITTON

Field Department
Employed 10/6/24—Retired 6/1/55

EUSTACE K. BARTON

Field Department
Employed 4/16/26—Retired 6/1/55

ELSIE TELFORD

Southwest Territory
Employed 6/4/31—Retired 6/1/55

FRANK A. VORCE

Field Department
Employed 5/17/33—Retired 6/1/55

PHILIP S. KAERCHER

Southwest Territory
Employed 10/6/43—Retired 6/1/55

In Memoriam

Retired 8/31/47

ARTHUR R. KELLEY

On April 28, 1955
Southern Production

Dr. Norman Chin

...in petroleum, too, everything but the pig's squeal

"I HAVE READ that in a free country, business is more efficient because it must compete successfully to survive.

"I believe this sincerely. For I lived in China, India and Europe before becoming a United States citizen 17 years ago. No one equals Americans for sheer ingenuity in finding better ways to do things.

"I am thinking, for instance, of how at Union Oil today we use—as they say in the meat-packing industry—'everything but the pig's squeal.'



"Sulfur is a good example of what I mean. At the start of the Korean War the government put it on top priority.

"Curiously, though, one of the waste products of petroleum refining is a form of sulfur—hydrogen sulfide. We were convinced that we could convert enough throw-away hydrogen sulfide into valuable elemental sulfur to make a special plant worth while. We put it up to management and got a go-ahead.



DR. CH'IN: "NO ONE EQUALS AMERICANS IN FINDING NEW WAYS TO DO THINGS!"

"Our project was a success. We now recover about 120 tons of sulfur a day. It was good citizenship, too. Because by creating a new supply of sulfur we're helping to conserve the country's natural resources.

"All this from material once thought the refuse of refining! See what I mean by the ingenuity of us Americans?"

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Typically modest, Dr. Ch'in does not mention he was process engineer of the original Sulfur Recovery Unit at our Los Angeles Refinery.

This was one of our first steps in diversifying our business through chemical by-products of refining.

But Dr. Ch'in's original point is most pertinent. For it is possible that none of these things would have happened, if we lacked the incentive to find new ways to do a job better than our competitors.

YOUR COMMENTS ARE INVITED. Write: The President, Union Oil Company, Union Oil Building, Los Angeles 17, California.

Union Oil Company OF CALIFORNIA

MANUFACTURERS OF ROYAL TRITON, THE AMAZING PURPLE MOTOR OIL