



“On Tour”
FEBRUARY 1951

On Tour



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DAMNATION

IF American industry manages to achieve the record production goals that have been imposed upon it by present world conditions, it will do so not because of but in spite of Government enforcements and restrictions.

Believe it or not, here are a few of the ways in which a businessman or producer may run afoul of our conflicting Government laws and policies:

Prices—If he and his competitors charge the same price for a given commodity, they may be sued for violating the antitrust laws. Or if he raises his price and his competitors do likewise, they may all be sued. Or if he lowers his price temporarily below that of his competitors, he may be sued for cut-throat competition. Or if he keeps his price so low as to discourage competitors from entering his field, he risks prosecution as a monopolist.

He may also get into legal hot water if he quotes a lower price to one customer than to another; or if he charges all customers the same price and offers them free delivery anywhere; or if he gives too big a discount for carload-lot sales.

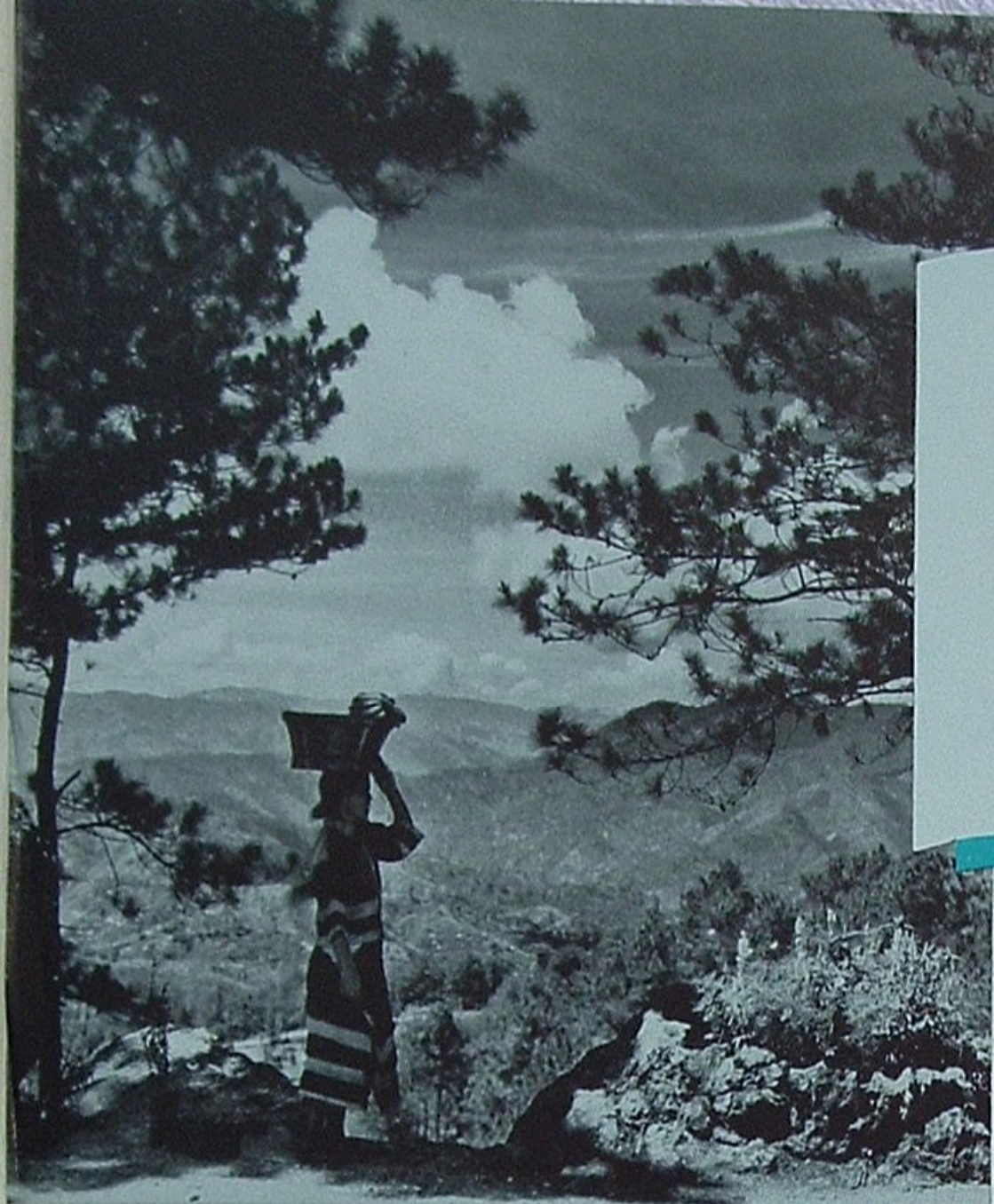
Bigness—It is apparently all right to be a million-dollar property owner, a million-dollar producer, a million-dollar distributor, or a million-dollar marketer; but if you are a million-dollar owner-producer-distributor-marketer, it can be all wrong.

Meanwhile, what is good for the goose is not necessarily good for the gander.

The Government established and is prolonging price-fixing and production controls for farming. Farmers are finding it necessary to engage in the very price-fixing and monopolistic practices that are so rigorously policed in other industries.

The Government is encouraging foreign businessmen to form monopolistic cartels; but any step in that direction by American businessmen is a violation of the law.

And bigness, apparently, both longitudinally and latitudinally, is a virtue if indulged in by Government itself.



More Power to the Philippines

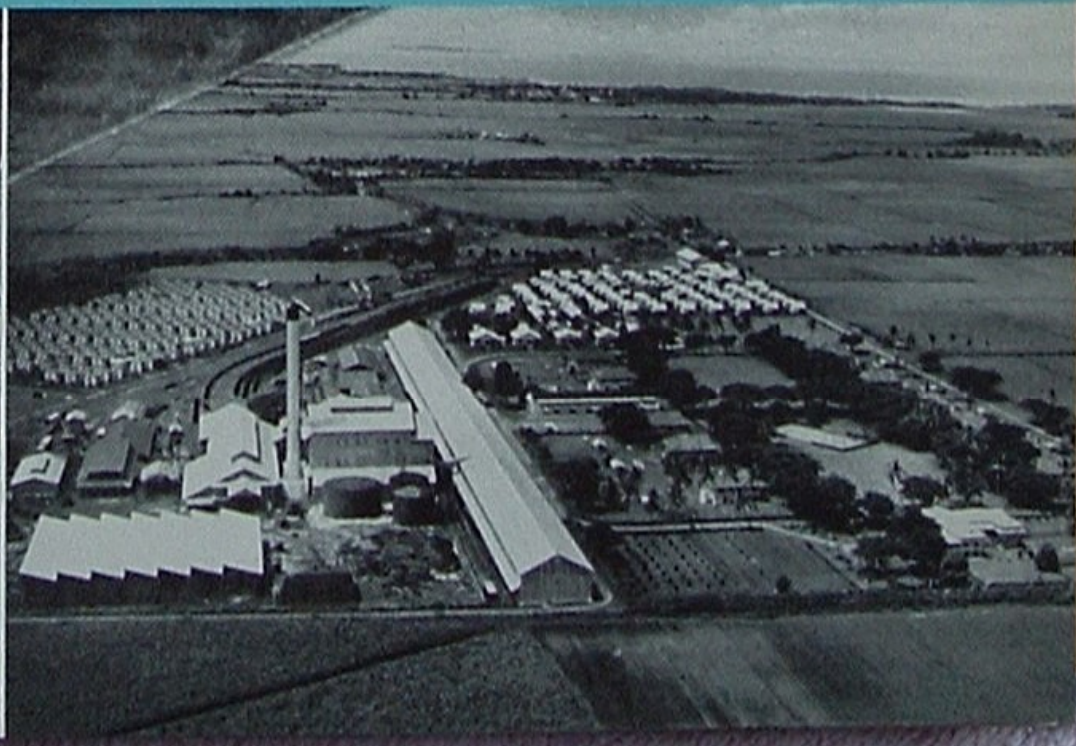
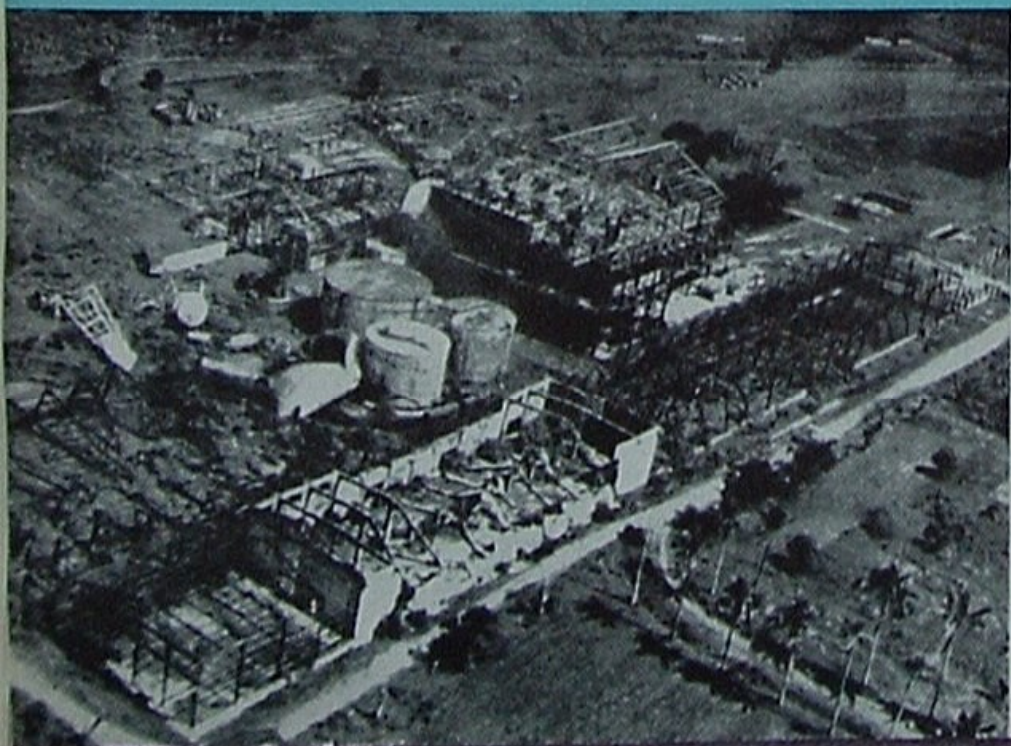
By E. L. Westley

FOUR CENTURIES of alien rule came to an end on July 4, 1946, when the Philippine Republic was established as a free and independent nation. Of paramount interest on this occasion was the fact that freedom had not been won by revolution or other forceful means. Rather, it was granted voluntarily by a ruling power, the United States, who asked no remuneration other than neighborly good will. Moreover, the departing Americans lent great assistance in rebuilding war-

devastated areas and otherwise helping the Philippine nation emerge as the first democratic republic to be established after World War II. It was an auspicious chapter in the history of both nations, one that the entire world can well afford to contemplate.

The Philippine archipelago consists of 7,083 islands located 600 miles off the coast of South China and Indo China, between the 5th and 19th parallels of north latitude. The 11 biggest islands have an area exceeding

The Hawaiian-Philippine Sugar Central at Silay on the island of Negros Occidental was found in the post-war condition at left. At right is the sugar mill as it appears today. Some 20 thousand acres of cane are under cultivation in this area.





The mouth of the Pasig River divides the city of Manila. Here many vessels load and discharge passengers and cargo.

1,000 square miles each, Luzon, with an area of 40,814 square miles, being the largest. It is on the west coast of this island that Manila, the capital city, is located, along with such other places of World War II notoriety as Bataan and Corregidor. Manila is connected to all parts of Luzon by road, rail and air services and to other islands of the archipelago by luxurious coastwise vessels as well as aircraft.

Other prominent cities of the Philippines include Baguio in north central Luzon, famous for its gold mines and stimulating coolness of around 60 degrees; Cebu, second most important city in the archipelago and a foremost port for handling ocean-going vessels; Iloilo, port and trading center for the islands of Panay and Negros, from where large quantities of sugar and copra are shipped; Bacolod, wealthy sugar capital on the island of Negros Occidental; Zamboanga (take note, Los Angeles), whose 1,059 square miles of area probably makes it the world's largest city; Davao, now center of the hemp industry; San Pablo, from where coconut oil and copra are shipped to all parts of the world; and Tagaytay, a resort city of great natural beauty.

Filipinos are known to have carried on commercial relations with other parts of the Orient as early as the 13th century. But the date of their official introduction to Europeans was in March of 1521, when Fernando Magellan, Portuguese navigator in the service of Spain, came to their shores during history's first recorded cir-



cumnavigation of the earth. Twenty-one years later, a Spanish exploration party returned to possess the islands for Spain, naming them in honor of Prince Philip.

Three-hundred-fifty years of Spanish rule were concluded by the Spanish-American War, when, in 1898, Admiral Dewey led the American fleet to a great naval victory in Manila Bay. Through the resulting Treaty of Paris, the Philippines were ceded to the United States.

From the beginning of its guardianship, America manifested a desire to grant the island peoples self-government. A military garrison was maintained principally to restrain some of the hostile Moro tribesmen and permit democratic customs to prosper in an atmosphere of comparative peace. Judicious care was shown in the appointment of governor-generals and other governing officials. By 1916, provision was made for a Philippine legislature, composed of elected senators and representatives after the American pattern. The Tydings-McDuffie Act of 1934 provided for complete independence in 1946. In 1935, the people approved a constitution, and the Commonwealth of the Philippines was inaugurated that same year under President Manuel Quezon y Molina. World War II began with an invasion of the islands by Japanese forces in December, 1941. But the return of American troops, led by General Douglas MacArthur,

in 1945 occurred in time enough not to delay the scheduled independence date of July 4, 1946. Manuel A. Roxas was elected the first president. One of the few remaining ties with the United States is the Philippine Trade Act of 1946, under which the two republics enjoy reciprocal trade advantages until 1974.

THE PEOPLE

According to latest estimates of the Bureau of Statistics, the population of the Philippines is over 19 million people, consisting of Filipinos of Malay extraction, Moros, Mohammedans, and a few pagans. Foreign population of the country consists mostly of Chinese, Europeans and Americans.

Filipinos are among the most advanced inhabitants of the Far East. They are predominantly Christian due to Catholic proselyting during the long Spanish regime and the work of other missionaries during more recent times. Educational institutions numbered 12,057 public schools and 439 private schools in 1940. Of the more than 8 million persons then engaged in gainful occupations, nearly half were listed as literate. The Filipinos have proved themselves America's best friends in the Orient and unquestionably wish the bonds of amity to continue.



Typical of a way of life that has endured for centuries is this carabao method of plowing a rice field. . . .

And an Ilocano family of the mountain provinces living comfortably close to Nature. . . .



And time out while some of the boys bet their last week's wages on the legal sport of cock fighting. . . .

. . . . And Filipino ponies supplying sturdy transportation for tropical fruit and those who collect it.





"Lake within a lake" is the description given to Lake Taal, whose central volcanic crater holds a deep pool.



Most picturesque and amazing are Mount Mayon, active volcano, above, and the famous rice terraces of Ifugao.



EXPORTS

Basically an agricultural country, the Philippine Republic is a source of vital raw materials and is an attractive market for manufactured products. Its trade is an important factor in the American economy, as can be recognized by mentioning several major Philippine exports.

Prior to World War II, the islands exported more than a million tons of sugar annually. So seriously crippled by war was this industry that only recently have large scale exports been resumed.

Copra, the source of coconut oil and cattle feed, continues to be produced here in large quantities.

Manila rope is known the world over for its durability and strength. It is made from fibers of the *abaca* plant and was a leading export before the war. The rope industry was one of the first restored to pre-war importance.

Also hard hit by war was the lumber industry. The reason for continued small exports during the recent past is that 80 per cent of the total lumber produced was allocated for local rebuilding. Shipments abroad will gradually increase.

Rich in such minerals as gold, iron, chromite, copper and manganese, the Philippines have nevertheless suffered a rather slow post-war rehabilitation of the mining industry. Mines suffered extreme neglect and damage during the invasion. Recently, increased costs of materials and labor have prevented many mines from reopening. However, production is slowly forging ahead.

Climate and soil of the islands, particularly the Cagayan Valley, are favorable for the growth of tobacco. Although much of this crop is used for the manufacture of cigarettes for local consumption, Philippine cigars are well known to connoisseurs throughout the world.

Some 1,800 varieties of edible fish are caught in waters of the archipelago, making the fishing industry second in importance only to farming as a means of supplying the basic Filipino diet.

As elsewhere in the Orient, rice is the staff of life. But the Philippines do not grow enough to satisfy local needs. Incidentally in this connection, at Ifugao can be seen a sight often called one of the world's seven wonders—mountains terraced from top to bottom with rice paddies, some of which date back many centuries into antiquity.

Pineapple, formerly one of the 10 leading exports, is expected to regain its pre-war status.

OIL IMPORTS

The foregoing is about the briefest description one can make of a nearly inexhaustible subject. But rather than dwell further upon *power* as it is sometimes associated with a country's government and natural resources, we

should do better perhaps to describe the manner in which Union Oil Company's brand of *power* is reaching and aiding the new Philippine Republic.

Theo. H. Davies & Company, Far East, Ltd., is a majority-owned subsidiary of Theo. H. Davies & Company, Ltd., of Honolulu, San Francisco and New York. The Far East division is a Philippine corporation with a wide range of operations, including manufacturing, machinery and engineering, merchandising and insurance. Since the war, this company has taken a leading part in refinancing and rehabilitating the Philippine sugar industry, and is responsible, as managing agent, for the operation of four sugar factories, all now in production.

The Firm also is interested in the Hume Pipe & Asbestos Company, manufacturing concrete pipe and asbestos-cement roofing and sheeting in the Philippines. Our other interests include the Earnshaws Docks & Honolulu Iron Works and the Edward J. Nell Company, two of Manila's leading engineering and machinery sales companies.

Since modern industry and machinery are nearly synonymous with petroleum, it was to the Firm's advantage to increase their trading departments by adding an Oil Department on July 1, 1948. Our Far East company chose to market Union Oil products in the Philippines and became successors to the former distributor, Elzalde & Company. Placed as manager of the Oil Department was Mr. E. L. Westly, while an able staff of lube-oil salesmen was selected to serve under supervision of Mr. C. J. Leedam.

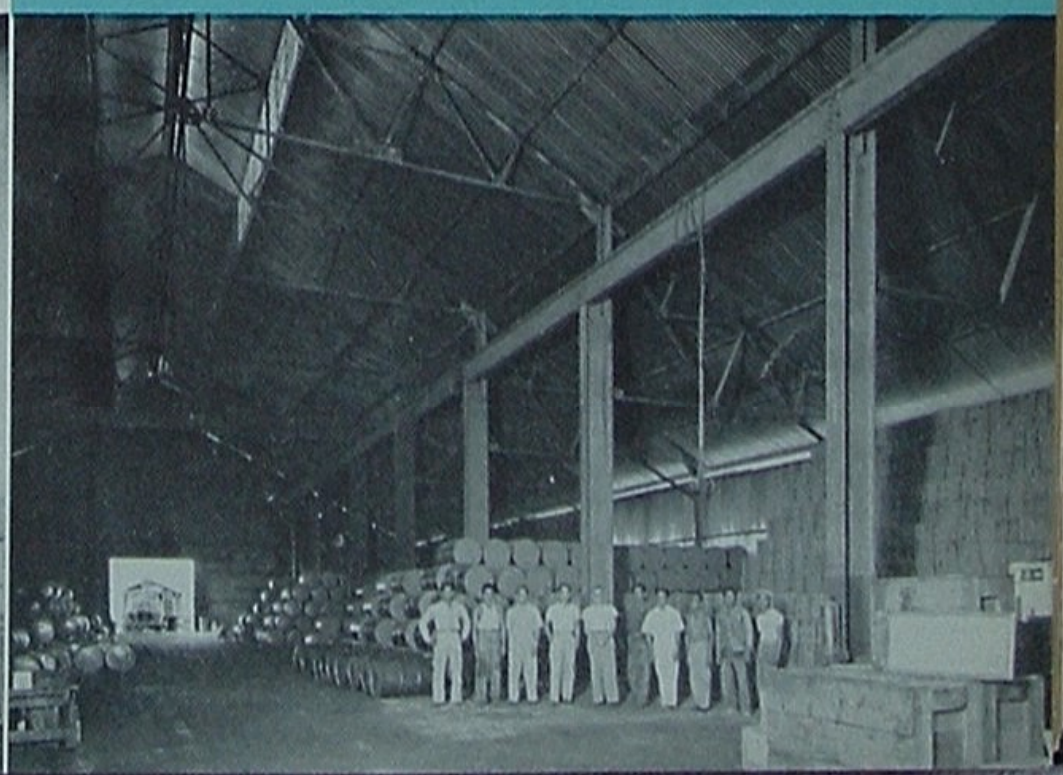
With offices in the Ayala Building of Manila and a Union Oil *bodega* (warehouse) situated on the banks of the Pasig River, 1½ miles from the city, we are attempting to balance Philippine exports with the largest possible quantity of "76" labeled imports.

You Union Oil people should be pleased to learn that your excellent products are serving a worthy purpose and meeting with excellent acceptance. And that is as it should be the world over.



A temporary Bailey bridge leads to Theo. H. Davies & Co., Far East, Ltd., Ayala Building offices in Manila.

From a bodega (warehouse) on the Pasig River, 1½ miles from Manila, imports of Union Oil products are helping "to balance Philippine exports," are furnishing power and lubrication for reviving industry, and are "meeting with excellent acceptance" by the islanders.

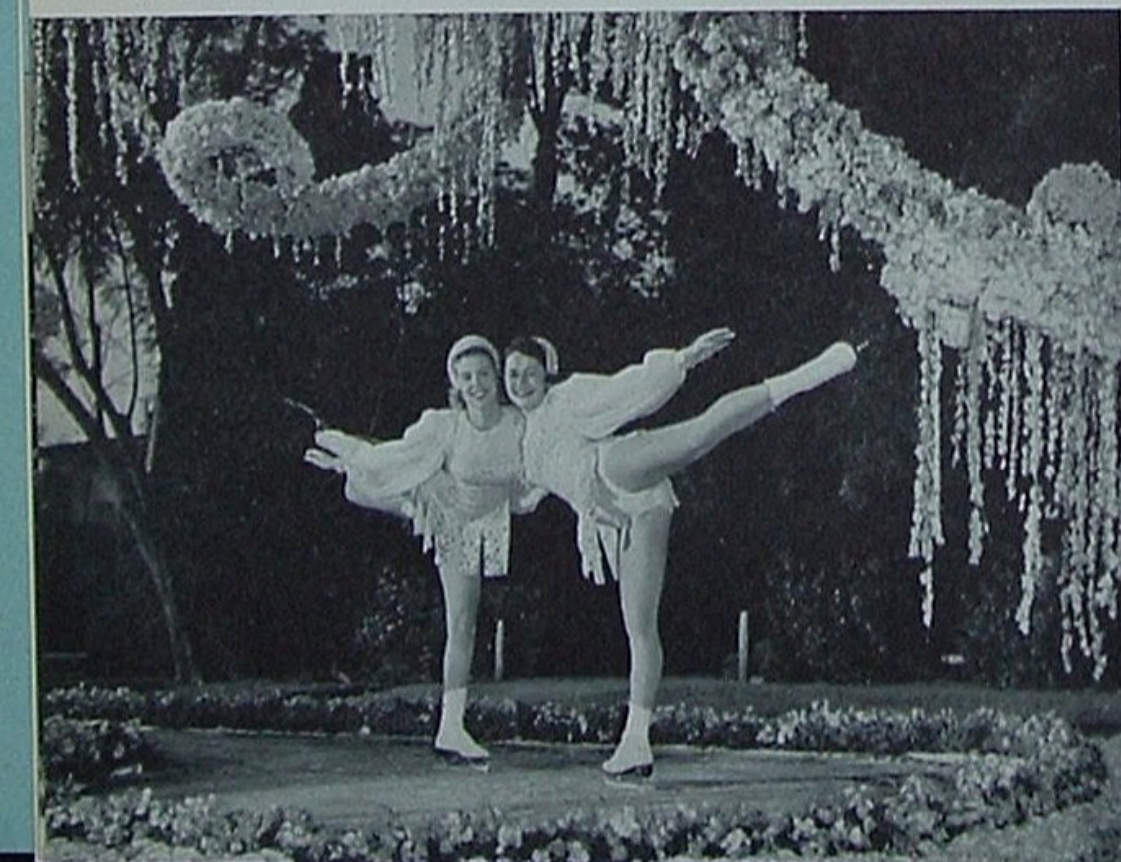




Above, 24 hours before parade time found the Grand Prize winner being groomed near Alhambra. Early next morning, below, crew and entertainers wait off stage for their cue.



Contributing the human variety of beauty and artistry to the loveliest of settings were Helen Legge, Mickey Belleisle and Barbara Jones, skaters of national fame.

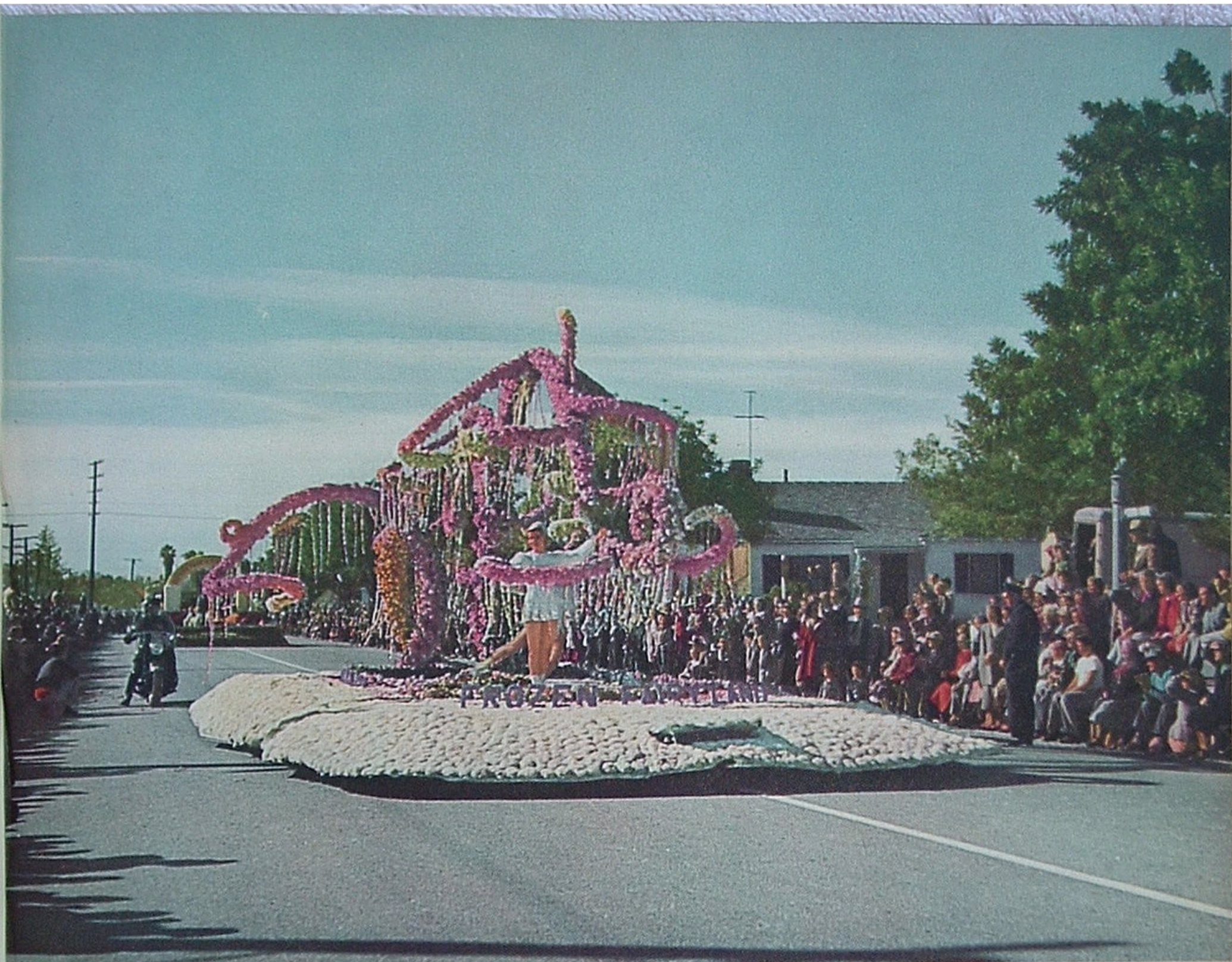


ATTRACTING a wave of enthusiastic applause as it glided down Pasadena's Colorado Street promenade on New Year's Day, Union Oil Company's "Frozen Fairyland" won the vote of judges and spectators alike as Grand Prize entry in the 1951 Tournament of Roses. This is the highest honor accorded each year to a commercial float.

Quite as novel as it was beautiful, this year's prize winner depicted 500 square feet of skating pond set in a fresh snowfall of white chrysanthemums. Real ice covered the pond and a trio of champion skaters performed brilliantly for an audience numbered in millions. Outlining the skating pond and providing a coat of colorful frost on the fairyland trees were 400 dozen orchids and 800 dozen bunches of sweetpeas.

The float upheld a fond Company tradition by establishing a number of *firsts*. It was the lowest ever entered in a Rose Parade, clearing the ground by 6 inches, confining all of its power and freezing system to a 14-inch-high space, and providing a skating surface only 20 inches above the pavement. It was the first to use ice. It was the first in which the unseen driver hero, while lying flat on his stomach, had to steer the 12-ton vehicle along a 5-mile route, meanwhile controlling 3 gasoline engines and an electric motor.

Credit for solving the manifold engineering problems goes to the Valley Decorating Company of Fresno and McCaron Brothers of Baldwin Park. They accomplished most of the feats that hadn't been done before. Their ice rink was achieved by driving a blast of air over dry ice and then over brine coils. The brine kept a 4-inch-thick sheet of ice in skating condition for hours, despite hard usage given it by the skaters. At the end of the parade, 3 inches of solid ice remained under a coating of "dust" cut by the steel-shod trio.

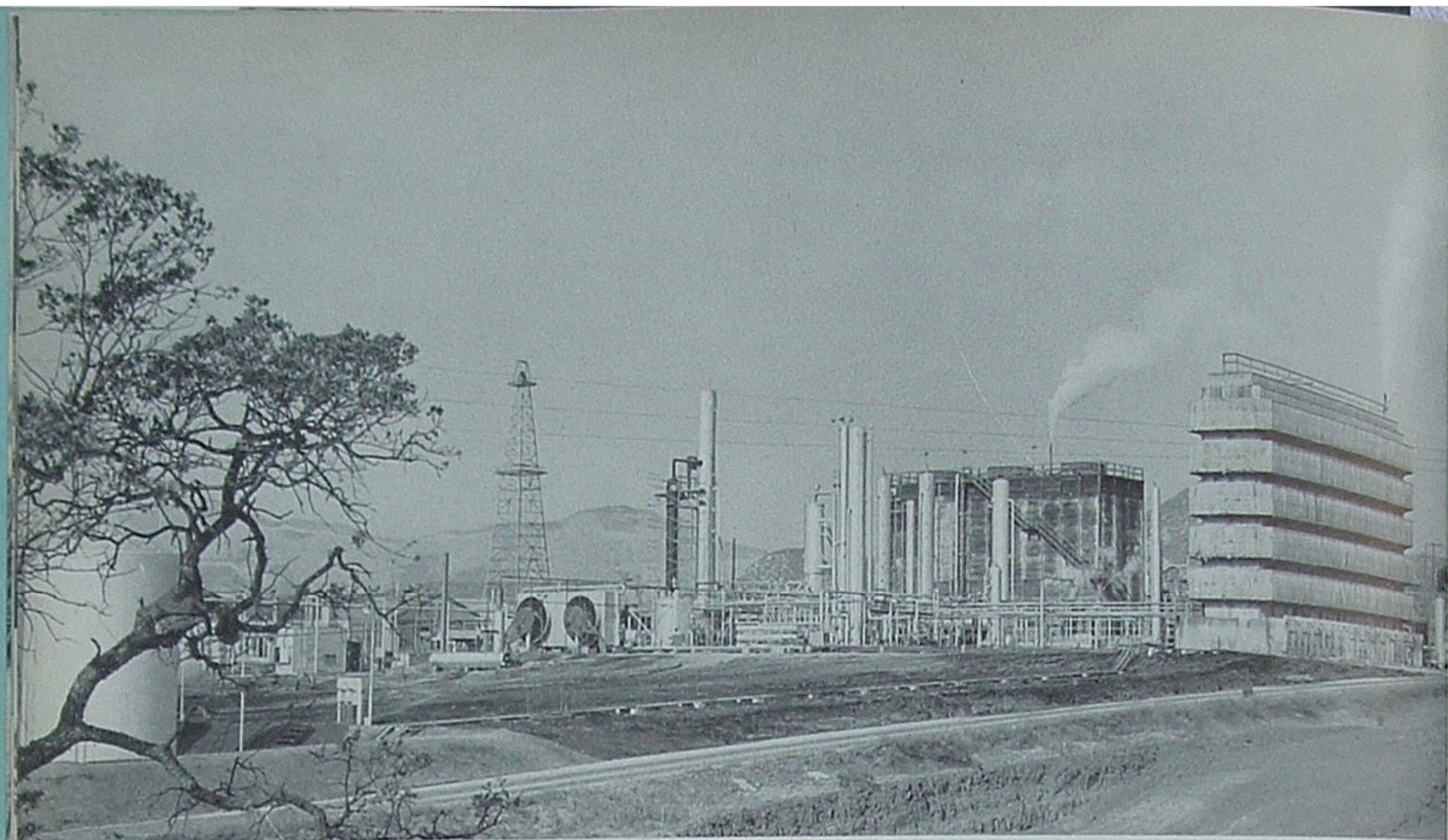


Toast of the Rose Parade

Turning off Orange Grove Avenue into Colorado Street, the breath-taking exhibit started a 5-mile wave of applause.

Even next day in Pasadena's Victory Park the float and skaters pleased thousands with their encore performance.





Havenstrite Properties Acquired

COMPANY MANAGEMENT has announced our purchase of the Del Valle Gasoline Plant at Castaic from R. E. Havenstrite and his associates.

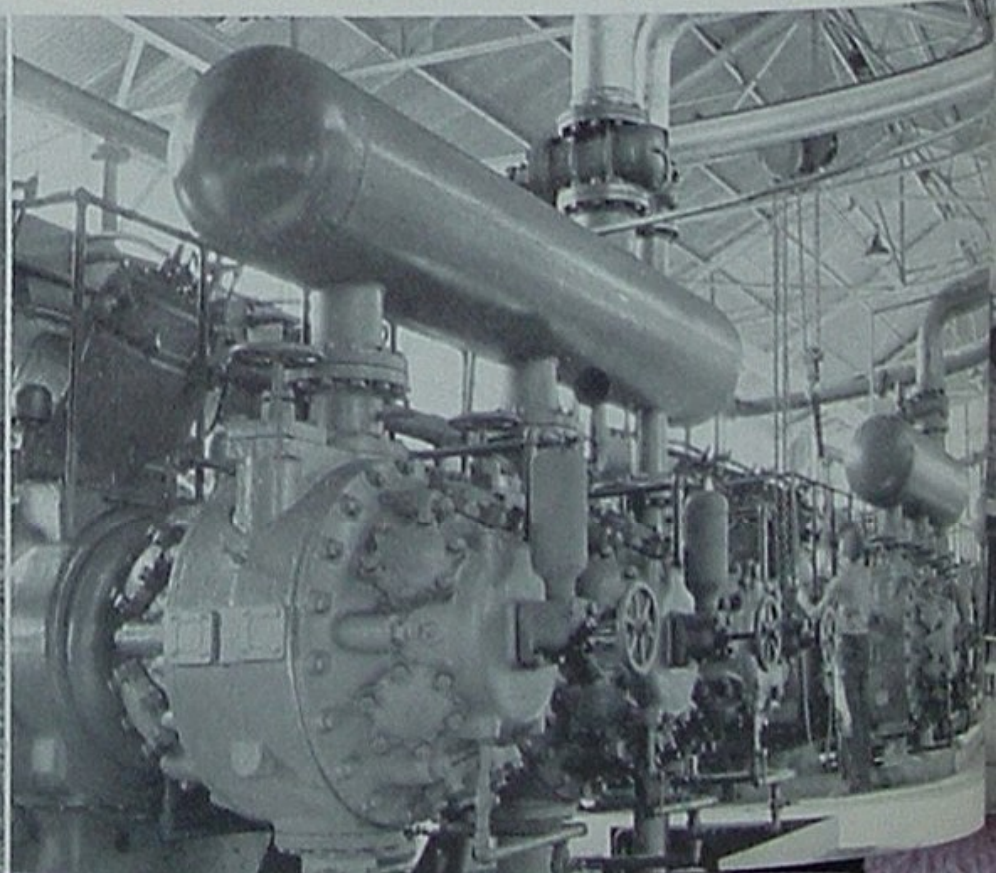
At the same time, Nassau Associates, Incorporated, a subsidiary of Dillon Read of New York, purchased the Havenstrite leases in the Del Valle Oil Field, contracting with Union Oil Company to operate the field

and purchase its crude oil production. At present, some 23 wells, of which nearly half are flowing wells, are producing 2,000 barrels of crude oil per day. Total consideration of the two purchases was approximately \$12,000,000, of which Union Oil paid about \$3,000,000 for the gasoline plant.

Other oil properties of the Havenstrite Oil Company

High gravity crude is produced in this mountainous area between Castaic and Santa Paula. Wet gas from several

fields is boosted to compressors, below, of the Company's newly acquired absorption plant, whence it flows under



not involved in this purchase are located at Long Beach, in Kern County, in the South Mountain Oil Field of Ventura County, and in Oklahoma, Colorado and Texas.

First constructed in 1940 and enlarged in 1945, the Del Valle Gasoline Plant consists of conventional type compressor and absorption equipment. Wet gas received from surrounding fields is subjected to a treating pressure of 375 psig (pounds per square inch gauge), and from it is absorbed such liquid fractions as natural gasoline and propane.

This absorption plant has a gas treating capacity of 23 million cubic feet per day. At present, it is yielding approximately 30,000 gallons of natural gasoline and 15,000 gallons of commercial propane daily. The dry residue gas is being sold to the Southern California Gas Company.

Included in the Company's purchase is a field booster compressor plant of 1,100 horsepower, used for boosting field gas to the main plant. It is located on a mountainside about six miles distant from the treating facilities. The later will be known henceforward as the Union Oil-Del Valle Absorption Plant.

Most of the natural gasoline produced will be available to the Company by April 1st of this year. Oil from the Nassau wells ranges in gravity from 32 to 42 and, therefore, will be a valuable addition to our supply of light crude.

Aside from the desirable products and facilities obtained through this purchase, the Del Valle plant and field are favorably located. The property can be managed conveniently from our existing Field office in Santa

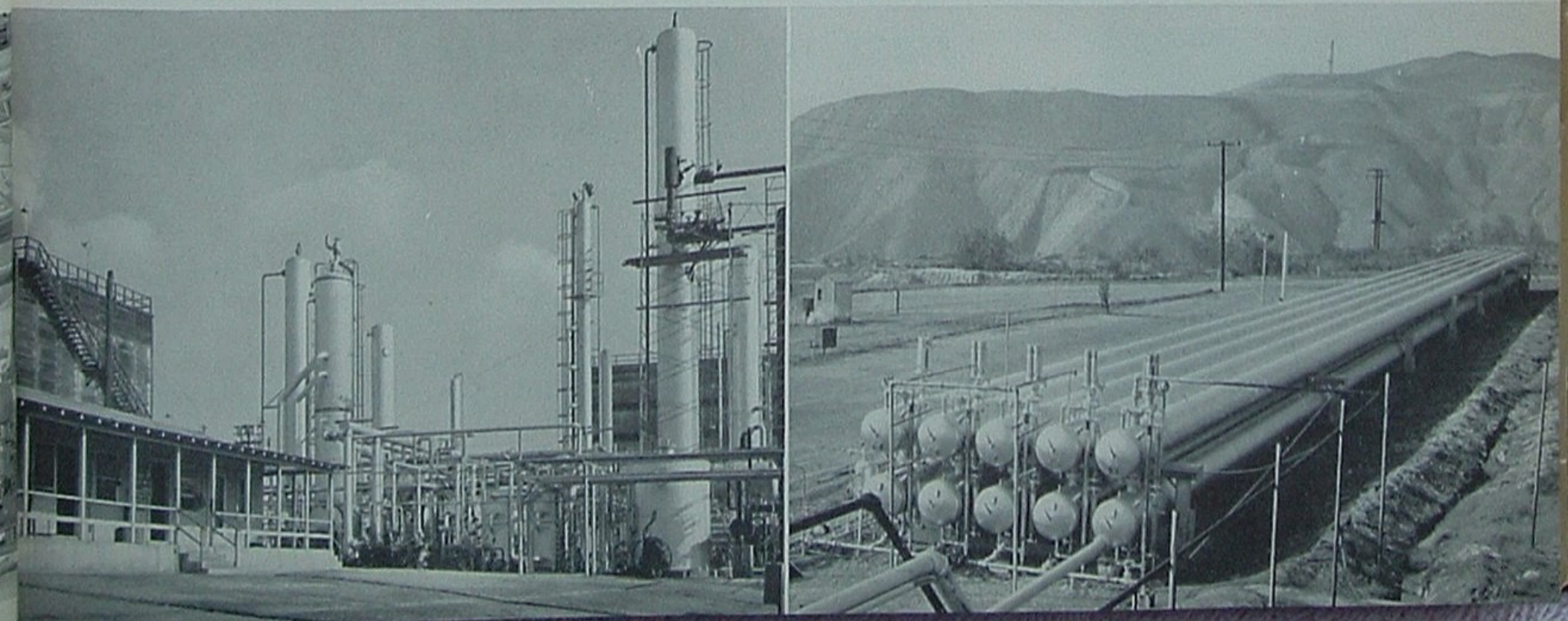


Gauging propane storage is J. R. Salvage, plant operator. Propane gas emerging from the vent hole indicates that the gauging tube has reached level of compressed liquid.

Paula. It is also within easy transportation reach of Los Angeles Refinery, a Santa Paula pipe line and the new marine terminal now under construction near Ventura.

pressure of 375 pounds through these absorption, fractionating and cooling installations. Most of the natural

gasoline produced will go to our refineries. Propane will be shipped from this novel storage to consumers.



HEADS SAN FRANCISCO CHAMBER OF COMMERCE



UNION Oiler Alan J. Lowrey, assistant to the president, was elected and has taken office as the 1951 president of the San Francisco Chamber of Commerce. The great honor and responsibility came to him after he had served during 1950 as a director of the Chamber.

In his speech of acceptance, Mr. Lowrey said: "One of our prime duties of the coming year will be to cooperate with national, state and city representatives on all matters pertaining to civilian defense and disaster relief.

"Our country is at war—one of the most insidious types of war, because it is a creeping thing and we do not yet call it by its true name. . . . It is still referred to as an emergency, the avoidance of world conflict. But let's face it, you and I—it's war. We're in it, we'll win it, but it's going to be a hard battle. . . . We must do our part toward one immediate goal—mobilizing the

industrial might of America."

Mr. Lowrey was born in Honolulu in 1890, received his early education at the Punahou School there, and in 1913 graduated from Harvard University.

His business experience began in the shipping department of Lewer & Cooke, Ltd., of Honolulu, in which department he became manager. In 1915 he was appointed representative for Henry Waterhouse Trust Company on the Honolulu Stock Exchange. Moving to the mainland in 1919 he worked for two investment concerns in New York; served Blair & Company of San Francisco as sales manager; the Crocker First National Bank as investment manager, vice president, and finally manager; and became a partner in E. F. Hutton & Company. His affiliation with Union Oil as assistant to the president dates from 1939.

As a lieutenant, senior grade, Mr. Lowrey served in U. S. Naval Aviation during World War I. He also saw active duty during World War II as assistant district intelligence officer at Pearl Harbor; as executive officer of Squadron VR-11, Naval Air Transport Service; and as executive officer of the Naval Air Station at Barber's Point, T. H.

In civic affairs he has served as a member of the San Francisco Board of Fire Commissioners, a conscientious worker on Community Chests, and a director and chairman of the San Francisco Chapter of the American Red Cross.

Mr. Lowrey is married and has two daughters, Mrs. Helen Virginia Brown and Mrs. Patricia Hooper; and a son, Charles F. Lowrey. The many Union Oil people who are familiar with his abounding energy, unselfish accomplishments, and genial good will toward everyone he meets, know that the Chamber of Commerce has made a good choice.



Sergeant Norman A. Gertzen

FIRST TO MAKE SUPREME SACRIFICE

WHILE in action with the Seventh Marines Regiment near Wonsan, Korea, Sergeant Norman A. Gertzen was killed. This, the first reported fatality among Union Oilers on military leave, occurred on November 3 while the Marine Corps fought against Communist troops.

Norman started work with the Company on May 13, 1946, as an electrician in our Cut Bank, Montana, shops. He was granted military leave on August 5, 1950. During World War II, he was drafted during his senior year in high school and spent two years in the South Pacific with the U. S. Navy.

He is survived by his wife Audrey Yvonne and their daughter Virginia Kay, born April 11, 1949. Norman's father, R. J. (Dick) Gertzen is a Union Oil production foreman in Montana.

You Can Survive ATOMIC WARFARE



Most of the information in this article was prepared by the Civil Defense Office in Washington. James E. Hill, Union Oil training and safety supervisor, adapted the protective suggestions to our needs. All models in the photographs are Union Oil people.

YOU can live through an atom bomb raid and you won't have to have a Geiger counter, protective clothing or special training in order to do it. If you know the bomb's true dangers and follow the authoritative advice given to protect yourself, you stand a far better than even chance of surviving an atomic bomb's blast, heat and radioactivity. What's more, you will make a definite contribution to civil defense in your community, because civil defense must start with you.

WHAT ARE YOUR CHANCES?

You should realize that atom splitting is just another way of causing an explosion. While an atom bomb holds more death and destruction than man has ever before wrapped in a single package, its total power is definitely limited. Not even the theoretical hydrogen bomb could blow the earth apart or kill us all by mysterious radiation.

Your chances of living through an atomic attack are much better than you may have thought. In the unprepared city of Hiroshima, slightly over half the people who were between a half mile and a mile from the atomic explosion are still alive. Had others not become so complacent toward air-raid warnings as to ignore them, many more Japanese would have escaped. At Nagasaki, almost 70 per cent of the people within a similar half-to-one-mile zone lived to tell their experiences. They are not riddled with cancer, as was once erroneously reported. Their children are normal. Adults who were supposed to have been made barren by radiation are no longer barren. Bombed areas were not contaminated

with dangerous nuclear residue. People soon cleaned out the rubble and reoccupied their properties.

If a modern A-bomb exploded without warning in the air over your home town tonight, your calculated chances of living through the raid would run something like this:

Should you happen to be one of unlucky people right under the bomb, there is practically no hope of living through it. In fact, anywhere within one-half mile of the center of explosion, your chances of escaping are about 1 in 10.

On the other hand, and this is the important point, from one-half to 1 mile away, you have better than a 50-50 chance.

From 1 to 1½ miles out, the odds that you will be killed are only 15 in 100.


At points from 1½ to 2 miles out, deaths drop all the way down to 2 or 3 out of each 100.

Beyond 2 miles, the explosion will cause practically no deaths at all.

Naturally, your chances of being injured by falling debris and fire are greater than your chances of being killed. But your probabilities of making a complete recovery are much the same as for everyday accidents.

SUPER BOMBS?

Do not be misled by loose talk of imaginary weapons a hundred or a thousand times as powerful as our first A-bombs. The atomic bomb we know can do certain damage to houses and buildings roughly 2 miles away. But doubling its power will extend the range of comparable damage to only about 2½ miles. And if there



were a bomb one hundred times as powerful, it would reach out only a little more than $4\frac{1}{2}$, not 100 times as far. This is because the larger bomb wastes too much power near the center of its explosion.

ATOMIC BLAST?

Slightly over 50 per cent of all deaths during bombings at Hiroshima and Nagasaki were caused by blast or concussion waves. As with ordinary explosives, the blast or outward rush of air presents the greatest danger. It ruins most buildings within a half mile radius and starts major fires in the rubble.

Your best protection against being tossed about or being struck by falling or flying objects is to lie down flat, preferably in an interior hallway or cellar, or under a desk or bed, or alongside a building, or in a ditch or gutter.

RADIANT HEAT?

The radiant heat waves from a bomb exploded at about 2,000 feet, as in the Japanese explosions, will start fires of some combustible materials within 2 miles of the blast. There is no doubt that people within a mile range, who are exposed to and fatally burned by the heat waves, would be killed regardless by blast or falling buildings. In Japan, 30 per cent of the A-bomb deaths were attributed to burns, but the great majority of these were caused by burning buildings and rubble, not the bomb's direct heat.

The heat wave is almost instantaneous. There is hardly time to avoid it after the bomb has burst. In Japan, some were seriously burned prior to feeling the concussion wave, which traveled considerably slower.

If a warning is given, try to find shelter where there is a wall, bank of earth or some other sturdy object between you and the probable explosion point. Lying flat on the ground and covering the head if possible helps to minimize this danger also.

RADIOACTIVITY?

Radioactivity is much less to be feared than blast or heat. It accounted for only 15 per cent of the atomic deaths in Japan, most of which would have been caused anyway by blasts or rubble fires. This loss would have been reduced greatly if the victims had gone to air-raid shelters instead of remaining in the open. Their clothes were no protection against the gamma rays.

Unfortunately, popular writers have done much to over-emphasize the gamma ray hazard. In order to offset some of their misinformation, it is important that we absorb a few statements of facts.

Radioactivity is not new or mysterious. All of us

have been bombarded continually by radiation, in the form of sunshine, every hour and day of our lives. We have also breathed and eaten very small amounts of radioactive materials without even knowing it. Actually we know much more about radioactivity and what it does to people than we know about colds and other common diseases.

It is easy to understand how radioactivity works if we think of how sunlight behaves. A few moments in the mid-summer sun will not give you a tan or sunburn. You have to stay in its hot rays for some time before you get a deep burn. What's more, bad sunburn on just the face and hands may hurt, but it won't seriously harm you. On the other hand, if it covers your whole body, it can make you very sick or even cause death. In the same way, the harm that can come to you from radioactivity will depend on your nearness to the rays that strike you, the length of time you are exposed to them, and how much of your body is exposed.

The serious injury range of radioactivity from an A-bomb is a little over 1 mile, if the bomb is exploded about 2,000 feet in the air and victims are wholly unprotected by shielding structures. The few dying rays that might reach out more than $1\frac{1}{2}$ miles from the blast would cause no noticeable effect. Beyond 7,000 feet, the nuclear radiations would be harmless, whereas, under the same unshielded circumstances, thermal radiations would cause painful skin burns. Therefore, if the heat doesn't harm you, you have little to fear from radioactivity.

Unlike the almost instantaneous severe heat waves, the gamma ray exposure may last up to 3 seconds. Any shelter that can be gained to reduce the length of exposure is beneficial. Here again, shelter in a basement or behind a sturdy wall offers good protection against the gamma rays. If caught out of doors, try to grab hold of something to cover yourself with as you fall to the ground—a coat, a newspaper, a briefcase will afford some protection to the head.

While we cannot see, hear, feel, smell or taste radioactivity, its presence readily can be detected with Geiger counters and other instruments. However, you won't have to know how to use one of these. Instead, you can rely on your local radiological team—a small, specially trained corps of "meter readers"—to warn you of the presence of lingering radioactivity.

In the case of an A-bomb explosion at 2,000 feet, there will be little or no hazardous radioactive residue or dust except directly under the bomb, and that dissipates rapidly. Not a single Japanese death was caused by lingering radioactivity.

WATER BURSTS?

The foregoing facts pertain chiefly to A-bombs exploded some 2,000 feet above ground because that is the most destructive, hence most probable, point of attack. Explosions underwater or at ground level affect a

Shaded area at right shows approximate range of an A-bomb if exploded over Los Angeles Civic Center. Red area would be nearly wiped out. Yellow area, including Union Oil Building, would be heavily damaged. Vast areas of the city would be left undamaged.

considerably smaller area. The water column screens out the radiant heat, initial gamma rays and much of the shock-wave hazard. However, usually this type of blast results in heavy and dangerous contamination by residual nuclear products near the explosion center. Even so, a person can escape contamination by remaining inside a sheltered place for an hour or so, or until the "meter readers" have tested the area and declared it safe.

WHAT TO DO NOW?

Be attentive to the advice and instructions of your local Defense Committees, which are now being formed in all vulnerable areas.

Learn from your local utility companies or Defense Committees whether, when and how to shut off gas, heater oil, electricity, and so on.

Eliminate as many fire hazards as possible from your home and place of work. Clear your attic and garage of all disposable combustibles. Check your home for fire dangers and be prepared.

Keep your household supplied with a good flashlight, extra batteries, a First-Aid kit, and a radio. The local Civilian Defense will instruct you regarding reserve stores of food and water.

WHAT TO DO IF ALERTED?

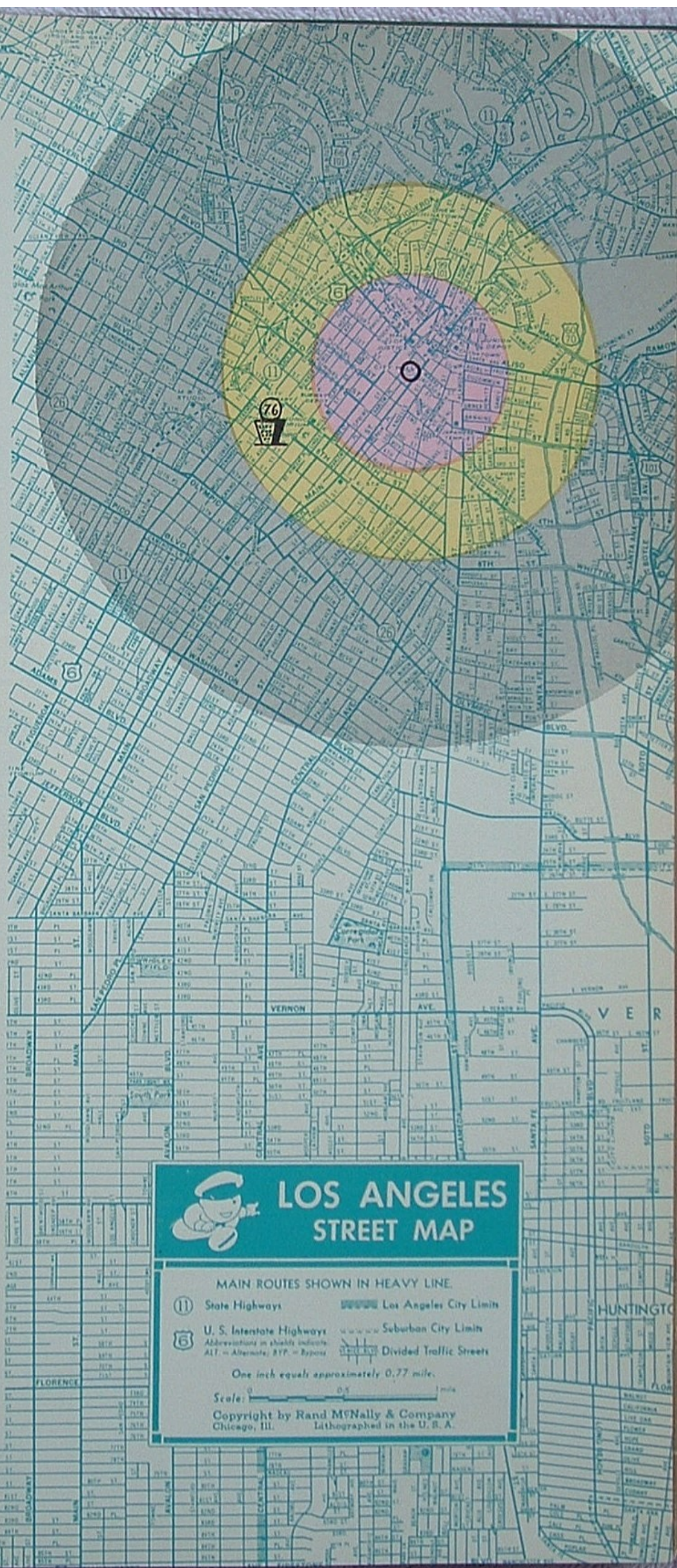
Promptly obey office, plant or community instructions. If so advised, hurry to the nearest and safest bomb shelter. Remain there until an "all clear" is given.

At home, if you have time, quench fire-place fires and eliminate fuel gas flames, except pilot lights. Close all windows and doors and draw the blinds. Take emergency supplies to your basement or other shelter and stay there. Keep away from windows and other sources of flying glass. Listen to your radio for reports and instructions. Don't use the telephone needlessly or start rumors.

WHAT TO DO IF BOMBED?

Drop flat on floor or ground, preferably with a stout wall or curb or bank between you and the bomb blast. With face down, hide your eyes in the crook of your elbow to prevent flash burns, temporary blindness, injury from flying

(Continued on Page 23)





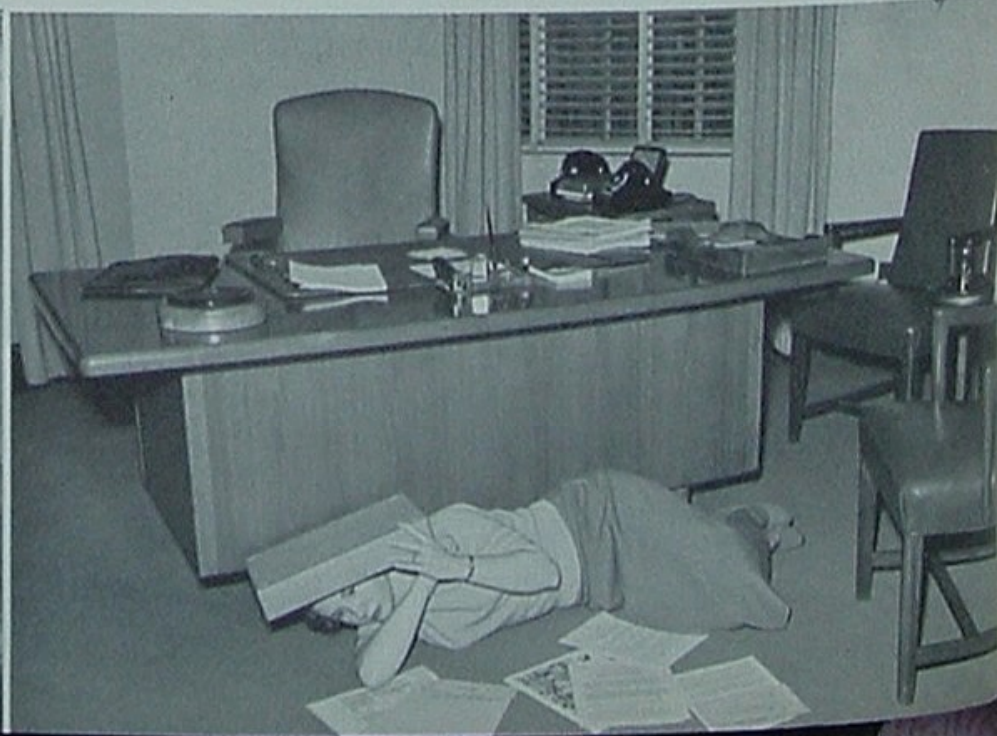
IN THE HOME, preparation for an A-bomb attack should include gathering of a few emergency supplies, above; some family training, right, relative to air-raid warnings and where to go if a danger signal is given; and, below, "tuning in" on the activities and instructions of local Defense Committees. In times of emergency, it is wise to use the radio, avoid phone.



ON THE STREET, an air-raid warning should be heeded by getting behind a sturdy structure on side sheltered from probable target area. Try to keep your head covered.



AT THE OFFICE, one of the safest emergency shelters is an inner hallway where flying glass and debris, heat and concussion will be largely arrested by partitions. Use anything at hand for additional head covering. If bombed unexpectedly in an outer office, drop to the floor behind a desk or other sturdy object that will minimize your chances of being injured by blast, heat and gamma rays.



"76" Views of Refining

52. Heavy Crude so-called because of its heavy, molasses-like viscosity, is produced in many of the world's oil fields. As found in seeps, it comprised the pitch and tar used in ancient times. Modern oil men have a natural preference for light oil, which offers a higher yield of gasoline and other light products currently enjoying brisk demand. But, as we shall presently see, heavy crude fills a number of our economic needs and is the source even of some gasoline.

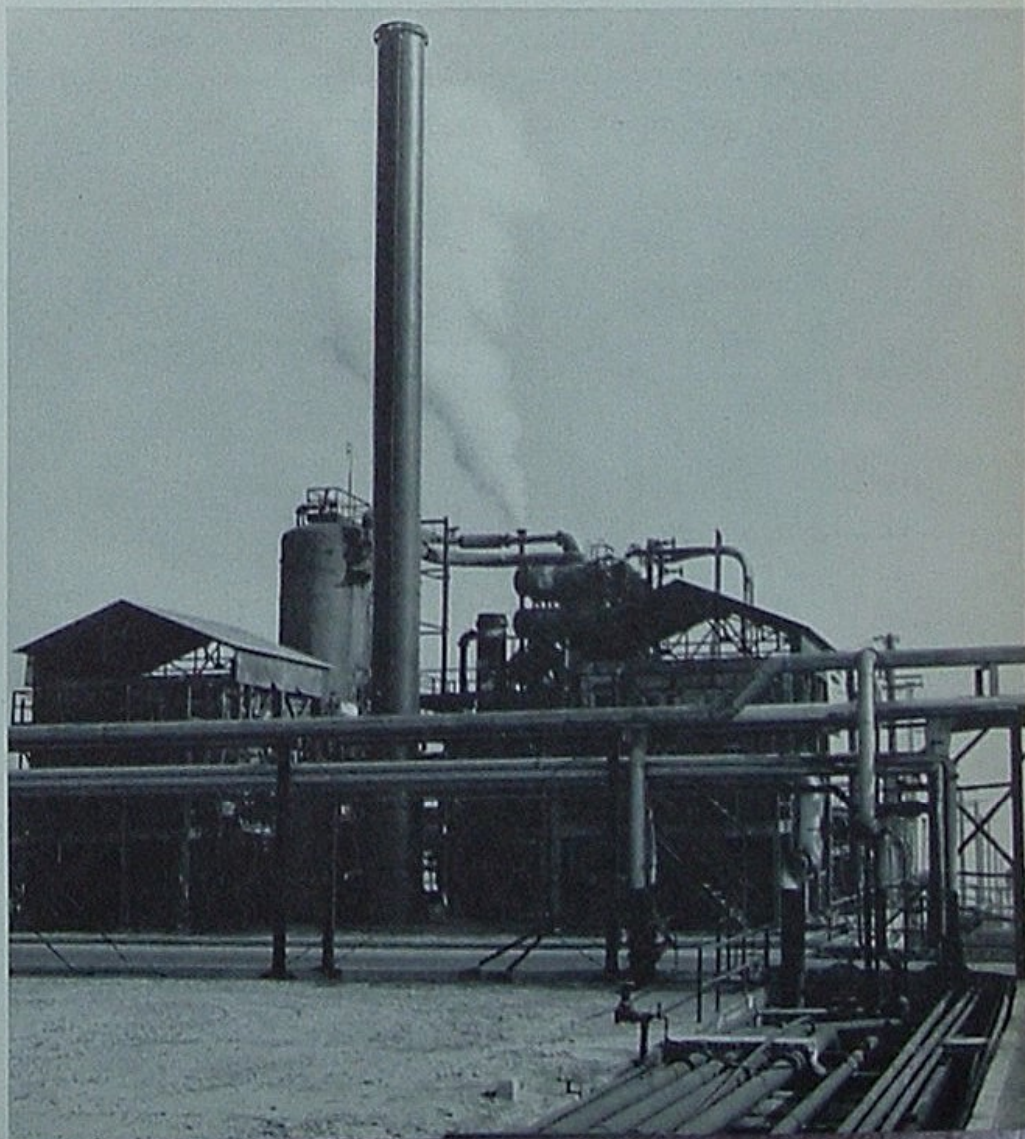
Union Oil's supply of heaviest crude comes principally from Santa Maria Valley, where in a few extreme cases it is too thick to be pumped. Production men solve the problem by diluting it with heated lighter oil pumped underground from other sources. To bring it to the surface requires some of the world's largest pumping equipment, such as the unit shown at left.

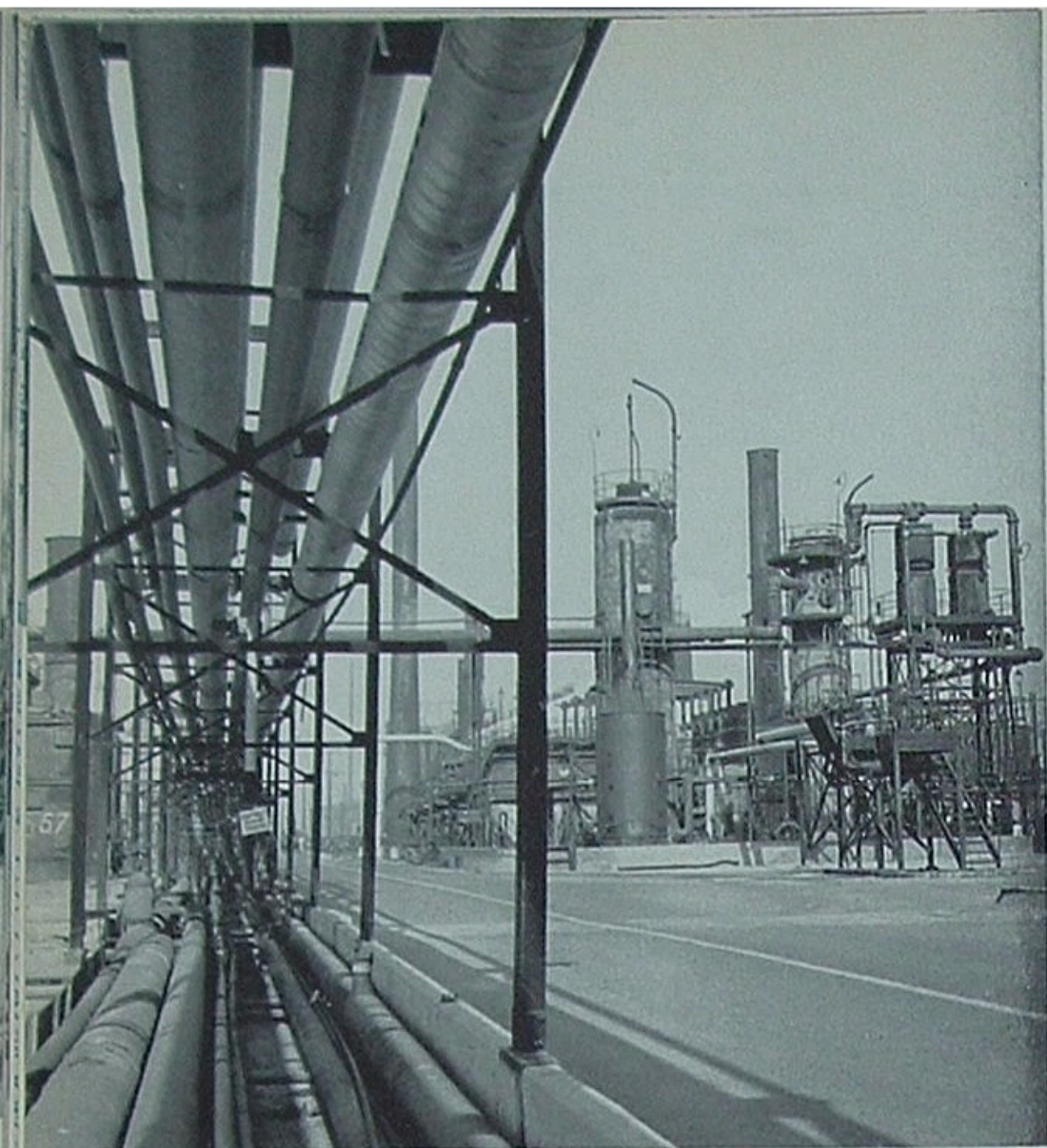
53. Heavy Crude Distillation

at Los Angeles Refinery is the task of Unit 71-72, at right. Equipment consists of two fired heaters, foreground, and a single distillation column in which the heated crude is topped of its small percentage of gasoline and gas oil. These two products leave the distillation column together in vapor form. In a cooler the gas oil vapors are first liquefied and removed. Remaining gasoline vapors continue on to a condenser and are also cooled to liquid form.

The heavy crude thus stripped of its lighter fractions is given the refinery name of *topped residuum*. To most people it is familiarly known as asphalt or road oil, a product whose usefulness in paving highways, patching roads, coating pipe lines, and so on, stamps it as one of our most serviceable commodities.

ON TOUR





54. Asphalt Distillation

The interval between application of road oil and the time the road or other surface is ready for use is known as "curing time."

Topped residuum is an SC-2 road oil, meaning that it is *slow curing* and produces a relatively soft surface of No. 2 hardness. By distilling out some of its *softening oils*, we can produce increasingly harder grades of *slow curing* road oil up to and including No. 6.

If additional amounts of the softening oil are removed, we obtain paving asphalts that are so hard they must be kept hot or diluted with a solvent to keep them from hardening in pipe lines, tanks or spray-trucks. This use of solvents to keep the asphalt fluid gives us opportunities to produce other specifications or grades. If a rapidly evaporating solvent is used, we produce an RC or *rapid curing* road oil. If a slower evaporating solvent is blended, the result is MC or *medium curing* asphalt. In all, 21 grades of SC, RC and MC road oils and asphalts are produced in the asphalt distillation unit shown in right background of picture at left.

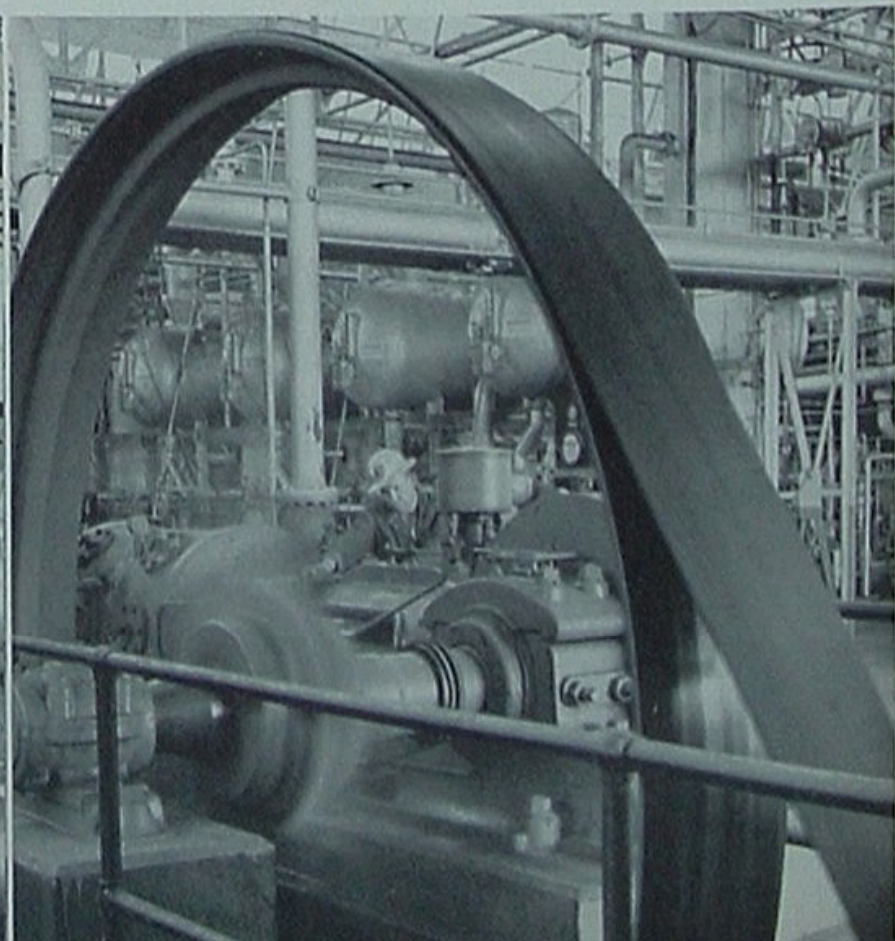
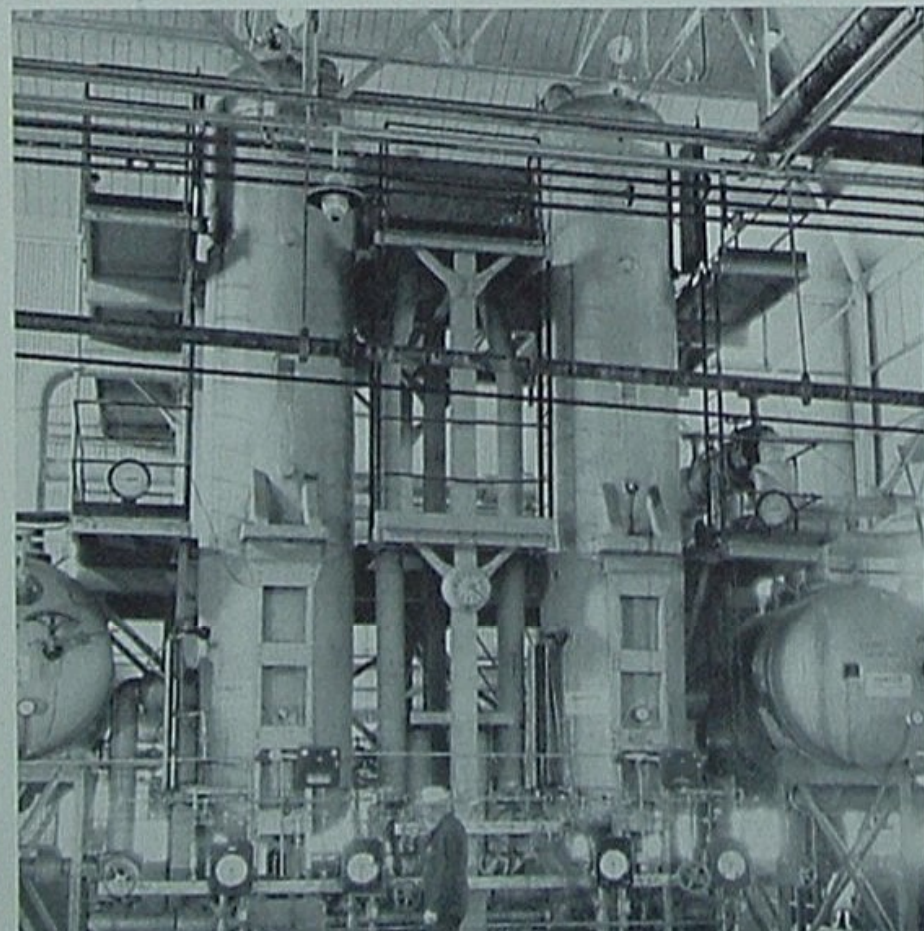
55. Edeleanu Plant

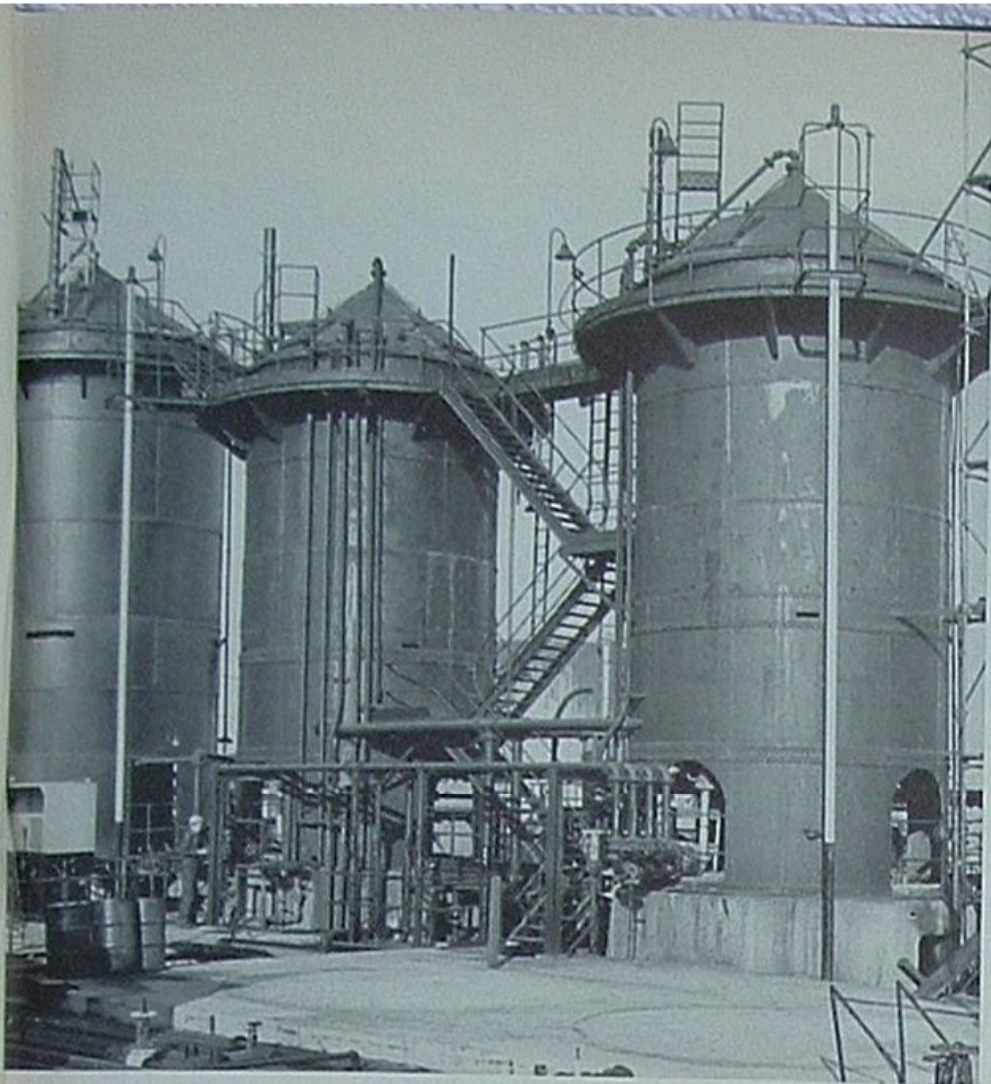
Treating is the oil man's way of applying finishing touches to his numerous products. It involves using several processes to remove the last impurities and bring oils up to exacting specifications.

The plant below bears the name of Dr. Edeleanu, a Rumanian scientist who developed an effective process for removing smoke-producing and other degrading compounds from kerosene distillate. This process is also used in similarly improving the quality of diesel fuel.

At left below are two Edeleanu mixing columns in which the kerosene distillate is thoroughly mixed with

sulfur dioxide compressed to liquid form. This chemical causes the kerosene and its degrading elements to separate, one, called *raffinate*, leaving the tops of the vessels, and the other, called *extract*, leaving the bottoms. Both streams then proceed through separate batteries of evaporator tanks, some of which are visible through the whirling compressor wheel, below right, where the sulfur dioxide is recovered through evaporation and then compressed to a liquid for reuse. Coming out of the *raffinate* stream is kerosene, while from the *extract* is obtained a petroleum solvent used in the manufacture of synthetic paints and lacquers.





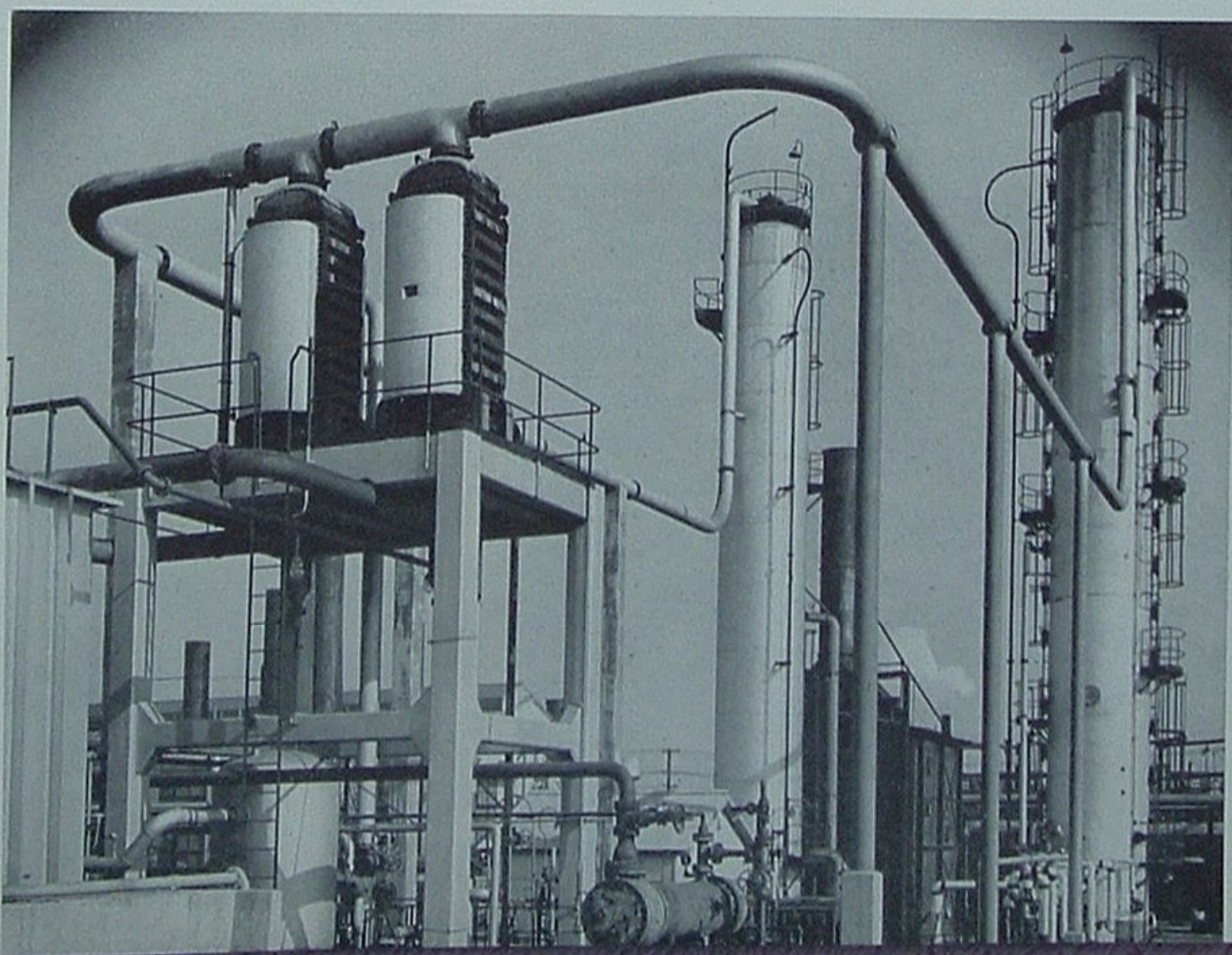
56. Batch Agitators A number of refined products must be acid treated before qualifying for their "Union" labels. At left are the Batch Agitators where some of the acid treating is done. The vessels are essentially empty lead-lined tanks into which batches of petroleum products and treating chemicals are placed and agitated. Air forced through pipe openings in the tank bottoms provides the necessary agitation. Acid, having a strong affinity for nitrogen and sulfur compounds, as well as any smoke-producing hydrocarbons overlooked by the Edeleanu process, removes these undesirables from the refined oil and settles to the bottom of the tank when agitation is discontinued. After settling for about one hour, the acid sludge is drawn off. The treated product, containing traces of acid, is then washed with caustic soda to neutralize the acid, and with water to remove the caustic. Through treating of this nature, kerosene, solvents, thinners and other products are made color-stable, or smoke-free if used for fuel.

57. Redistillation Unit 67, below, is a very versatile installation wherein several petroleum products undergo their final and most selective redistillation.

We mentioned a solvent produced as *extract* in the Edeleanu process. When distilled in Unit 67, this extract separates into two fractions, a high-boiling material that is very effective as a weed killer, and Solvent 40, the product used in making synthetic paints. The latter, after separation, is acid treated and redistilled in Unit

67 a second time before being ready for market.

Certain gasoline fractions make excellent paint thinners and cleaning solvents. However, specifications for such products call for a narrow boiling range and exceptional purity. Unit 67 accomplishes the job by making a very careful selection of fractions from the gasoline feed. Thinners No. 1 and No. 3 and Union Cleaning Solvent are obtained by this means. The quality and water-white color of all three products are further improved through acid treatment in the Agitators.

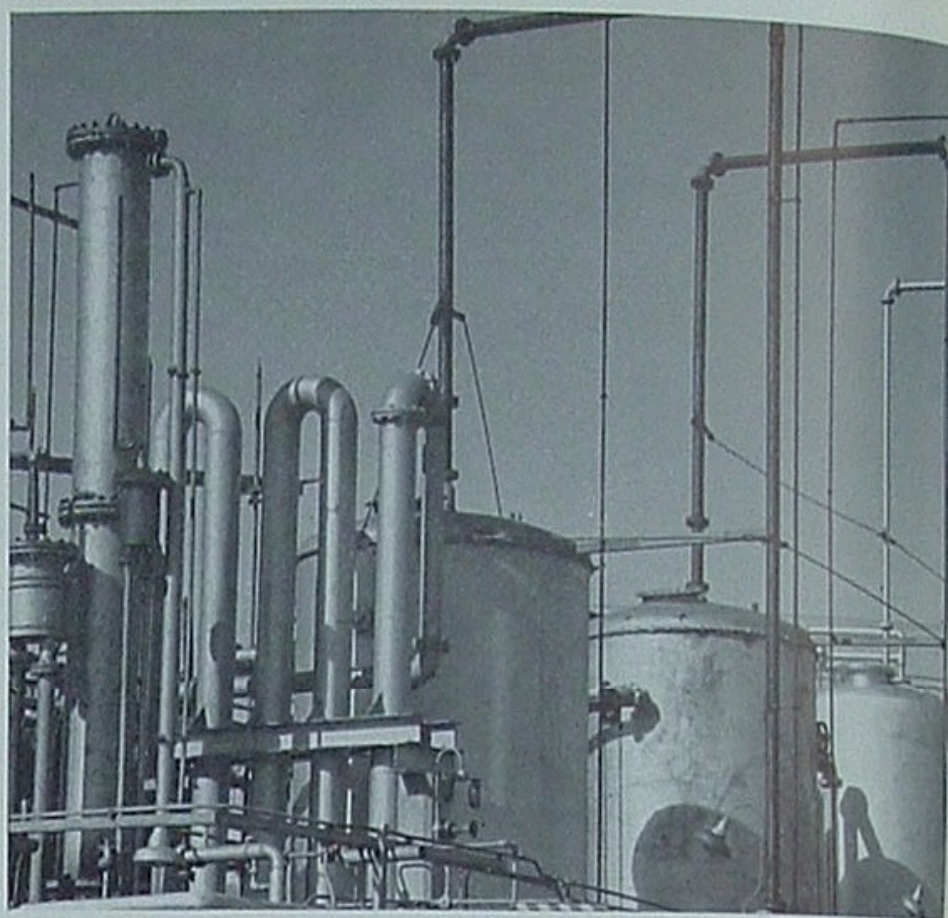


58. Continuous Acid Treaters

Let's leave the specialty products now and get back to our main topic of discussion—gasoline.

Up to this point we have accumulated in storage tanks a variety of different gasoline stocks. These include *natural* gasoline, *straight-run*, *once-cracked*, *severely-cracked*, *light alkylate*, and several segregations of these according to their boiling ranges and knock-ratings. Some of the stocks may have passed all laboratory tests for purity and quality, but others, particularly the cracked gasolines, are likely to show a tendency to oxidize and form gum in a gasoline motor.

Treatment to remove these gum-forming materials takes place in the Continuous Acid Treaters, right. Here strong acid is thoroughly mixed into a passing stream of gasoline. The acid combines with and removes sulfur and nitrogen compounds along with the gum-forming materials. Treated gasoline leaves the top of these vessels and is *washed* alternately with water and caustic soda to remove final traces of acid.

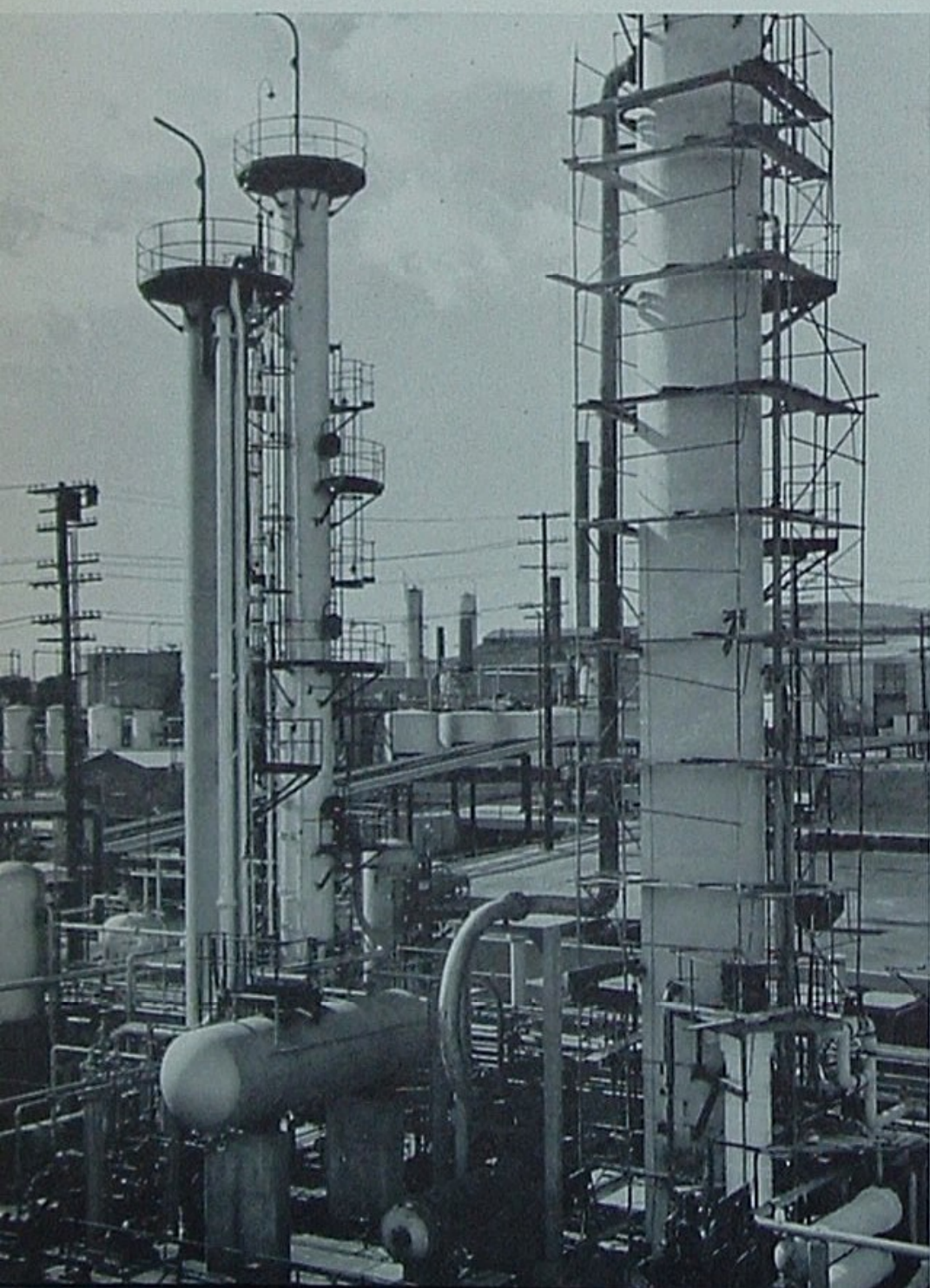



59. Unisol Treating Unit

Mercaptans are the sulfur bearing compounds of oil that sometimes offend our sense of smell. One reason they are not so evident around refineries as formerly is that *methyl mercaptans* are now being used in the manufacture of pharmaceutical preparations and vitamins. Also, small amounts of *ethyl mercaptans* are added to household natural gas as a safety factor—that of making gas leaks detectable. But *mercaptans* in gasoline give the product an unpleasant odor and lessen the effectiveness of any tetra-ethyl lead that might be added to improve knock rating.

Gasoline stocks containing such sulfur compounds are sent to the Unisol Treating Unit, left. Here a very interesting treatment is resorted to. Quite the opposite to acid treating, the Unisol process employs a strong caustic solution to attract and remove the *mercaptans*. However, the caustic solution and gasoline will not mix. So a third ingredient, methyl alcohol (wood alcohol), is called in to assist. Being on good terms with the caustic, the gasoline and the *mercaptans*, alcohol circulates freely through the gasoline, picks up a load of *mercaptans*, and taxis them back to the caustic. When the methyl alcohol and caustic solutions are weakened to a degree in the process, they are regenerated and can be used over again.

Mechanically, Unisol Treating consists of admitting gasoline near the bottom of a tall packed column. It rises against the descending mixture of caustic and alcohol and departs through an upper column exit.





INDUSTRIAL SUMMARY

HERBERT HOOVER, JR., ELECTED TO BOARD

Herbert Hoover, Jr., president and general manager of United Geophysical Company, was elected to the Board of Directors of Union Oil Company of California at a regular Board meeting on December 7, 1950. He was elected to fill the vacancy caused by the death of Ernest Stauffen, who had been a member of Union's Board for six years. The new director will continue as active manager of United Geophysical.

Mr. Hoover, who organized the United Geophysical Company, received his bachelor's degree at Stanford University and his master's degree at Harvard University. He is a trustee of the California Institute of Technology and Claremont Men's College, and a director of the Southern California Edison Company.



Herbert Hoover, Jr.

NEW VENTURA MARINE TERMINAL

Union Oil is constructing a marine terminal near Ventura and will send its Ventura County crude oil through a new 8-inch line from Saticoy to the sea. This terminal also will be a distribution center for gasoline and other petroleum products brought to Ventura by tankers calling for cargoes of crude.

The new terminal will be built on a leased 10-acre site south of the city, near the mouth of the Santa Clara River. There a pump house and four tanks will be erected. One 135,000-barrel tank will be used for storage of crude; two 30,000-barrel tanks will hold "76" and "7600" gasolines, and a 10,000-barrel unit will accommodate diesel fuel. Two diesel-driven pumps will handle upward of 12,000 barrels of crude per hour between shore and ship, enabling a tanker to load in approximately 10 hours. While loading crude, the same tanker will be discharging gasoline or diesel fuel.

Crude oil from the storage tank to the ship will be pumped through a 20-inch pipe whose inside diameter or effective capacity will be reduced to 18 inches by reason of a 1-inch cement lining to prevent corrosion. This line will extend about 4,000 feet under the sea to an offshore buoy. At its deepest point, the pipe will be under 45 feet of water. A coating of asphalt, felt and cement will protect the line's exterior from salt water corrosion.

Paralleling the crude oil line will be an 8-inch line for refined products. The latter will operate exclusively through discharge pressure of the ships' pumps.

from Reese H. Taylor

MARKETING

On January 8th the first of 52 dealer meetings were held at Bakersfield, Boise and Long Beach. By this means Union Oil people are being introduced to our advertising and sales programs for 1951. An important feature of each meeting is a discussion of the relationship between the Company and the dealer and the combined relationship

of Company and dealer to the customer. Each meeting is being preceded by a dinner and entertainment. Preparations were made to welcome about 9,500 persons, including dealers and their employees, consignees and distributors and their employees, and Company sales representatives.

As of early January, we had contracted to supply various branches of the United States Government with 6,654,000 barrels of products, ranging from jet fuel to fuel oil, for delivery during the first six months of 1951. In money value this volume represents close to \$20,000,000.

There is an increasing trend toward multiple island service stations, resulting from the spread of self-serve units. At the present time the Company has six multiple island units under construction. An endeavor is being made to preserve as much of the "76" look as possible in these new stations. This type of unit accommodates more customers at a time, affords easy access to the pumps, relieves congestion and contributes to speedy service. The Company will continue to standardize on its canopy-type units at average locations; but, where large volumes are involved and the situation otherwise warrants, the trend will be toward multiple island service stations.

from Roy Linden

● **MANUFACTURING** Construction of the new Edmonds Asphalt Refinery is progressing satisfactorily, with completion scheduled by June 1, 1951. This refinery will process 4,000 barrels of crude daily and will supply paving and cutback asphalts and road oil for the Northwest Territory. At Oleum also, asphalt facilities are being improved by the addition of new truck loading racks and tankage. New warehousing and refining units are contemplated as part of Oleum's modernization program. New Asphalt facilities are being proposed for Los Angeles Refinery.

from K. E. Kingman

● **FIELD** Operations of the Field Department for 1951, as programmed from the present budget, forecast considerably more activity in the immediate future. An emphasis will be placed on the drilling of new wells rather than expenditures for plants.

This accelerated program will apply to all divisions of Field Department operations. Currently there are nine active drilling operations in California and eight out of state. Shortly, this will be increased by one-third. West Texas is one area in which stepped-up activity will be stressed. Drilling by others on offset properties is causing us to drill to protect our lease interests. In all divisions a series of wildcat wells has been scheduled. The only factor that may prevent us from carrying out these drilling objectives will be our possible inability

to acquire steel products, in particular, tubular goods, so necessary for the drilling of wells.

from Sam Grinsfelder

● **PIPE LINES** Since October, 1950, crude oil production in the San Ardo Field has increased from 400 to the present 1,850 barrels per day. This high viscosity heavy oil, which we purchase, is transported 59 miles by tank truck to our Santa Margarita Pump Station, where it is blended with San Joaquin Valley crude to facilitate transporting the San Ardo product through our pipe line.

● **DISTRIBUTION** A new shipping terminal has been added to Union Oil's distribution pattern through our acquisition of the Inland Navigation Company's Columbia River barge terminal at Pasco, Washington. These upper-river facilities provide bulk-storage for gasoline, stove oil and Diesel, and should result in additional transportation economies.

● **MARINE** While it is not possible to predict accurately the full extent to which tanker operations will be affected by the U. S. rearmament program, the following recent developments indicate the extent to which Government controls have already been placed upon ocean shipping:

An emergency proclamation has been issued which automatically prohibits sales, transfers and charters of American owned vessels to non-citizens.

The U. S. Coast Guard has issued regulations permitting only pass holders to enter ships or ship loading premises.

from Ronald D. Gibbs

● **PURCHASING** While the shortage of tubular goods continues to be the major supply problem, other important shortages have also occurred. Sulfuric acid production has failed to meet present demands. Many industrial chemicals are in short supply. The filling of orders for copper and copper alloy products often requires several months. Tin cans are now on private allocation by some vendors. Fiber case producers are asking for 30 to 60 days notice before shipment.

To live with these shortages, yet keep our vital oil operations functioning at a record pace, is taxing the resourcefulness of buyers. Fortunately, the Company's good reputation in industrial and commercial circles, due to fair and honest treatment of all vendors, is paying dividends when they are most needed. There are many instances in which vendors go out of their way to reciprocate for past favors.

Government restrictions and priorities up to the present time have added to the upset condition in basic commodity markets. However, it is expected that within a short time supplies of essential items will be diverted from non-essential to essential users.

from E. H. Weaver



MASTER BILLY CUNERTY made no mistake by mailing his Santa Claus letter in his father's business-reply envelope, ready-addressed to the Union Oil Employees' Benefit Plan. The letter, asking for a bike, rifle and train, created a chuckle in Southwest Territory and was immediately forwarded on to Mr. and Mrs. Santa Claus. Judging from the resulting exchange of correspondence, Billy the Kid rides again, and exceptionally well mounted!



ABLE SEAMAN SOBSTEDT expected no medals or publicity when he went to the rescue of a sea gull whose foot became entangled while sailors of the SS OLEUM were heaving up the boom. However, Steward Nordin, who spends some of his off hours roaming the deck with a camera, was on hand to record the act of mercy. Although we know of no citations offered for this type of life saving, ON TOUR toasts the rescuer and thanks the photographer.

YOU CAN SURVIVE ATOMIC WARFARE

(Continued from page 16)

objects. If outside, use anything at hand as a shield to ward off falling objects and radiant heat.

Stay down or inside several minutes after an air burst. If the bomb bursts underwater, remain indoors. Listen to the radio for instructions.

Keep a cool head. Do everything you can to prevent

panic. Volunteer your services to fight fires, rescue the injured and clean up your community.

Whether used or not, the atom bomb is primarily a psychological weapon for frightening large masses of people. So, even though our chances of experiencing an atomic attack may be remote, every American should substitute knowledge and preparedness for hysteria. And if the worst comes, you can survive atomic warfare.



SERVICE BIRTHDAY AWARDS

FEBRUARY, 1951

Forty Years

Varner, Milton L., So. Div. Field

Thirty Years

Carlile, Chas. W., Oleum Refinery Mfg.
Craddock, Allen R., Central Territory
Ford, Ralph G., So. Div. Field
Frazier James B., No. Div. Pipeline
Law, Roy W., So. Div. Field
Monteith, Willard A., Southwest Terr.
Winter, Henry E., So. Div. Field

Twenty-Five Years

Anderson, Gourley B., L. A. Refin. Mfg.
Bradley, James L., Oleum Refinery Mfg.
Bradeen, Wm. P., L. A. Refinery Mfg.

Chapman, George H., So. Div. Field
Clark, Claude R., So. Div. Field
Glendenning, Leon C., H. O. Tax
McNeil, Wm. R., Oleum Refinery Mfg.
Rader, Jesse H., L. A. Refinery Mfg.
Winfrey Louis T., So. Div. Pipeline
Wood, Norman A., Research-Wilmington

Twenty Years

Cunningham, Philip G., Central Terr.
Malkos, Gus A., Oleum Refinery Mfg.

Fifteen Years

Bollinger, Edwin W., Central Territory
Bridgman, Herbert M., Southwest Terr.
Dixon, Wm. M. Jr., L. A. Refinery Mfg.
Freeman, Geo. C. Jr., Southwest Terr.

Goddard, John B., Southwest Territory
Hansmann, John G., Northwest Terr.
Johnson, Odus J., So. Div. Field
Robertson, John M., H. O. Comptroller's
Suderman, Henry J., Southwest Territory

Ten Years

Bowden, Carl B., So. Div. Field
Busby, Wm. W., L. A. Refinery Mfg.
Drum, Lyman G., So. Div. Auto.
Sherwood, C. L., West Texas Division
Thompson, "R" "E", Southwest Terr.

Omitted from January (Ten Years)

Beatty, W. W., West Texas Division
Clarke, R. L., West Texas Division



UNION OIL CO. of CALIFORNIA
LOS ANGELES TERMINAL
563 MATEO ST.



Safety Starts



BETWEEN THE EARS



NATIONAL SAFETY COUNCIL



A BILLBOARD is being used effectively at our Los Angeles Terminal to stimulate safety consciousness. The plant, employing approximately 60 Union Oilers, has completed 18 months without a lost-time accident and is daily adding to this fine record. Above, Ray Hendren is applying the final brush stroke to one of the most recent and interesting postings, all of which are supplied by the National Safety Council.