



JANUARY 1951

"On Tour"

On Tour



VOL. 13, NO. 1
JANUARY 1951

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ON TOUR is published monthly by Union Oil Company of California for the purpose of keeping Union Oil people informed regarding their company's plans and operations. Reader participation is invited. Address communications to ON TOUR, 617 West 7th Street, Los Angeles 14, California.

Letter From AN AUTO MECHANIC Without a Car

402 Southcoates Lane,
Hull,
Yorkshire,
England,
November 11, 1950.

The President,
Union Oil Company,
Los Angeles, California.

Dear Sir:

I picked up an old copy of "Life," dated May 29th, 1950, from a bookstall, and I found it very interesting.

But most interesting of all was your ad on Page 99. Your statistics showing the comparison between 1914 and the present day are most enlightening and just go to show what private enterprise can do if given the chance.

I myself am aged 24 and am an auto-mechanic. But I have never owned an automobile of my own. Sounds ridiculous, I know, but such are the conditions under a Socialist regime!

By putting over the case for private enterprise in your ads you are doing a great service to the American people. You have a wonderful country. So never, never let Socialism, whatever they may call it, get a hold in America. Its cancerous growth brings with it the bureaucratic three R's—Restrictions, Regimentation and Rationing.

I myself don't amount to much—just a card in the State card index. We have long since ceased to be individuals.

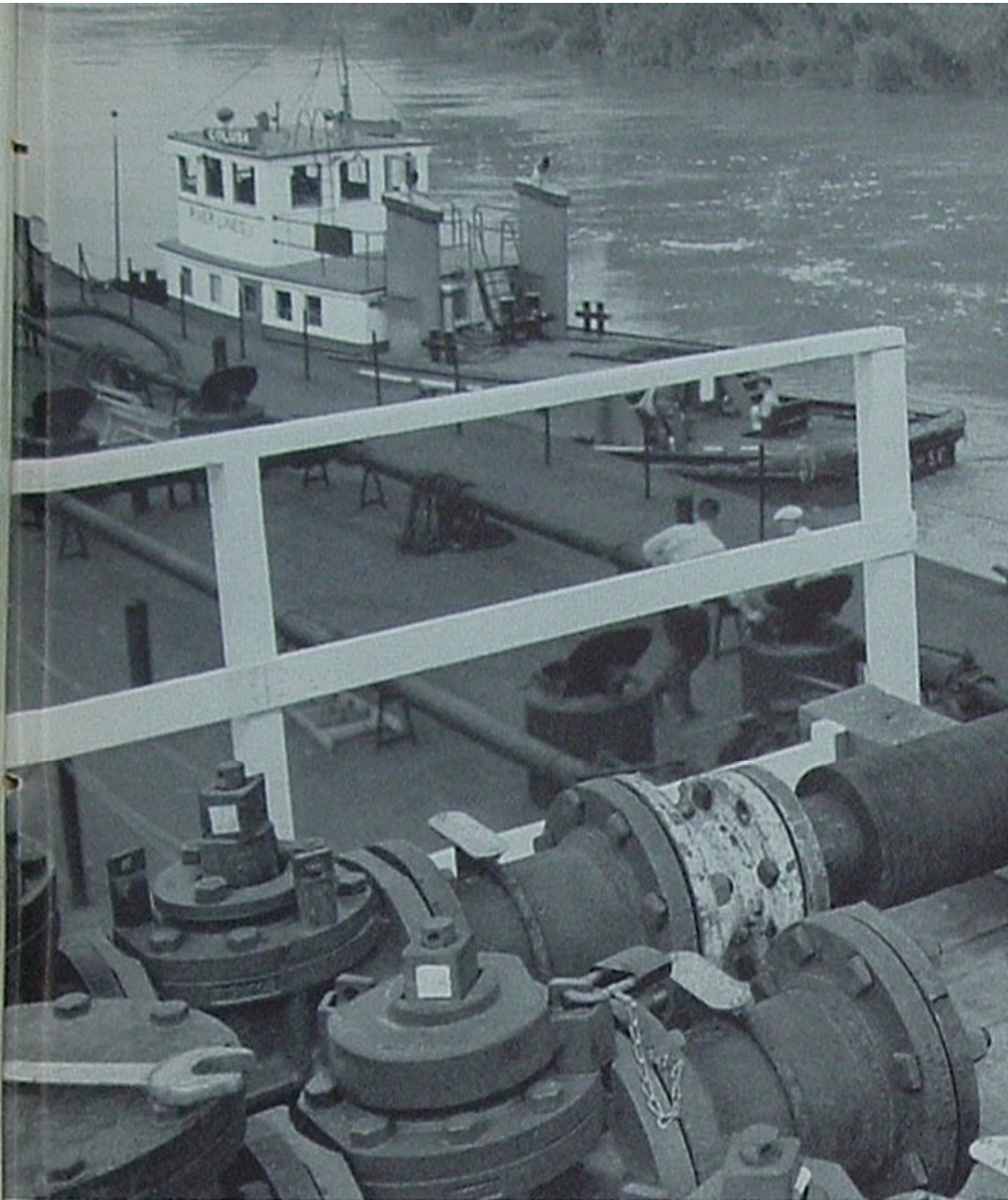
I can speak from first-hand experience; I live with Socialism, 24 hours a day.

My one ambition is to visit America one day to see Democracy really in action. This will never be possible, of course, an auto-mechanic's wage being around \$16 a week. But you all have my admiration and I hope you will continue your good work in the future.

Please excuse me for taking up so much of your valuable time but, as an anti-Socialist, I think you can understand my feelings.

Wishing you all the best,

I am,
Yours most cordially,
Frank W. Evenden



COLUSA TERMINAL

*opens barging operations
on upper Sacramento River*

THE official opening, November 22, of Union Oil's new Colusa Terminal on the upper Sacramento River has brought into public focus one of the West's most interesting transportation cycles.

The Colusa townsite, according to some authorities, dates back to the establishment there of a trading post by Hudson's Bay Company long before the gold rush. But it was the American '49ers who first built the foundations of a permanent settlement. Colusa became a docking point for river traffic, serving first the mining industry and later, after 1865, the grain farmers of that area. Barges carried supplies up river and shipments of grain back to San Francisco Bay, whence much of the California product was transshipped to Liverpool, England.

Old-timers relate that no roads worthy of the name entered Colusa during those early years and few travelers attempted to reach the town except by river boat.

But soon after barging and steamboat facilities were established on a fairly dependable scale, steel rails moved across streams and fields to compete for the hauling job. Trains immediately won nearly all passenger business, by reason of their greater speed and convenience, and it was not many years before freight turned to rail transportation. About the time Union Oil Company was founded, in 1890, barges disappeared alto-

In October, this River Lines barge, loaded with "76" Gasoline, became the first water-borne carrier to reopen traffic on the upper Sacramento River. It is shown at journey's end pumping off into Union Oil Company tanks.

The tug COLUSA, named for the town where our new river terminal is located, stands by as the first oil cargo is unloaded. Such craft move about eight miles an hour upstream, pushing to avoid resistance of propeller wash.





Left, Union's two-level unloading dock at Colusa was nearly half submerged by flood waters as the Sacramento River more than did its part to facilitate opening of navigation.

gether from the upper Sacramento, largely because of competition but partly because the river became too shallow for navigation during dry seasons.

As good highways began to crisscross the valley, trucks, busses and automobiles grew in prominence as carriers of people and freight throughout this rich domain.

Another Company First

To complete the cycle, a barge loaded with "76" Gasoline from Oleum Refinery arrived at Colusa on October 31, 1950, becoming the first water-borne petroleum cargo on the upper river and opening a new barging area.

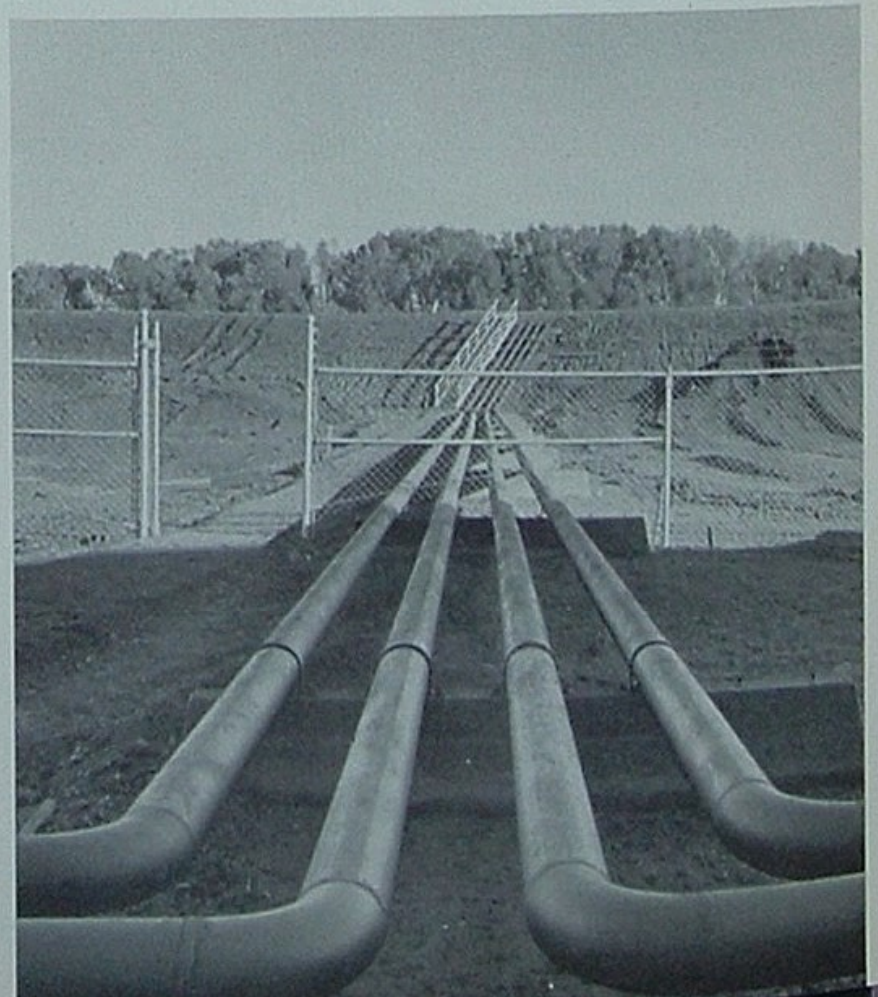
Thus, the upper Sacramento River region finds itself with a full complement of carrying facilities. Rather than putting others out of business, each form of transportation will undoubtedly prosper in its field. Barging, for example, is one of the most economical means of transportation; but trucks and trains will continue to find ample patronage because of their greater speed and latitude.

Plans for the installation at Colusa began three years ago, when representatives of The River Lines, Inc., San Francisco, and Union Oil Company discussed the idea with U. S. Army Engineers. When assured by the engineers that stored water from Shasta Dam reservoir would keep the river navigable throughout dry seasons, both companies acted. Union Oil purchased property on the river and began building the \$150,000 terminal. The River Lines designed their new tow boat COLUSA, costing \$100,000, and ordered construction of two shallow-

To minimize the danger of product contamination or mixtures, a separate pipe line has been installed for each type of commodity handled. Steel lines are six-inch, welded.



The views above and below show the course taken by incoming products—over piling, across river levee and through above-ground piping into plant storage.





Terminal storage tanks, two with floating roofs, will hold a total of 1,764,000 gallons. Before painting, tanks are purposely left to rust several months to remove mill scale.

draft barges, each with a cargo capacity of about 13,000 barrels and costing \$150,000.

This beginning already hints of rapid expansion. Ground has been broken for a similar plant adjoining our Colusa Terminal. The River Lines plan to operate a grain barge for the bulk moving of barley, rice and other grains toward San Francisco Bay, thereby offering the farmers economies in both freight and grain sacks. Many other growers, producers and distributors are bound to follow suit.

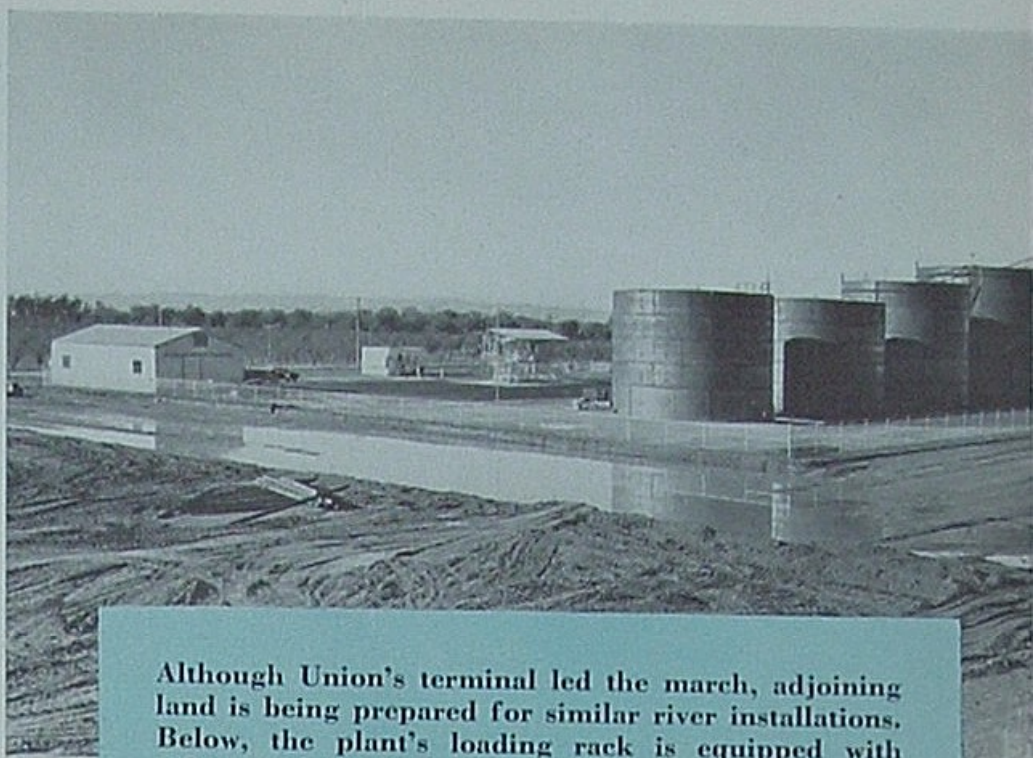
New Distribution Plan

For many years, Sacramento, 80 miles upstream from Oleum, has been the farthest inland terminus of petroleum barging. Colusa facilities now extend this service an additional 90 miles up the Sacramento River, offering a more economical distribution system. Company marketing stations and consignees from Colusa and Gridley northward are now receiving their bulk oil supplies by motor carriers from the new upper river terminal. Besides serving Northern California stations and customers, the trucks are supplying points in Southern Oregon.

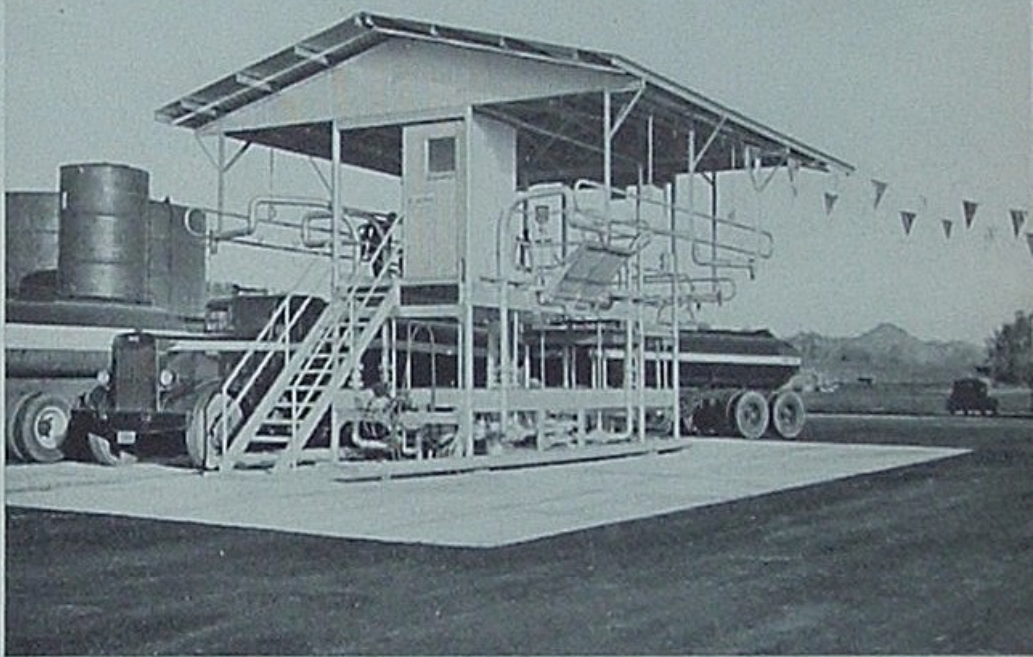
Marketing facilities are being added at the Colusa Terminal for serving the immediate vicinity. Two Company transports and the rolling equipment of several contract carriers are expected to keep about 1,500,000 gallons of Union gasolines, Diesol and other bulk products moving through the terminal monthly.

Left to right, Jack DeRuchie, terminal superintendent, E. W. Linn and Frank Russell, transport drivers, have been assigned to keeping everything filled with "76".

ON TOUR



Although Union's terminal led the march, adjoining land is being prepared for similar river installations. Below, the plant's loading rack is equipped with submerged loaders and fast ticket-printing meters.

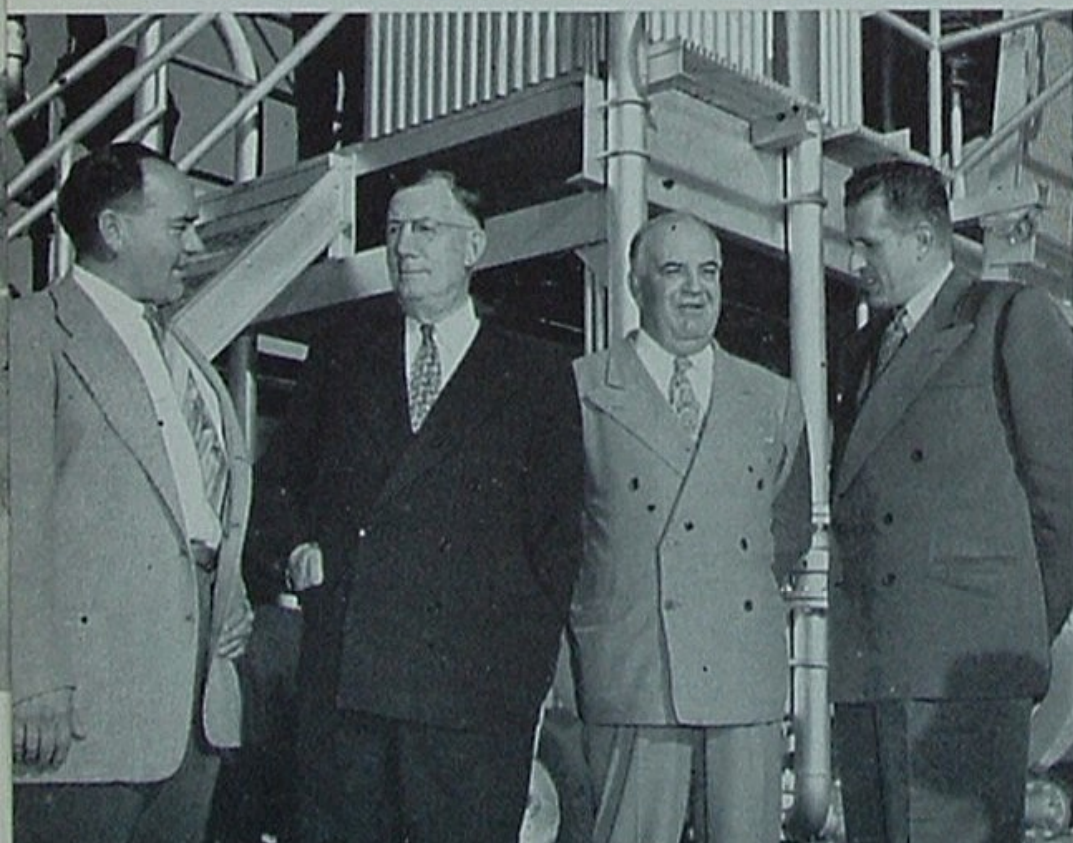




To the left of Mayor Harry Weber of Colusa as he officially opened the new terminal were W. V. Criddle, F. K. Cadwell, A. J. Lowrey, Elliott O'Rourke, George Smith, J. J. Grunewald, J. Hal Rogers, J. H. Anderson.

Colusa Extends a Hearty Welcome

Below, D. L. Robinson, manager of C. F. Fredericksen & Sons, J. H. Anderson, traffic manager of River Lines, J. P. Hildreth, president of Acme Transportation, and our W. V. Criddle were most pleased with the outlook.



Obviously pleased with accomplishments to date and forecasts of the future, town officials, business leaders and residents of Colusa joined with representatives and associates of Union Oil Company on November 22 for the initial Colusa Terminal house warming.

At a luncheon sponsored by the Chamber of Commerce, President and Chairman Elliot O'Rourke called for an introduction of all Union Oilers present and complimented the Company for its part in re-establishing a valuable transportation service.

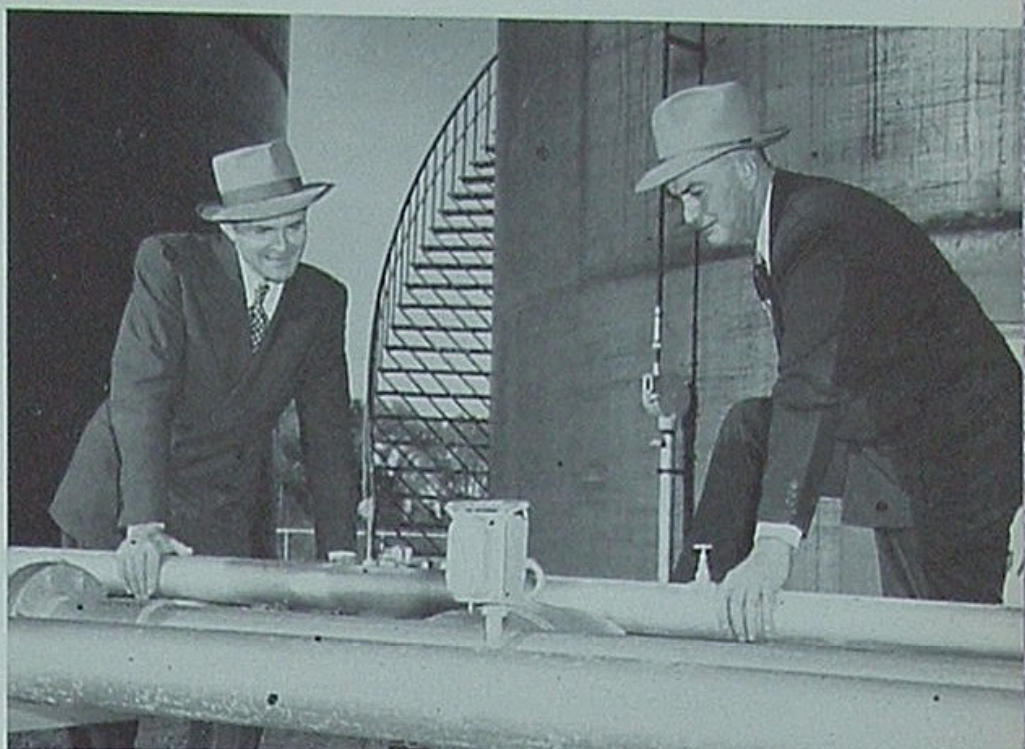
In response, F. K. Cadwell, manager of Central Territory, W. V. Criddle, Territory distribution manager, and J. J. Grunewald, Chico district sales manager, stated the Company's objectives in taking such leading steps. J. Hal Rogers, who with E. L. Hiatt has represented Union Oil during purchase of the site and building of the terminal, explained how cooperation between townspeople and transportation companies can bring about further development to everyone's advantage.

Following the luncheon—held, incidentally, in a hotel where river-boat passengers dined nearly a century ago—an enthusiastic group convened at the terminal gates. Mayor Harry Weber of Colusa snipped the traditional ribbon and officially opened a gasoline loading valve. Trucks owned by C. F. Fredericksen & Sons, Acme Transportation, Inc., and Union Oil then loaded with gasoline and embarked on the *long haul*—that of supplying the best products whenever and wherever they're needed.



One of the favorite Union Oilers in Colusa is Isabelle Highstreet, shown above with C. E. Keeler, retail representative. She has been a Union dealer for 25 years.

John Grunewald, Chico district sales manager, and George Sellman, Colusa resident manager, inspect one of the explosion-proof electric motors and pumps used here.

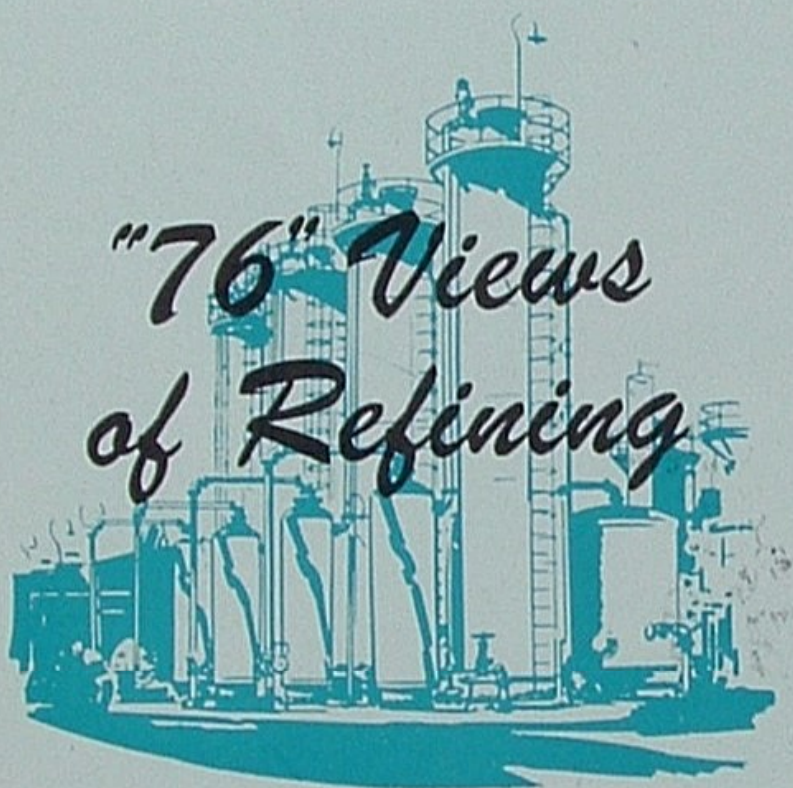
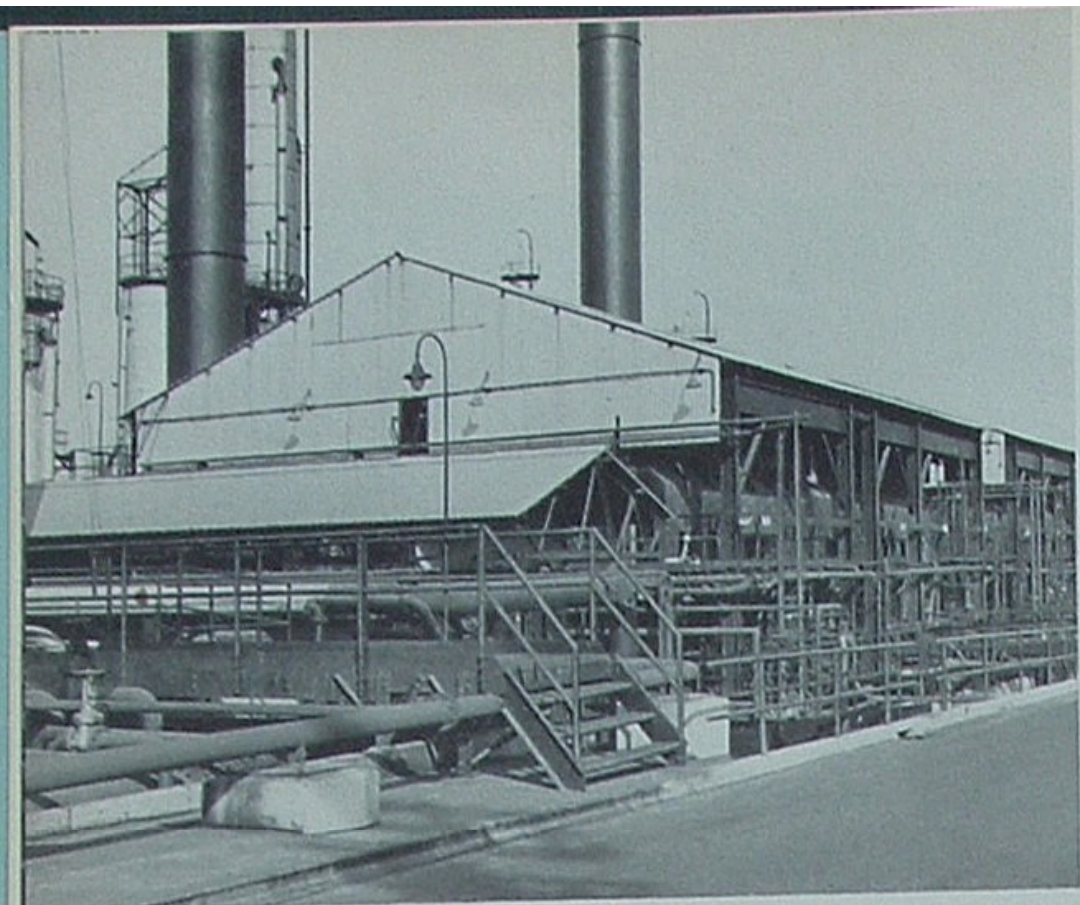


Right, a welcoming Chamber of Commerce luncheon was served in Colusa's oldest hotel, where river boat passengers of 100 years ago were also hospitably received.



The official valve opening by Mayor Harry Weber, below, started our transport and several contractor units on a distribution assignment measured in millions of miles.





43. Thermal Cracking

Having resisted efforts of the TCC catalyst to break its molecules apart, the remaining gas oil, now called *furnace oil*, is sent back to Unit 33 for a more forceful type of cracking. Here in a series of furnaces, some of which are shown at left, the stubborn molecules are subjected to successively higher temperatures and pressures. Oil that refuses to crack in the first furnace proceeds on to others in the series, each furnace imposing a higher temperature and a greater pressure. In the final furnace, molecules pass through furnace tubes where they are heated to approximately 1050 degrees F. and held under pressures up to 1200 pounds per square inch.

What actually happens during the thermal cracking process is that some of the furnace oil molecules react to extreme heat by trying to vaporize and escape from the liquid stream. However, high pressures hold them in solution and prevent their escape. While both heat and pressure steadily rise, the imprisoned molecules expend their energy by shaking or vibrating. This action often becomes so violent that part of the molecule is shaken completely off or it may crack into two halves. In other words, the combination of heat and pressure succeeds in converting a further percentage of heavy oils into more valuable gasolines and other light products.

44. Distillation

If all of the furnace oil were brought initially to the highest temperature and pressure used in thermal cracking, two losses would occur. Cracking would proceed too far in some instances, converting part of the furnace oil into light gases rather than gasoline. Simultaneously, heavy portions of the charge would char into a hard coke, thus plugging the furnace tubes.

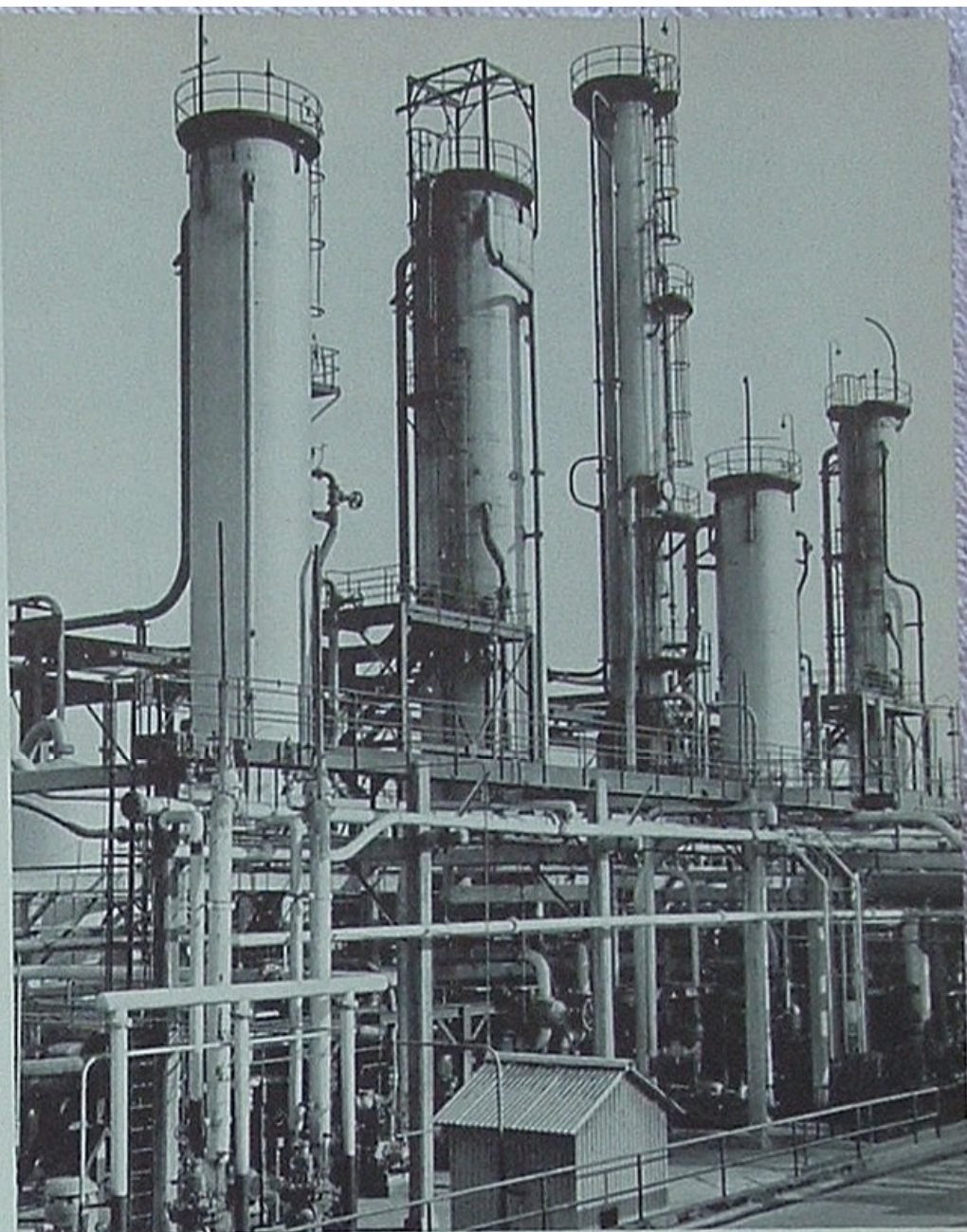
Therefore, a quick distillation is made after the oil emerges from each furnace. The columns at left accomplish this part of the thermal cracking process. They remove in vapor form the gasoline and lighter hydrocarbons, collectively known as *light ends*, immediately after each stage of cracking. Fuel oil bottoms from the columns are stripped of their vapor content and sent to storage. Only the middle fraction of furnace oil is delivered to the next higher stage of temperature and pressure for further cracking.

45. Light Ends produced in the Thermal Cracking Section must be re-distilled in the columns, right, to assure a clean separation of several fractions and a high quality in the finished products.

Lightest of the fractions isolated here is *fuel gas*, which eventually finds its way back to the furnaces, but this time as a refinery fuel.

Another fraction is made up of *butane-butene* molecules similar to those produced by the catalytic cracking process. These products from both units go through an interesting transformation in the Alkylation Unit, where we shall presently follow them.

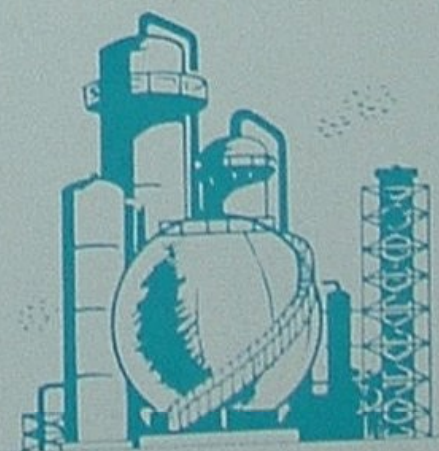
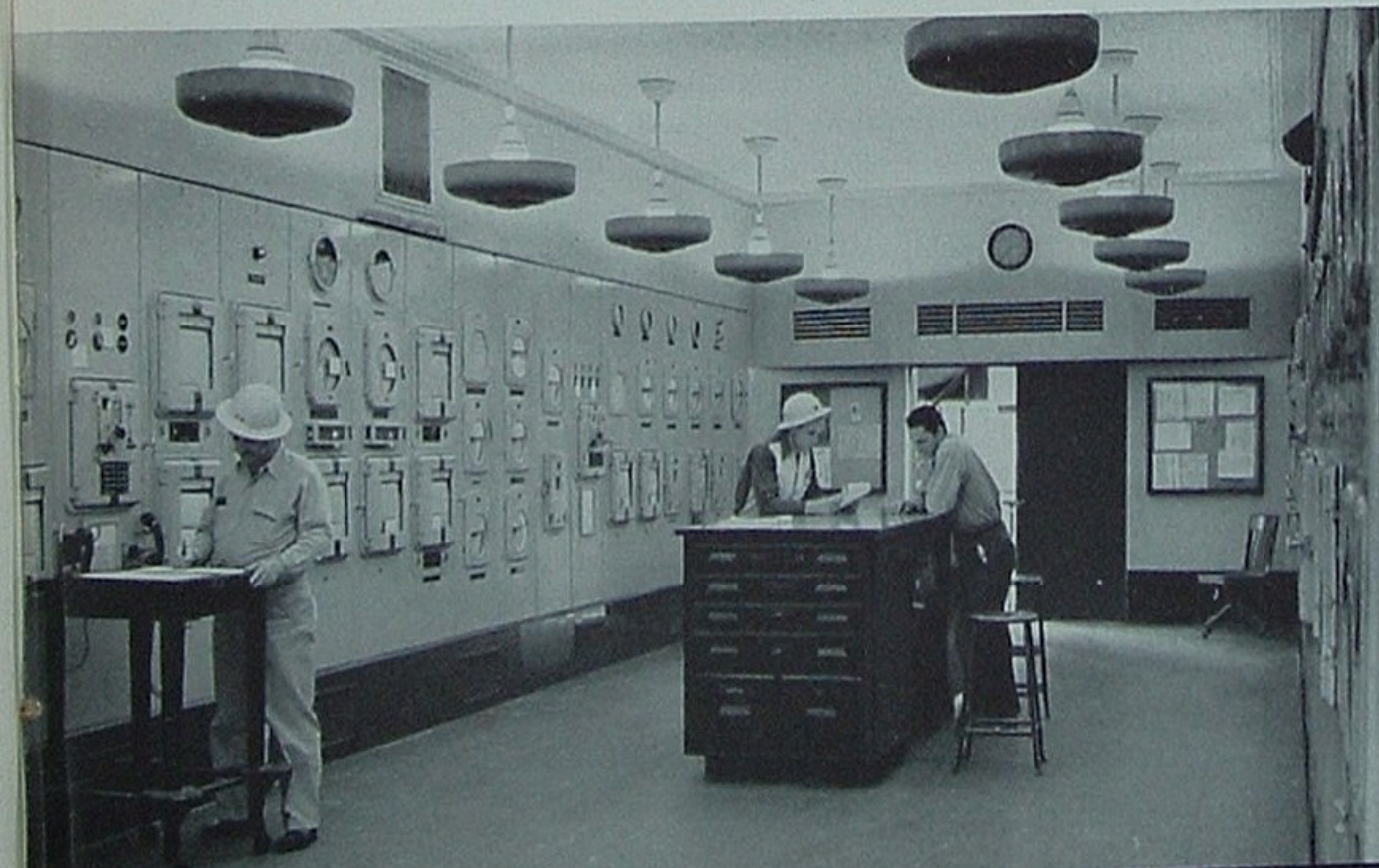
Three other products of the Light Ends Section of Unit 33 are *light pressure distillate*, *medium pressure distillate* and *heavy pressure distillate*. After being treated, to remove all harmful impurities, they are valuable as blending stocks for finished gasolines.

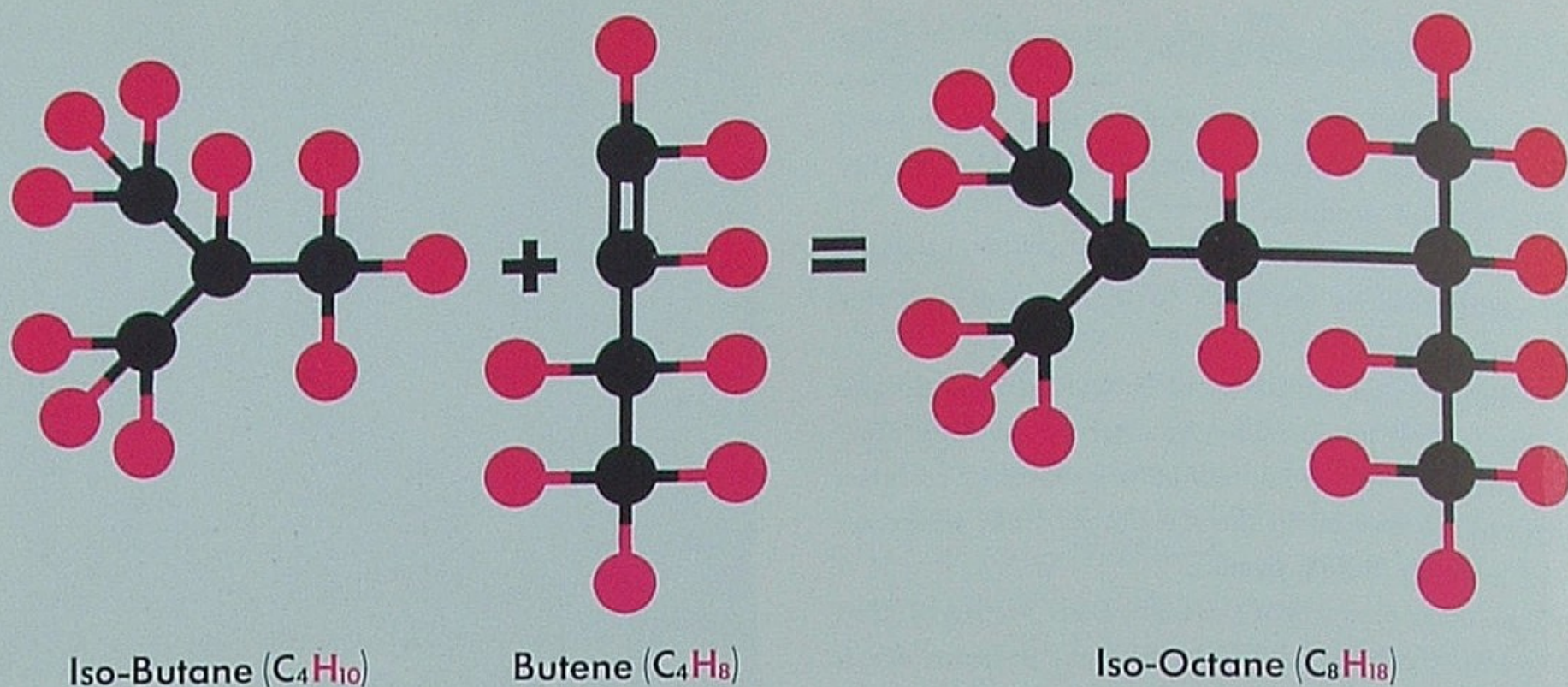


46. Control The nearly deserted appearance of many big refining units has been brought about by the wonders of modern *instrumentation*. Many skilled men are necessary of course to operate and maintain such equipment. But control is delegated principally to mechanical devices, which regulate the columns and furnaces, open and close valves, govern temperatures and pressures, and in many instances even make an accurate written record of their performances. The human touch is necessary chiefly to

keep house, spot trouble when it occurs, and maintain the faithful robot in working order.

Below is approximately half of Unit 33's control room. Instruments on the far wall control and record what is happening in the Cracking Section. Other panels similarly govern the Crude Distillation and Light Ends Sections. Operators, by adjusting these instruments, are able within certain limits to regulate the amount and types of products produced.





47. Alkylation

Up to this refining point we have been concerned with either sorting petroleum into useful types of products or cracking some of the heavier oils into light oils and producing a higher percentage of gasoline. Now, since the light petroleum gases are also less in demand than gasoline, would it be possible to make some of their molecules combine and form molecules in the gasoline range? The answer is yes, and the process is known as *alkylation*.

Tipped on end in the symbolic drawing above is butene, a gaseous hydrocarbon we have introduced before in connection with cracking processes. To its left is iso-butane, another gaseous molecule, which differs from butane only because its four carbon and ten hydrogen

atoms are arranged in this pattern rather than chain-like. If we can somehow join these two molecules together, we'll have iso-octane, a liquid petroleum with unusual fuel properties.

The trick performed by *alkylation* is to cause the double-bonded carbon atoms of butene to release one of their grips on each other, whereupon a hydrogen atom of iso-butane joins one of the carbon bonds and the two molecules are united through a bonding of two carbon atoms. The resulting iso-octane is not only a member of the gasoline hydrocarbons but is also an aristocrat of the group. Iso-octane is one of the highest test gasolines known. It is a principal component of the most powerful aviation gasolines, and automotive demand for it is growing with development of high-compression motors.

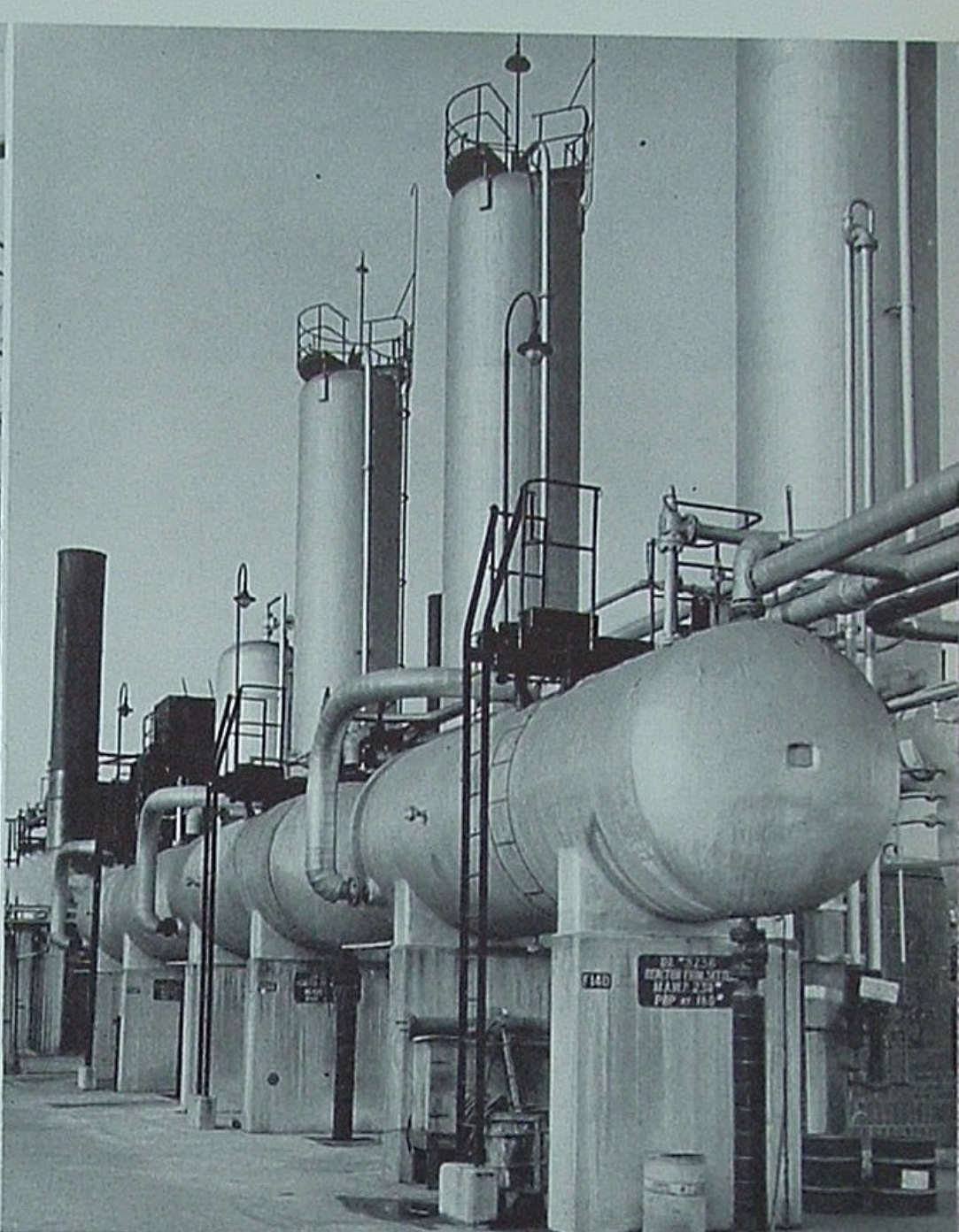
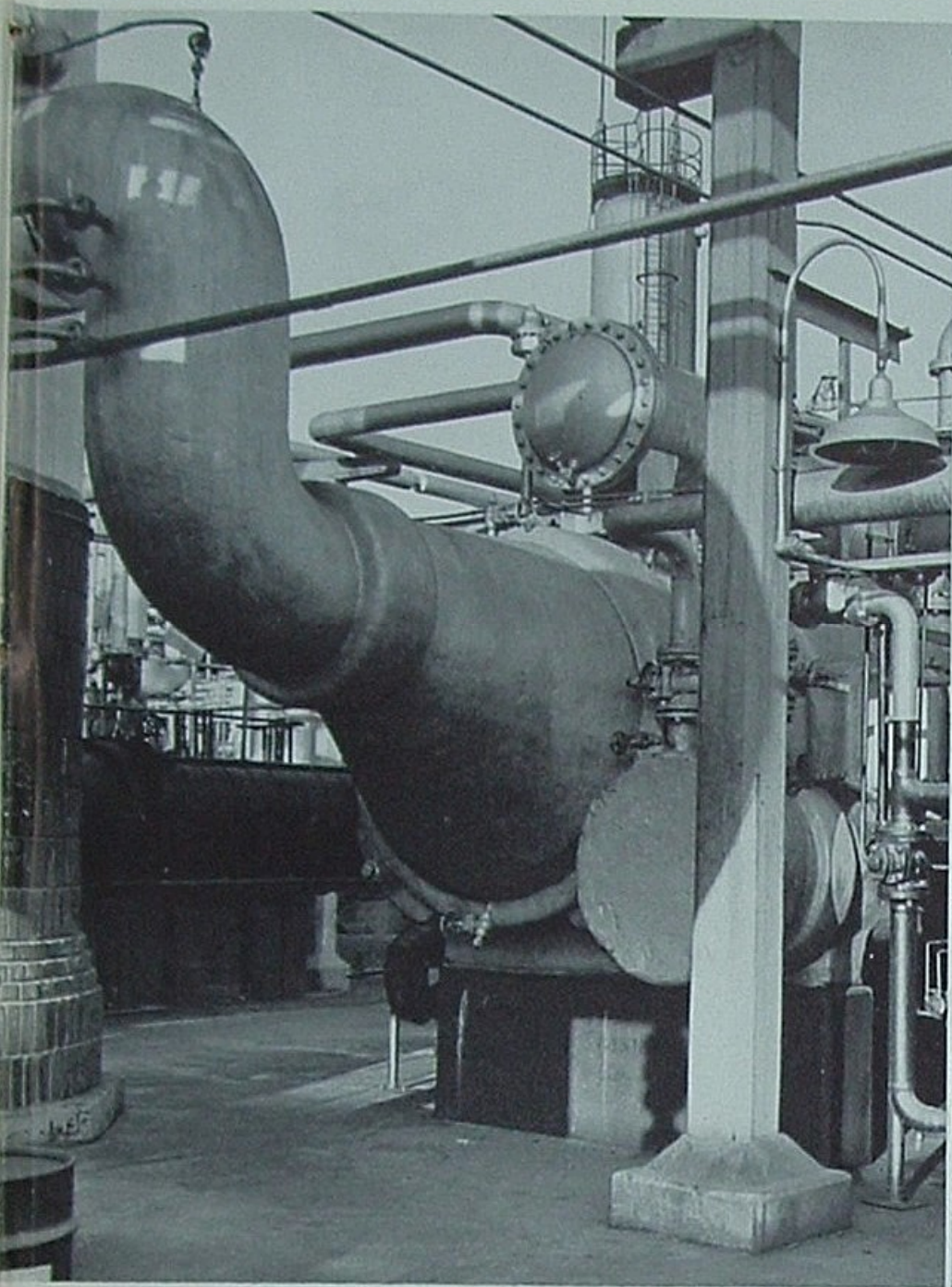
48. Acid Catalyst

To accomplish this union of iso-butane and butene, our mysterious helper, a catalyst, is introduced to the alkylation process. Only this time, clay pellets, such as those used in catalytic cracking, are not equal to the job. The material required is concentrated sulfuric acid.

At left is a refinery operator taking samples of this potent catalyst near one of the alkylation settlers. These samples are tested periodically to determine whether the acid is working effectively, or is *spent* and in need of replacement.

Note the helmet, goggles and rubber gloves worn by the acid man. Nearby also are shower baths and barrels of soda solution into which he would plunge if acid should accidentally splash on his skin or clothing. Due to vigilance and safeguards, operators are rarely harmed.





49. Reaction

of the iso-butane with butene to form iso-octane takes place in the above *reactor*, one of six such installations at Unit 110 of Los Angeles Refinery. At a temperature of 40 degrees F. and under pressure of about 90 pounds per square inch, the two normally gaseous hydrocarbons exist as liquids. In this liquid form they are brought into contact with the sulfuric acid catalyst, also a liquid. The liquids do not mix together readily but tend to separate into liquid layers; therefore, thorough mixing is required to encourage maximum reaction. After rather violent agitation by means of pumps and impellers, the liquefied gases and catalyst are circulated through pipe lines and vessels. By being kept in motion and given time to react, a greater number of the iso-butane and butene molecules are persuaded to enter into their iso-octane wedlock.

50. Catalyst Separation

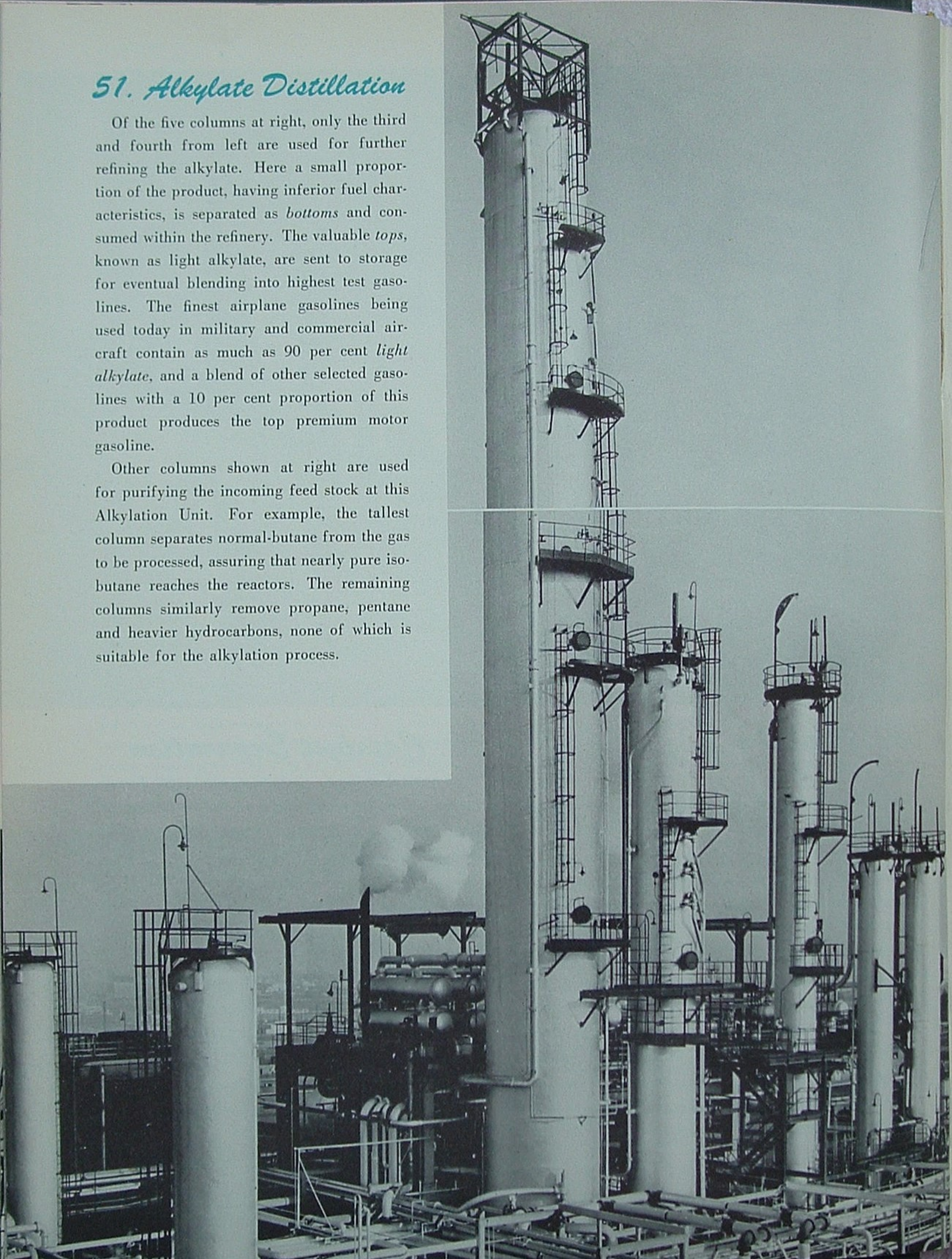
The vertical columns above are connected directly with the alkylation reactors and are called *time tanks*. As their name implies, they serve as a means of circulating the *alkylate* mixture long enough to insure the highest possible yield of iso-octane, better known to refinery men as *light alkylate*. However, not all of the mixture reacts satisfactorily and, after a later separation, some of it is recycled until reaction takes place. For this reason Unit 110 finds it necessary to circulate some 2,000,000 barrels of liquid oil products a day to obtain 3,000 barrels of end product.

The horizontal vessels above are *alkylation settlers* where the processed mixture is allowed to settle into its diverse layers. Sulfuric acid is drawn off the bottom while alkylate leaves the top of these vessels.

51. Alkylate Distillation

Of the five columns at right, only the third and fourth from left are used for further refining the alkylate. Here a small proportion of the product, having inferior fuel characteristics, is separated as *bottoms* and consumed within the refinery. The valuable *tops*, known as light alkylate, are sent to storage for eventual blending into highest test gasolines. The finest airplane gasolines being used today in military and commercial aircraft contain as much as 90 per cent *light alkylate*, and a blend of other selected gasolines with a 10 per cent proportion of this product produces the top premium motor gasoline.

Other columns shown at right are used for purifying the incoming feed stock at this Alkylation Unit. For example, the tallest column separates normal-butane from the gas to be processed, assuring that nearly pure isobutane reaches the reactors. The remaining columns similarly remove propane, pentane and heavier hydrocarbons, none of which is suitable for the alkylation process.





INDUSTRIAL SUMMARY

EMPLOYEES TO BE HONORED FOR SAFE DRIVING

● INDUSTRIAL RELATIONS

Desiring to give credit where it is due and to assist in reducing this country's terrific vehicle accident toll, Union Oil Company's Safety Board has started a SAFE DRIVER AWARD PLAN, retroactive to January 1, 1948.

Those eligible for recognition and awards following a year or more of accident-free driving are:

- A. Drivers regularly assigned to Company commercial vehicles.
- B. Drivers operating Company passenger or pool vehicles in excess of 3,000 miles per year; or, in the case of Manufacturing and Research Departments, drivers operating Company vehicles principally on in-plant assignments in excess of 1,000 miles per year.

For one year of SAFE DRIVING, each qualifying employee, whether driving a passenger or commercial vehicle, will be presented with an attractive wallet-size certificate. If inside of three years the driver's SAFE DRIVING continuity is broken by a chargeable accident, his prior certificate or certificates will be invalidated. However, after he completes three consecutive years without an accident, his awards during the *proving period* attain a permanent status.

In addition to their certificates, drivers of commercial vehicles will receive distinctive AWARD PINS after they have gone three consecutive years without a chargeable accident. A new pin will be presented each accident-free year thereafter, because it will show the total number of safe driving years accumulated.

A chargeable accident after three consecutive years of accident-free driving will draw no penalty, but will delay for one year the presentation of a driver's next higher award.

An AWARD COMMITTEE, consisting of at least two drivers and a supervisor, appointed locally, will investigate and determine whether an accident is chargeable or non-chargeable. Their decision will be subject to review

by representatives of the Training and Safety Division in order to insure uniformly fair decisions.

Further and complete information regarding the SAFE DRIVER AWARD PLAN has been prepared for supervisors throughout the Company. They will institute this commendable drive against the nation's fourth greatest destroyer of life and property, and will help in every way to make such individual recognition for SAFE DRIVING worth striving for.

The Greater Los Angeles Chapter of the National Safety Council has named Union Oil Company as winner of a Merit Award in the Industrial Safety Contest. During the six months ending September 30, the Company placed third in competition with other organizations having the same national average accident rate per man-hours of employment. The Company's accident rate was 7.5 disabling accidents per million man-hours, or 27 per cent better than the average contestant.

This also represents an improvement of 15 per cent over the Company's accident rate for 1949. Eleven less employees were injured during the contest period than during the same months of 1949.

There were 36 out of 175 companies competing who received special honors for operating six months without a single disabling injury. Since it is the individual who suffers most from an accident, top honors are well worth our best efforts in any such competition.

To assist employees in making voluntary contributions to welfare agencies of their choice, the Company has reinstated payroll-deduction service for those who wish to make use of such a convenience.

As of December 1, 1950, 164 Company employees had been granted leaves of absence for military service. Of this number, 90 had one year or more of Company service.

from W. C. Stevenson

● **FIELD** As is well known, government regulations play a big part in today's business. They play a big part in the development and production of oil. Recently, in three different areas in which the Field Department operates, government rulings have had a direct bearing on our operations.

In Canada, the Conservation Board in the Province of Alberta issued a proration order, effective December 1, which increased the previous oil production to 53 barrels per day per well for 19 wells in which we have a one-quarter interest in the Redwater Field. Our total share now is 252 barrels per day.

In Texas, the Railroad Commission granted discovery allowables for the production of the first five wells to be completed in each of the two West Texas fields we recently discovered. This allowable is 50 per cent more than the regularly allocated production.

In California, the Planning Commission of the County of Los Angeles granted our application for the drilling of 15 additional wells from a location designated as the "Triangle Ranch Well Site," which will permit a continuation of development of the Sansinena Oil Field in an easterly direction. This well site will be the third island from which deflected wells will be drilled in the Sansinena Field, where daily production is now 2,100 barrels.

These determinations by governmental regulatory bodies are typical of routine rulings having to do with the development and production of oil.

from Sam Grinsfelder

● **MANUFACTURING** We have purchased from Southern Counties Gas Company property adjoining our Los Angeles Refinery, consisting of 1.4 acres of land and ten 1,000-barrel storage vessels. This storage will be used to augment the refinery's liquid petroleum gas storage.

The Company has been awarded a contract to supply 1,600,000 barrels of fuel oil to the City of Los Angeles during the next six months. This oil is to be used primarily in the city's electrical steam generator plant at Wilmington.

The refinery control laboratory is responsible for the accurate analysis of hundreds of samples submitted daily by the refinery. To more efficiently carry out their responsibilities, the Oleum laboratory has purchased an X-ray photometer. Analyses by the X-ray method are applicable to many of the analyses made on petroleum. Results of tests by this method are available in minutes as compared to several hours by the older methods.

from K. E. Kingman

● **TRANSPORTATION AND DISTRIBUTION** In compliance with an order of the Interstate Commerce Commission, and to provide greater safety in train operation, we have just about completed equipping our 625 tank cars with an improved type air brake at a total cost of \$300,000. In an emergency, this brake will transmit braking power to an entire 150-car train within 20 seconds. Concurrent with the brake installation program, our cars have been completely reconditioned and will be found in top readiness if a national emergency should occur.

A contract has been awarded for installing 15,000 feet of pipe line to connect Newhall-Potrero Field production with our existing pipe line system. This line will permit crude oil deliveries from the field via Santa Paula Pump Station. A substantial transportation economy will result, as the crude is now being moved by truck.

from R. D. Gibbs

● **PURCHASING** Once again the steel industry has set the pattern for our entire economy. The recently announced wage and price increase by primary steel producers has had the effect of immediately increasing our costs on fabricated steel items, including pipe, containers, steel furniture, tanks and many other items. It is anticipated that within a short period all manufactured items requiring the use of steel will advance in price.

We are now experiencing half-way measures by the government to halt runaway prices. In the near future we may expect tight control by government of all phases of our economy.

from E. H. Weaver

● **MARKETING** With more than 2,000 dealers now selling Royal Triton in the East, sales of this premium motor oil have maintained increases ranging between 20 and 30 per cent a month and are exceeding a monthly output of 25,000 gallons. Benefiting volume-wise also by this program of Eastern expansion are such products as Triton, T5X Oil, Unitec, A. P. gear lubricants and Unoba greases. New distributors are being acquired in an immense industrial area bounded by New York, Chicago and New Orleans. Full-page ads in a half dozen leading national magazines, television commercials in the major cities, and other effective advertising mediums are being used to introduce our products to this market.

from Roy Linden

Organization Changes



S. BIEHN
Territory Accountant
San Francisco, Calif.



P. L. POLLIZZOTTO
District Sales Manager
Everett, Washington



F. A. CULLING
Supervisor Refined, Fuel
Oil and Asphalt Sales



R. T. CARRINGTON
District Sales Manager
San Francisco, Calif.

A series of Marketing appointments, effective November 1, 1950, has resulted in the following changes:

HEAD OFFICE W. L. Spencer, formerly assistant to sales manager, is now manager refinery sales. T. G. Wise, previously manager sales services, Seattle, has replaced Spencer under the new Head Office title, manager sales services. A. R. Ousdahl was appointed supervisor lubricating oil and grease sales after previously serving as district sales manager at Everett, Washington. F. A. Culling, formerly sales promotion supervisor for Southwest Territory, is now supervisor refined, fuel oil and asphalt sales.

CENTRAL TERRITORY W. V. Criddle, formerly district sales manager, Sacramento, is now distribution manager, having replaced E. L. Hiatt, whose promotion to Head Office was announced last month. Appointed as district sales managers are D. P. Hunter at Sacramento; R. T. Carrington at San Francisco; J. H. McGee at Santa Rosa; and C. A. Goughnour at Bakersfield. S. Biehn, previous assistant accountant at Seattle, was appointed territory accountant, San Francisco, also on November 1.

SACRAMENTO Union Oilers at Sacramento had reason to be concerned when this noon-hour picture was taken November 21. The rain-swollen Sacramento River, nearing the highest crest in its history, lapped at the upper deck of our dock. The Company plant remained undamaged behind a stout levee, but neighboring properties just over the levee were flooded. Although Northern California waters later subsided, heavier winter rains were expected. To millions of dollars in property damage already counted was added the threat of worse to come. Posing with appropriate concern at right are Bill Workman, Hal Rogers, Bert Jack, Ed Wentland, Joe Raabe and Roy Young.

NORTHWEST TERRITORY J. S. Foster is the new manager sales services, Seattle, after serving as district sales manager at Riverside. P. L. Polizzotto has been promoted from district representative to district sales manager at Everett.

SOUTHWEST TERRITORY Sam A. Waters, formerly district sales manager at San Francisco, is appointed district sales manager at Riverside.

Other management changes have been announced by **FOREIGN SALES** and by **EXPLORATION AND PRODUCTION**:

P. H. Baxter moved from the assignment of Central Territory accountant, San Francisco, to Division Accountant, Central American Division, effective December 1.

On the same date W. W. Heathman was appointed acting general manager for Canada, taking the place of E. B. Noble, resigned.

Appointees whose pictures do not appear on this page have appeared in recent issues of ON TOUR, hence are not being introduced photographically at this time.





Operating entirely without human attendance is this Union Oil pump station in the Sunset Field near Taft. Originally built in 1909, close to famous Lake View No. 1, it now boasts automatic boilers and self-driven engines and pumps.

A Self-Sufficient Pump Station

Union Oil engineers have taken another step along the endless highway of progress—this time in the field of pipe line transportation.

In an oil area between Taft and Maricopa, made famous by our Lake View Gusher which once filled nearly every surrounding hollow with some nine million barrels of crude oil, Union Oil has been operating the Sunset Pump Station since 1909. Large production in this field died a sudden death with the abrupt expiration of Lake View No. 1. But scores of lesser producers have made it worthwhile to retain the pipe line and pumping facilities.

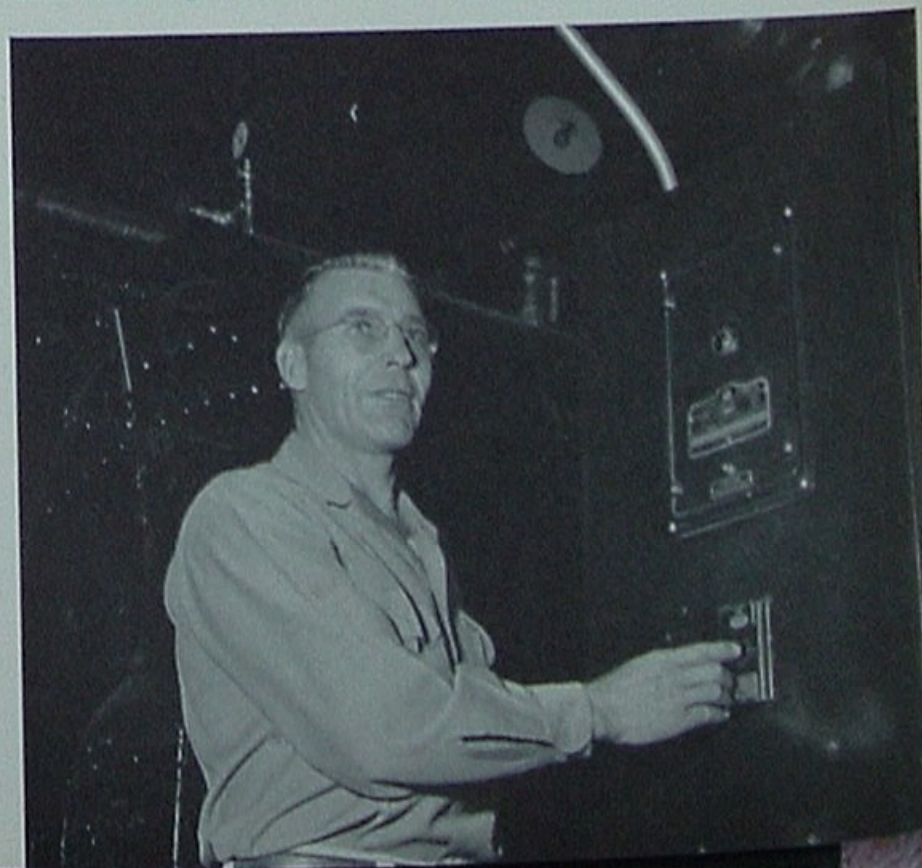
For many years our Pipe Line Department has not been entirely happy with conditions at Sunset. Too little oil was produced to keep the plant in full-time operation. The practice was to shut boilers and pumps down 20 days each month while storage tanks were refilling. Then a crew of men would be brought in to pump accumulated oil through the pipe line, a task that required about 10 days.

This interrupted type of operation was awkward and costly. Crews had to be transported back and forth many miles from their other jobs, and shut-downs meant idle equipment as well as extra expense. How to make Sunset a more economical pumping proposition challenged many of the Company's best transportation minds.

However, the answer is up and operating—a self-governing pump station—one that will heat crude oil to the desired pumping temperature; move it through pipe line at a prescribed rate of flow; slow itself down, speed itself up, or shut itself down entirely if trouble arises



Below, Glenn Woods, district foreman, presses the button starting fire in the boilers. Resulting steam flows to heat exchangers, above, heating crude oil to 160 degrees.

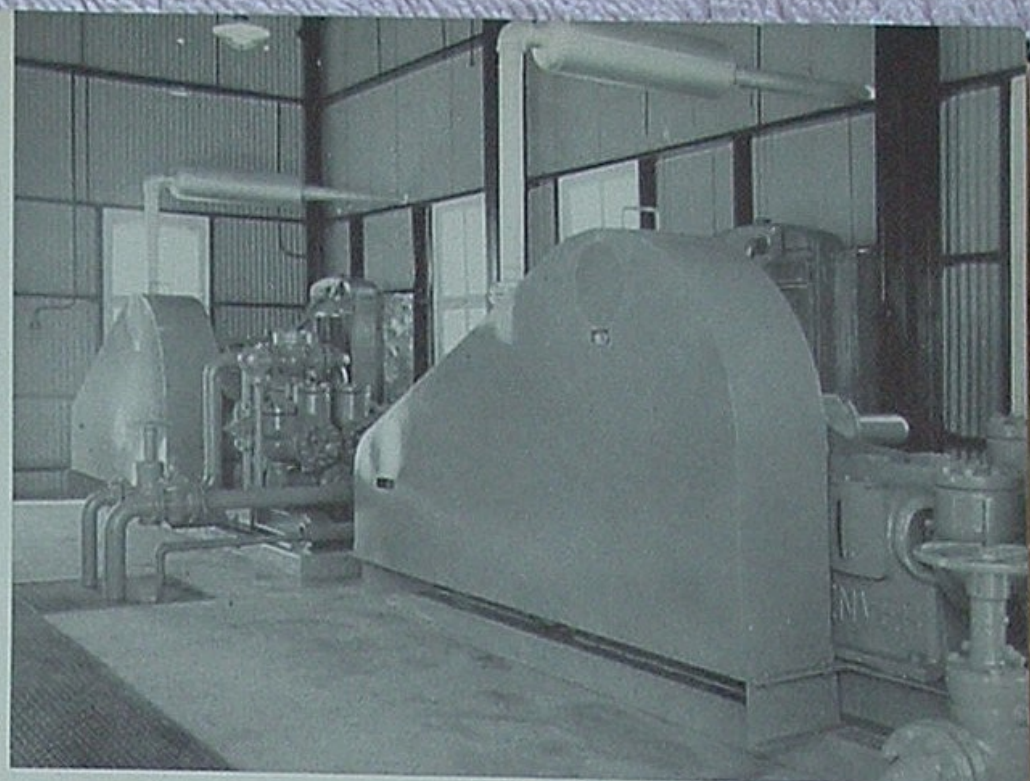


or the job is finished; and report its operations continuously to a distant office—all without benefit of manual control or human supervision.

The equipment that makes this unattended station possible begins with two fully automatic, locomotive-type boilers. At the press of a button, which eventually may be done from a distant controlling point, a valve is opened, admitting natural gas fuel into the boiler's fire box. An electric spark automatically sets the gas ablaze. Low-pressure steam generated by this heat flows through insulated pipes to a pair of heat exchangers. Here it imparts its heat to the incoming crude oil, is condensed to water again, and is automatically pumped back to the boilers for reheating. Mechanical devices control the flow of water to the boilers; add make-up water to compensate for any possible leakage; and regulate the steam pressure. Thermostats expertly handle the firing job, keeping the oil heated to 160 degrees F. or shutting the flame off entirely in the event of trouble.

Equally self-sufficient is Sunset's new pumping equipment. Two Waukesha gas engines drive two Gardner-Denver power pumps. Normally the engine speed is controlled by a mechanical governor. But if either the suction pressure or pumping pressure shows an alarming variation from normal, a second controller mechanism bypasses the governor and takes charge of the engine throttle. If line pressure reduces engine speed to a set minimum, this controller also breaks an ignition circuit, stopping the engine.

Finally, Sunset is equipped with dependable telemetering devices. Installed just above the outgoing pipe line are three instruments. One records the pressure at which oil is flowing through the discharge line. A second records the oil's temperature. A third indicates the amount being pumped. All three instruments are connected by telephone wire with our McKittrick Pump



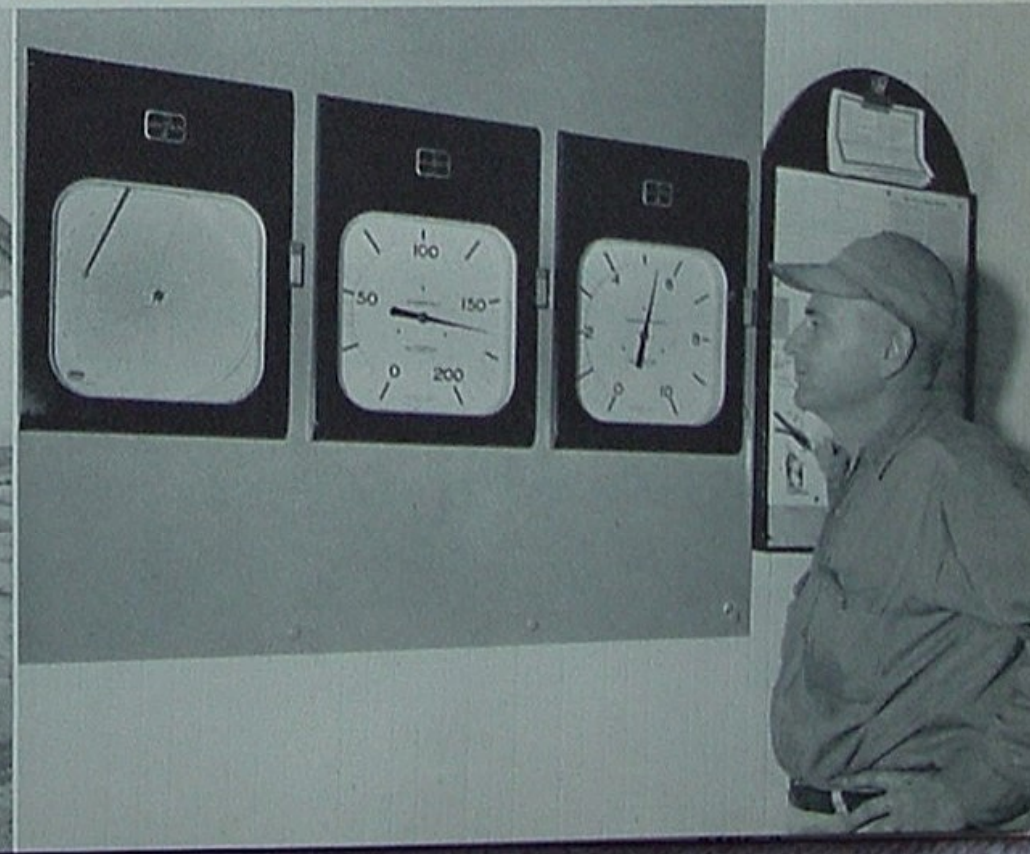
Engines and pumps at Sunset Station also operate unattended after being started. They have *sense* enough to shut down automatically when engine speed drops too low.

Station, 30 miles away. Here, on similar instruments, pressure and temperature are indicated and the flow-rate is recorded. Thus, the McKittrick engineer can keep his eye on two stations simultaneously. Any unaccounted for variation in temperature or pressure indicated by the instruments would require the services of a troubleshooter. But chances are he would arrive at the unattended plant to find everything safely shut down and a minimum of damage done.

To leave the impression that Sunset now stands aloof from all human assistance would be misleading. Actually, the district gauger comes each morning to look things over and place fresh charts on the recording instruments. Periodically maintenance men drop in to handle lubricating and housekeeping chores. Except for these occasions, the unmanned station gets along very well indeed, doing its work without mistakes, complaints or time out for lunch.

Temperature, pressure and flow-rate of outgoing oil are recorded or indicated by three instruments, on one of which Ray Monreal, district gauger, replaces a chart.

Thirty miles away at McKittrick, William Tomasini, senior engineer, keeps an eye on Sunset Station by examining tele-metered readings on this duplicate set of instruments.



Tax Status of Company Benefit Plans



D. L. SHEPHERD

By D. L. Shepherd
Manager Tax Division

The following summary, concerning both payments and receipts under the Union Oil benefit and insurance plans, is offered to assist employees in complying with the various tax laws, particularly their income tax obligations for 1950:

SICK PAY ALLOWANCE PLAN

Benefits received under this plan are considered by the government as payment for services rendered, hence must be reported by the employee as taxable income in both his Federal and State income tax returns. These benefits are also subject to Federal income tax withholding. However, by reason of specific statutory provisions, Sick Pay is excluded from wages taxable under the Federal Old Age and State Unemployment insurance laws.

EMPLOYEES' BENEFIT PLAN

Benefit payments made under the plan for medical, surgical and hospital expenses incurred by employees in non-industrial illnesses and accidents do not constitute taxable income to the employee. Such benefits should be omitted altogether from his Federal and State income tax returns. Further, these payments are not subject to tax under the Federal Old Age or State Unemployment insurance acts.

Contributions made by the employee to the Benefit Plan may be deducted, within the prescribed limits, as "medical and dental expenses" for Federal and State of California income tax purposes.

DISABILITY BENEFIT INSURANCE PLAN

Disability benefits received under this plan qualify as "amounts received through accident or health insurance"

within the meaning of Section 22 (b) (5) of the Internal Revenue Code and are therefore wholly exempt from Federal income tax. Such benefits are also exempt from State income tax, and are not taxable under the Federal Old Age and State Unemployment insurance laws.

Insurance payments of employees under this plan constitute personal expenses and are not allowable as deductions on their Federal or State personal income tax returns.

GROUP LIFE AND TOTAL DISABILITY INSURANCE PLAN

All benefits received thereunder, by either the employee or his beneficiaries, are specifically exempt from being taxed for either Federal or State income tax purposes. Likewise, such benefits are wholly exempt from taxation under Federal Old Age and State Unemployment insurance laws.

Premiums paid by the employee under this plan constitute personal expenses and are therefore not to be classed as allowable deductions on income tax returns.

TERMINATION ALLOWANCES

Termination allowances paid by the Company constitute taxable income to employees and must be reported in their Federal and State returns. Further, such allowances are subject to Federal income tax withholding. Termination allowances also constitute taxable wages under the Federal and State social security tax laws, except that, for the purpose of Federal Old Age and Survivors Insurance, if any portion of an allowance paid by the Company is credited to services performed by the employee in any calendar year prior to January 1, 1937, (effective date of the law) such portion is exempt.

EMPLOYEES' RETIREMENT PLAN

In general, annuities (payments) received under this plan constitute taxable income for both Federal and State income tax purposes; however, the employee is entitled to recover tax-free the amount of his contributions. The employee does this by reporting only that portion of his annual Retirement Plan income which is equivalent to 3 per cent of his total contributions and applying the excess as amortization of his capital investment (his contributions) until such capital is completely recovered. Thereafter the entire retirement income constitutes taxable income.

For Example

Assuming you retired at the end of 1950, having contributed to the Plan, since its inception in 1939, a total of \$2000, and are entitled to benefits of \$65 a month or \$780 a year—your tax reporting would be as follows:

Year	Amount you receive	Amount you report as taxable income	Difference (Amount you do not report as taxable income)	Total capital recovered
1951	\$780	\$ 60 (3% of \$2000)	\$720	\$ 720
1952	780	60 (3% of \$2000)	720	1440
1953	780	220 (\$780-\$560)	560	2000
*1954	780	780	0	

*And each year thereafter

An employee's contributions to the plan are not deductible in his Federal or State income tax returns.

Incidentally, Federal Old Age retirement income is wholly exempt from taxation.

COMPANY PENSION AUGMENTATIONS

Direct pension payments made to an employee by the Company constitute remuneration for past services and must be reported in his Federal and State income tax returns. They are also subject to income tax withholding, but are exempt from all Federal and State social security taxes.

MILITARY ALLOWANCE PAYMENTS

Lump-sum payments made to employees under the Company's present Revised Military Leave Policy are subject to Federal income tax withholding where the amounts paid are in excess of the allowable deductions. Such payments are also subject to Federal Old Age and State Unemployment insurance taxation.

CALIFORNIA VOLUNTARY UNEMPLOYMENT COMPENSATION DISABILITY PLAN

Benefits received under this plan are specifically exempt from all income and social security taxes.

Contributions thereunder represent personal expenses, and may not be claimed as reductions of gross income on the employee's Federal and State income tax returns.

WORKMEN'S COMPENSATION

Amounts received by an employee as compensation for physical injuries under workmen's compensation acts are not taxed under any of the income or social security tax statutes, Federal or State.

To Summarize

1. In preparing your Federal and State income tax returns, you must report benefits from the following Company plans as taxable income:

SICK PAY ALLOWANCE PLAN
COMPANY PENSION AUGMENTATIONS
MILITARY ALLOWANCE PAYMENTS
TERMINATION ALLOWANCES
*EMPLOYEES' RETIREMENT PLAN

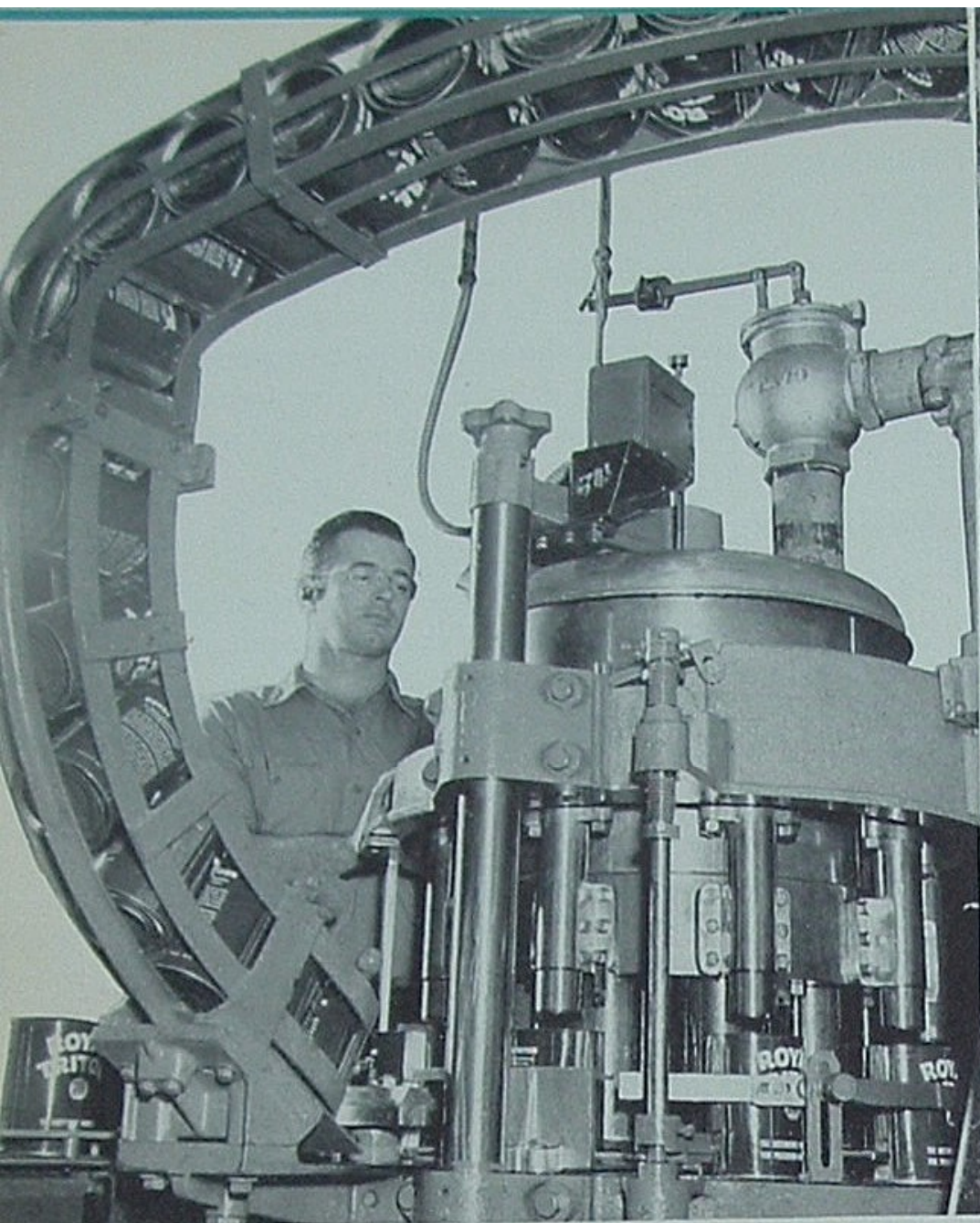
*As explained in preceding example.

2. Benefits that are not taxable under Federal and State income tax laws include those received from the following Company plans:

EMPLOYEES' BENEFIT PLAN
DISABILITY BENEFIT INSURANCE PLAN
GROUP LIFE AND TOTAL DISABILITY PLAN
CALIFORNIA VOLUNTARY UNEMPLOYMENT COMPENSATION DISABILITY PLAN
WORKMEN'S COMPENSATION

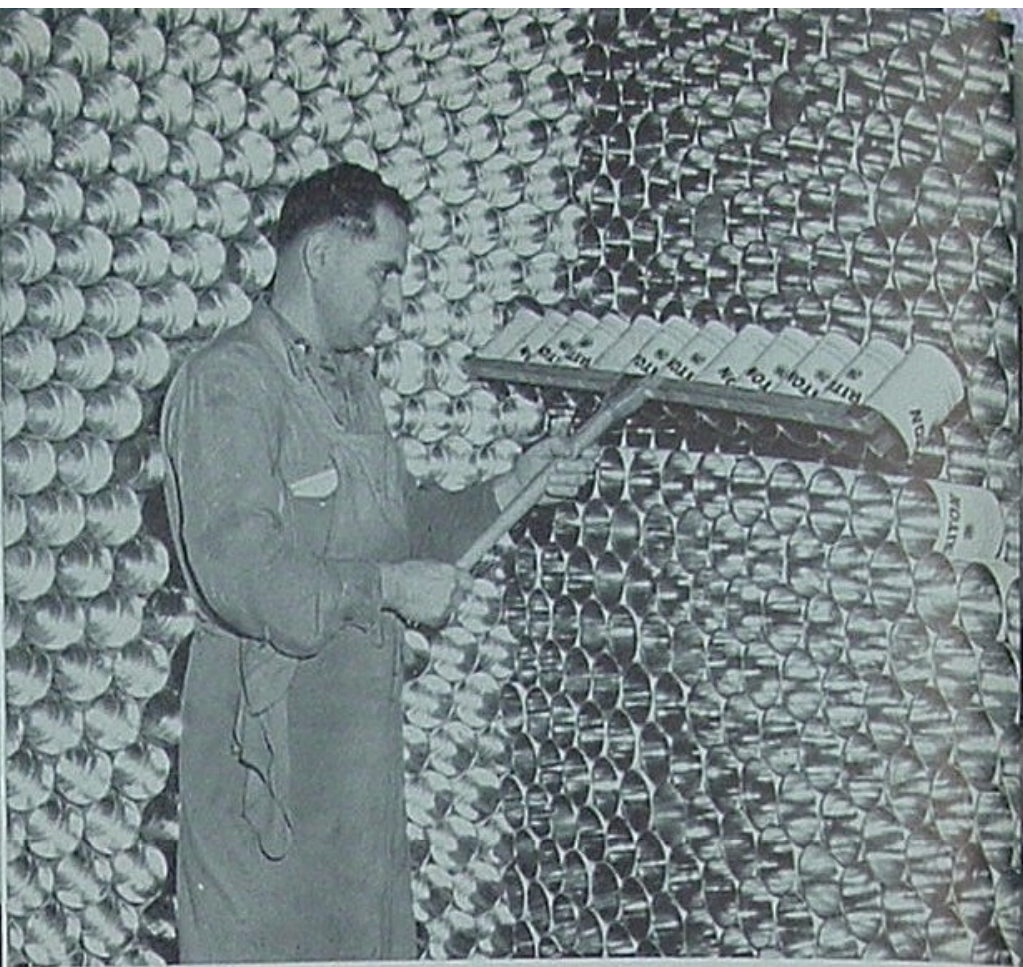
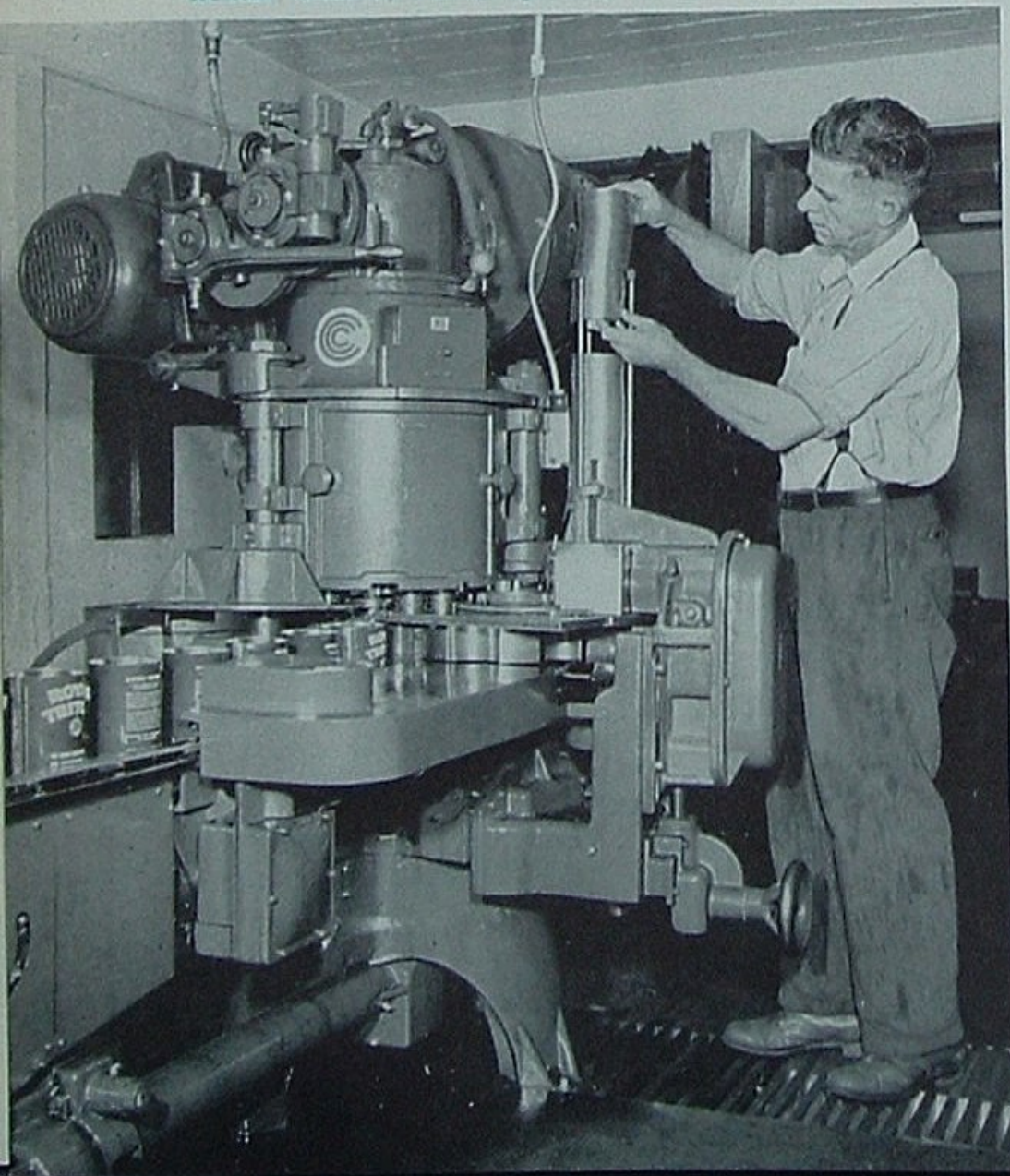
3. Under Federal and State income tax laws, employee contributions to the EMPLOYEES' BENEFIT PLAN may be counted as "medical and dental expenses" within the prescribed limits for such deductions listed in the tax forms. Employee contributions to other Company plans may not be counted as deductions.

4. Under Federal Old Age and State Unemployment insurance laws, TERMINATION ALLOWANCES and MILITARY ALLOWANCE PAYMENTS are taxable. Benefits from all other Company plans are not taxable.



Joseph Rose, at the helm of Oleum's new filler, is turning out Royal Triton at rate of 200 quart cans a minute.

Victor Wennerholm drops a stack of lids into the Continental seamer, which speedily finishes the capping job.



The forked stick was no success in oil exploration, but Manuel Arriaga finds it ideal for lifting 12 cans at once.

200 A Minute At Oleum Refinery

It's a fairly safe bet that you can't count as fast as Oleum can *can*. Try it just for fun anyhow, fully pronouncing each number. If you reach 200 in one minute, you'll about equal the speed at which quart cans of oil are streaming off the refinery's new packaging line.

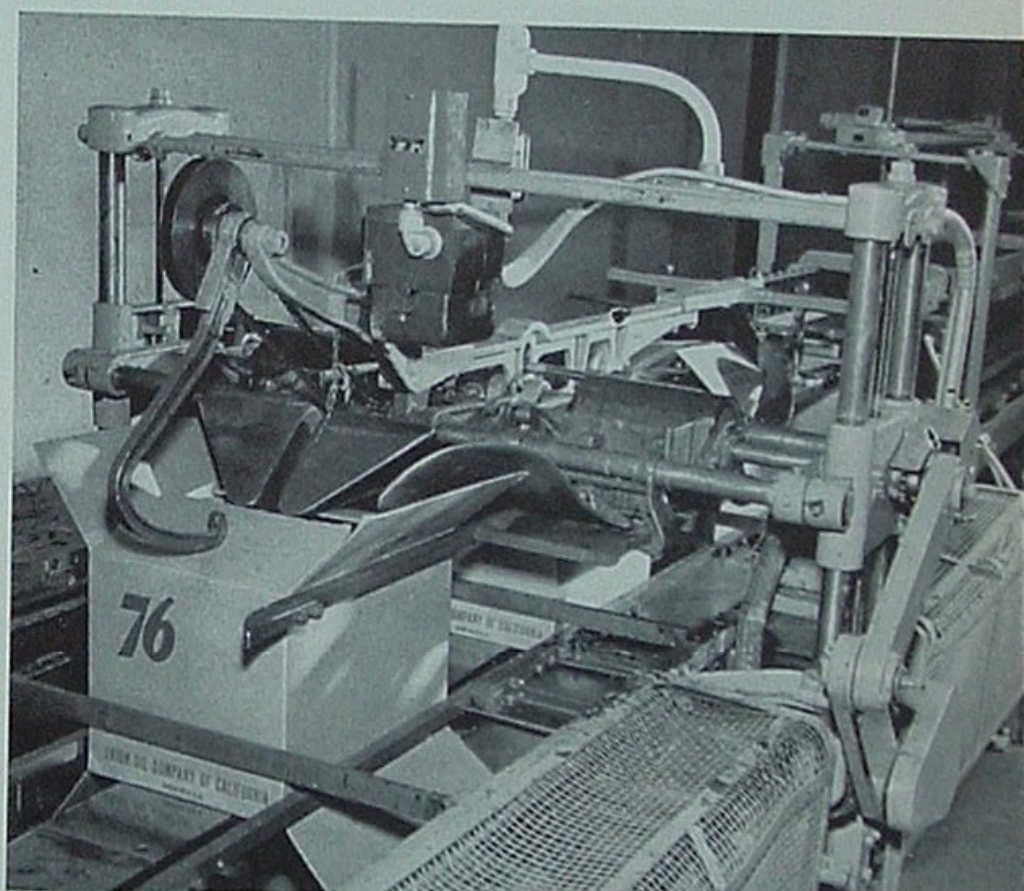
Empty cans travel by conveyor from storage bins or directly from boxcars. In the filling machine several cans at a time receive precisely measured quarts of Triton or Royal Triton. A Continental seamer rapidly seals lids in place, seldom making a mistake. A casing machine arranges sealed cans in neat rows and, at the pull of a lever, disgorges exactly 24 into a waiting carton. Top and bottom flaps of the full carton are glued simultaneously by an unattended gluing machine. Rollers press the flaps in place. A printing machine automatically stamps brand, date and viscosity number on both ends of each carton. Roller conveyors move the packages from machine to machine and into a warehouse where, 50 at a time, the cartons are stacked by lift-truck into neat rows awaiting shipment.

Similar canning facilities operating at Sixth & Mateo, Los Angeles, and at Willbridge Terminal, Portland, more than double this output and suggest how many times each minute customers are saying, "If it needs oil, I'll take Triton."



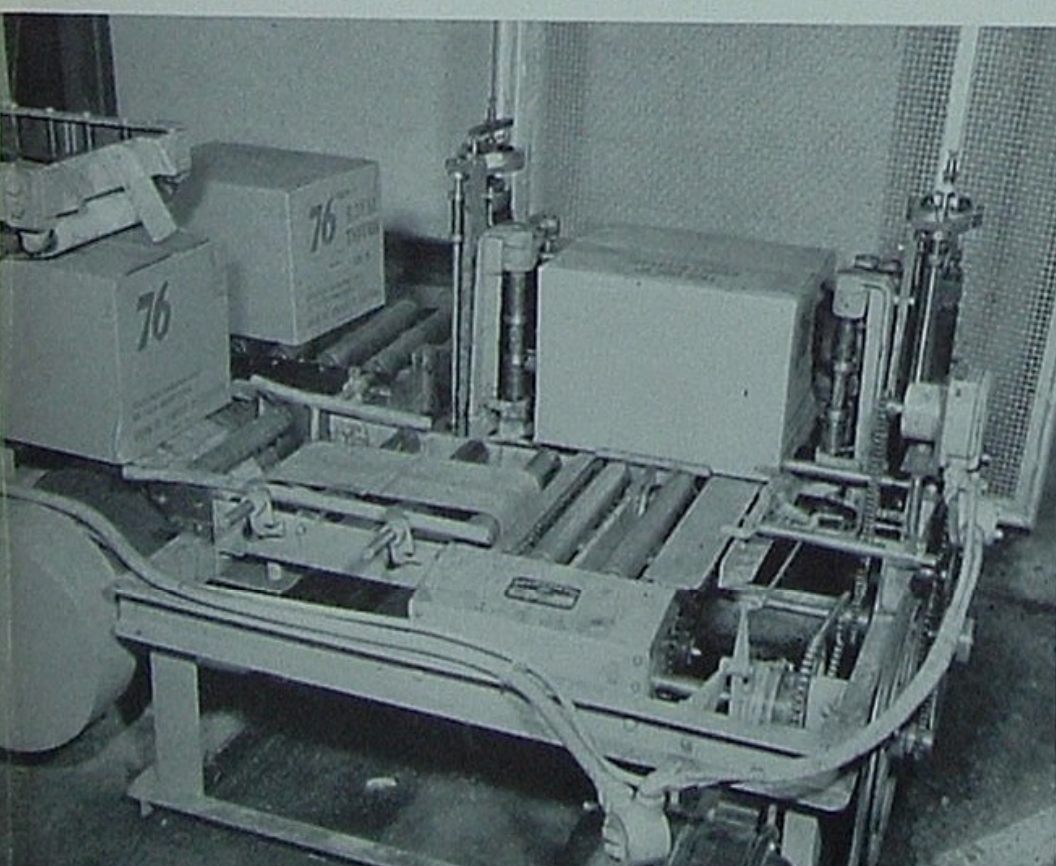
Left, Arriaga also takes an occasional turn at the casing machine, where cartons receive cans of oil 24 at a time at pull of lever.

Right, mechanical hands open, glue and seal top and bottom flaps of a carton simultaneously—wholly unaided.



Below, the identifying "Royal Triton—SAE 30" and a date code are automatically printed on package ends.

Below right, 2600 pounds of freshly packaged Triton is warehoused by Roy Carson in one lift of a Pul-Pac truck.





Above, Ray Howard, one of 271 Los Angeles Refinery men to donate blood December 5, receives orange juice bracer.



Red Cross workers help Jerry Keillar with his "deposit slip" just in case he ever has need for a "withdrawal."

Being tested to see that he and his refined product are up to "specs" is G. B. McBride, maintenance supervisor.



To **GI Joe**

From
**Los Angeles
Refinery**

THE spirit of Christmas nowhere beamed more brightly than at Los Angeles Refinery when, on December 5, 271 pints of blood were donated to the American Red Cross by Union Oilers from the Manufacturing and Research Departments.

These invaluable gifts represented a participation of approximately 30 per cent on the part of employees working at Wilmington. Furthermore, the *shopping* and *gift wrapping* were accomplished on the job and at a plant that is producing at peak capacity to meet the petroleum requirements of both military and civilian activities. The 271 pints of blood donated December 5 far exceeds the 162 pints donated by the same group in July of 1947, when they established a new record for the Bloodmobile Program.

Due to the urgent need for whole blood in Korea at present, every American citizen should follow this fine example of giving. Red Cross blood banks and donation centers exist in nearly every community. Besides possibly saving the life of some American or United Nations soldier on the field of battle, your gift will be credited to you personally and can be redeemed if and when you need it.

This is one of those rare occasions when oil workers are encouraged in and praised for lying down on the job.





The donors practice what the proverb teaches, namely, "Keep your eyes upon the donut and not upon the hole."

Above, right, the transportation end of this humanitarian enterprise is handled by refrigerated Bloodmobile.

If quality counts for anything, we can safely conclude that GI Joe will respond better to the "house" brand.



SERVICE BIRTHDAY AWARDS

JANUARY, 1951

Thirty-Five Years

LaGraffe, Floyd, So. Div. Field.
Stockert, William, H. O. Purch.

Thirty Years

Gard, Clare D., Nat. Gas & Gaso. Dept.
Gibson, Clinton R., So. Div. Field
Hill, James E., H. O. Emp. Rel.
Lee, Will T., Southwest Territory
McKinstry, Paul R., Oleum Refinery Mfg.
Swearingen, Ivan R., L. A. Refinery Mfg.

Twenty-Five Years

Bennett, Wm. Hy., Oleum Refinery Mfg.

Chaplin, Oscar, No. Div. Pipeline
Glimpse, John J., So. Div. Field
Kerwood, Elroy T., Coast Div. Field
Lynch, Joseph P., Valley Div. Field

Twenty Years

Gray, Mary C., Northwest Territory
Green, Lela T., H. O. Comptroller's
Hayman, Arthur, Northwest Territory
Neumann, Theresa B., H. O. Compt.
Planalp, Lowell C., Southwest Territory
Hastings, Jas. W., H. O. Mfg. Plt. Proc.

Fifteen Years

Brosnan, Rose R., Central Territory

Chatel, George, Marine-Wilmington
McCloy, James I., Southwest Territory
Mayo, Eugene, Central Div. Auto
McDonald, John S., H. O. Comptroller's
Rampton, Ralph W., Valley Div. Field
Rodriguez, Joan B., Central America
Whittlesey, Lindsley, So. Div. Field

Ten Years

Brauer, Robert J., H. O. Purchasing
Dispenza, Salvatore N., Central Ter.
Porter, Mary Jane, Southwest Territory



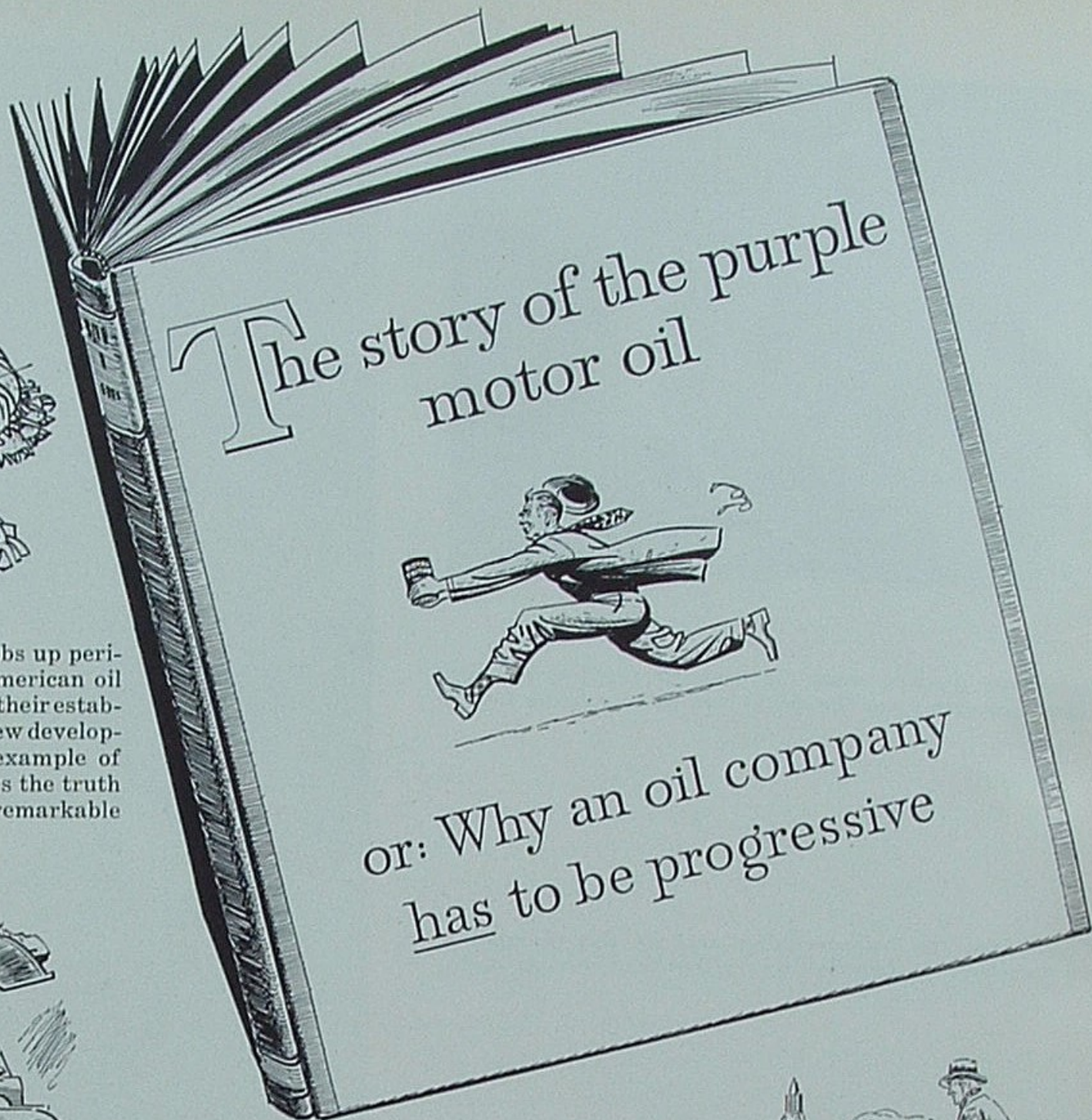
1. One old wives' tale that bobs up periodically is the story that American oil companies protect the sale of their established products by keeping new developments off the market. An example of how far this fairy tale misses the truth is the case of Union Oil's remarkable purple motor oil.



2. Shortly after the war, we introduced our new post-war motor oil, Triton. By all standards, Triton was unexcelled. In fact, it was so good we told people they could safely drive it 6 months between drains if they chose. Consequently, we thought our oil program was set for several years. But 12 months later our research engineers came up with a purple motor oil for passenger cars which they said was even better.



3. Just to prove their claims, they sealed it in the crankcases of four new automobiles and drove them continuously up and down the Pacific Coast for 30,000 miles! At the end of the test they opened up the motors and showed us the results: The engine parts were as good as new and the oil—by every analysis—showed no more deterioration than ordinary motor oils exhibit after 1,000 miles.



4. That posed a question. Should we hold this new purple oil off the market for a few years and protect Triton, or put it on sale immediately? The answer was that we had no choice. For we were in competition. If we didn't put this purple oil on the market as soon as possible, some of our competitors might develop a comparable product and beat us to the punch.



5. As a result we introduced our purple oil to the motorists of the Pacific Coast under the brand name of Royal Triton. Royal Triton was not only an overnight success with our own Western customers; visitors from the East even took it home with them and continued buying it by mail. Consequently, we've expanded our manufacturing facilities and are now marketing it throughout the country.

Moral: Next time anyone tells you oil companies hold improved products off the market, please tell him to see us.

UNION OIL COMPANY OF CALIFORNIA

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This series, sponsored by the people of Union Oil Company, is dedicated to a discussion of how and why American business functions. We hope you'll feel free to send in any suggestions or criticisms you have to offer. Write: The President, Union Oil Company, Union Oil Building, Los Angeles 17, Calif.