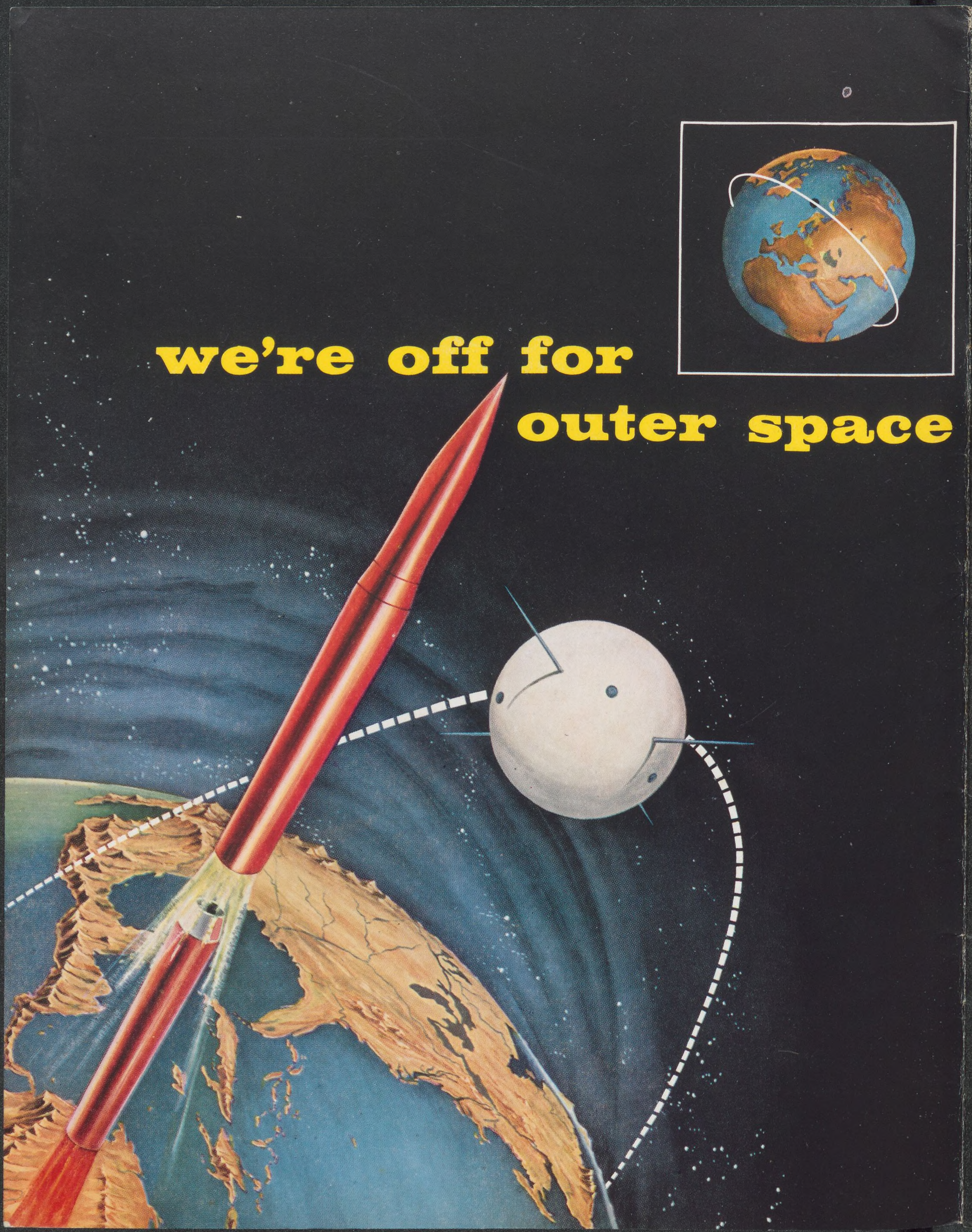
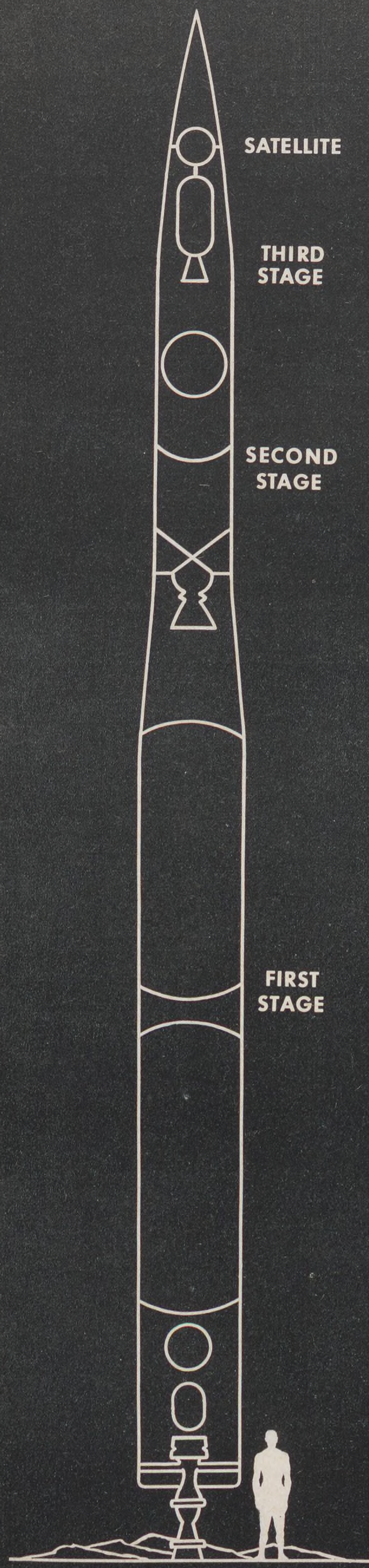

SHELL NEWS
MARCH 1957
DRILLING IN THE DUNES


we're off for
outer space



TO increase man's knowledge of the earth and the atmosphere around it, the United States will attempt to send several scientific satellites into globe-girdling orbits in outer space during the International Geophysical Year (July, 1957, to December, 1958).

Sponsored by the National Academy of Sciences, both professional and amateur scientists throughout the world will cooperate in this unique experiment, part of the program for the International Geophysical Year—a world-wide enterprise to learn more about the earth and how it is affected by the sun.

The satellite launching vehicle is being supervised by the Naval Research Laboratory in Washington, D. C., under the title, Project Vanguard. Shell is supplying fuel for tests of the first stage of the rockets which will help carry the satellites up to their orbits.

The first satellite will be a sphere about 20 inches in diameter, weighing about 21 pounds. The instruments in the satellite's magnesium alloy shell will weigh little more than 10 pounds.

Among them will be a high-frequency radio transmitter which will signal information back to earth. The information will come from pressure, erosion and temperature gauges that will measure space conditions; a microphone that will detect collisions between the satellite and small solid particles in the upper atmosphere; and equipment to measure the effects of the periodic flare-ups on the sun.

These instruments will measure, among other things, atmospheric density, temperatures inside and outside the satellite, and ultraviolet and cosmic radiation. The exact shape of the

The drawing on the left shows the satellite launching vehicle zooming through the upper atmosphere with the second-stage of the rocket dropping off. In the background is an enlarged version of the satellite travelling its orbit. On the right is the launching vehicle compared to the size of a man.

SHELL NEWS

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Dedicated to the principle that the interests of employees and employer are mutual and inseparable

Employee Communications Department
New York, N. Y.

contents

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DRILLING IN THE DUNES

The portable drilling rig outlined against the Texas sky near Monahans in the cover picture is probing for oil in territory once travelled only by covered wagons headed west. The rippling sands are a geological feature in the Monahans Field area in West Texas and New Mexico, and make the land resemble a brush-sprouting sea of sand. Shell already has producing wells in the Monahans Field, and is searching for more proven reserves there — part of a search that takes Shell drillers to regions as varied as sandy West Texas and salty Gulf of Mexico offshore waters.

Standing on the dune is W. T. Johnson, Rotary Engine Man on Rig No. 14, which is drilling the well in the background.

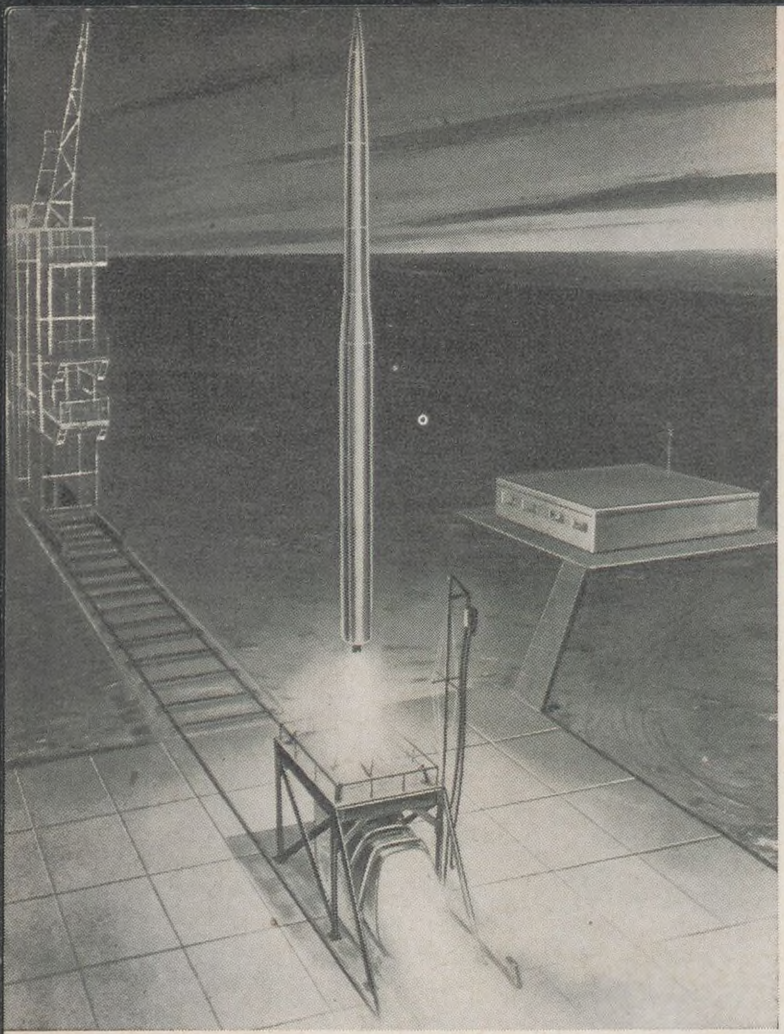


Photo Courtesy The Martin Company

At left is an artist's conception of the launching of the three-stage space vehicle which will carry the first man-made moon into its orbit above the earth. In the background is a crane which places the rocket on the launching platform.

earth also will be determined by the orbit of the satellite. With this information, scientists hope to learn more about weather changes, how solar energy affects the earth (which may lead to finding better ways to harness this tremendous source of power) and possibly how to make our maps more accurate.

The scientists would like to place the first satellite in a circular orbit 300 miles above the surface of the earth. However, since it will probably be impossible to put the satellite into its orbit at a precise angle and velocity, the orbit will probably be elliptical with its nearest approach to the earth not less than 200 miles and the farthest extension about 1,500 miles.

Experts estimate the satellite will whirl around the earth anywhere from two weeks to one year, depending on altitude, before atmospheric "drag" slows it down, causing it to be pulled out of its orbit by gravity. When this happens, friction with denser atmosphere will cause the satellite to disintegrate like a burning meteor.

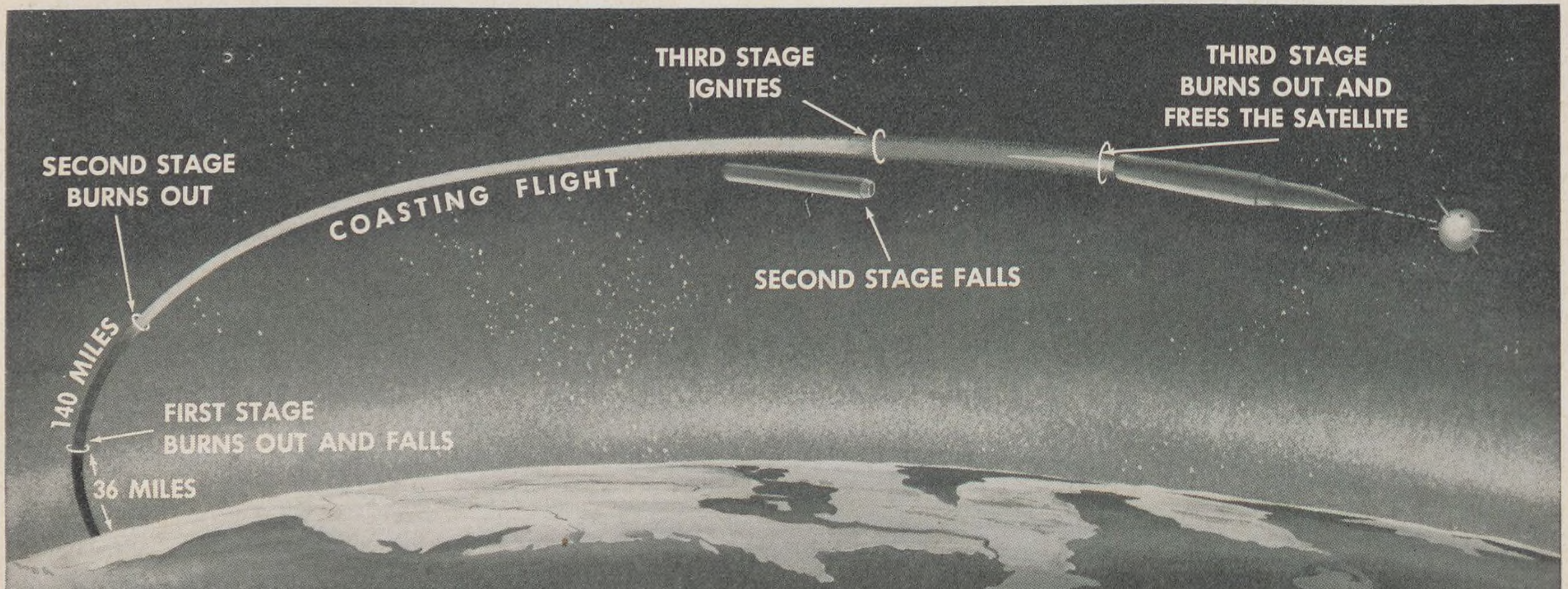
The launching vehicle for the satellite is a three-stage rocket—a pencil-shaped cylinder about 72 feet long and 45 inches wide at its largest diameter. Its total weight, including fuel, is about 11 tons. The job of the launching vehicle is to carry the satellite (in the nose of the third-stage rocket) 300 miles up and release it at a speed of 18,000 miles an hour.

The first stage of the rocket—fueled with liquid oxygen and a special kerosene, carries the whole assembly upward in a gradual curve to about 36 miles, reaching a speed of about 4,000 miles an hour about two minutes after leaving the ground. At this point, its fuel is spent and the first stage falls away and the fuel in the second stage—nitric acid and another chemical called unsymmetrical dimethyl-hydrazine—starts to burn. The second stage pushes the speed to about 9,000 miles an hour. Although its fuel burns out at a height of about 140 miles, the second stage continues coasting upward to approximately 300 miles before it is jettisoned and the fuel of the third stage—a solid like that of a firecracker—ignites. the third stage gains speed travelling 300 miles high in an arc roughly parallel to the earth's surface.

As the third stage rocket's ultimate speed is reached, and after it burns out, a spring gently releases the satellite which continues at a speed of about five miles a second—more than six times the speed of the fastest rifle bullet.

A few minutes after the Vanguard rocket (or launching vehicle) blasts off at Cape Canaveral, Florida, the satellite will first appear approximately 300 miles above the island of Puerto Rico—1,500 miles away. What happens in this short time is shown in the illustration below.

Drawing made from illustration published by SATURDAY REVIEW



The rocket motors for all three stages of the launching vehicle—each built by a different company—have already had their first runs. General Electric Company is building the first stage and is using a new Shell fuel in its test.

Paradoxically, the fuel is a greatly improved version of the same oil that burned in buggy lamps 50 years ago. Called UMF®—it is a special grade of kerosene produced at the Wilmington Refinery in a closely-controlled operation that gives it the characteristics needed for liquid rocket use. It is shipped by tank car to the General Electric's test site at Malta, New York. Shell UMF was chosen because its performance could be consistently duplicated in the tests.

The first satellite-bearing rockets will be fired from Patrick Air Force Base at Cape Canaveral on the east coast of Florida. They will be launched in a southeasterly direction at an angle of about 35 degrees to the equator. When a satellite finishes its first 90-minute trip around the world, the rotation of the earth will have moved the Florida launching site about 1,500 miles to the east in relation to the satellite's orbit. Thus the satellite on its 15 daily trips around our planet will be rising and setting at different points each time.

Tracking the small man-made moon travelling faster than a bullet at least 200 miles away will be a difficult job for ground observers. In fact, the satellite probably can't be seen at all except one hour before dawn and an hour after sunset, and then it will be only as bright as the dimmest star visible to the naked eye.

To chart the course of the tiny moon for the many scientific studies to be made, several special cameras are being constructed for taking both still and moving pictures of it. The cameras will be located at observation points around the world, but in order to photograph the satellite, they will have to be aimed in advance at the exact location it will next appear.

If the satellite's radio transmitter should fail during its first few orbits, the only advance information on where to aim the cameras will come from amateur astronomers who are being organized for Operation Moonwatch. These observers will watch the sky in groups of a dozen or more with small, inexpensive telescopes. In a Moonwatch Alert conducted last December 8, about 100 stations across the United States participated. However, these observers won't be confined to this country alone. More than 50 countries are now organizing groups of Moonwatchers.

The primary goal of the satellite experiments is to learn more about our own planet. However, scientists will also gain considerable knowledge about the outer atmosphere. This, of course, will lead to further speculations about space flight. Few scientists are predicting manned space flight soon, but most agree that the small man-made moon is a step in that direction.

Aviation-Commercial Manager R. F. Peck, left, and Industrial Products Manager J. P. Thomas, right, of Shell's Albany Marketing Division, check fuel specifications with W. E. Garland of General Electric Company at the satellite rocket test site near Malta, New York.

Photo Courtesy General Electric Company

Below is a full-scale model of the satellite shown in relation to a man's hand. Inside it are delicate instruments for measuring conditions in the upper atmosphere, plus a high frequency radio transmitter for signalling the measurements back to scientists on earth.

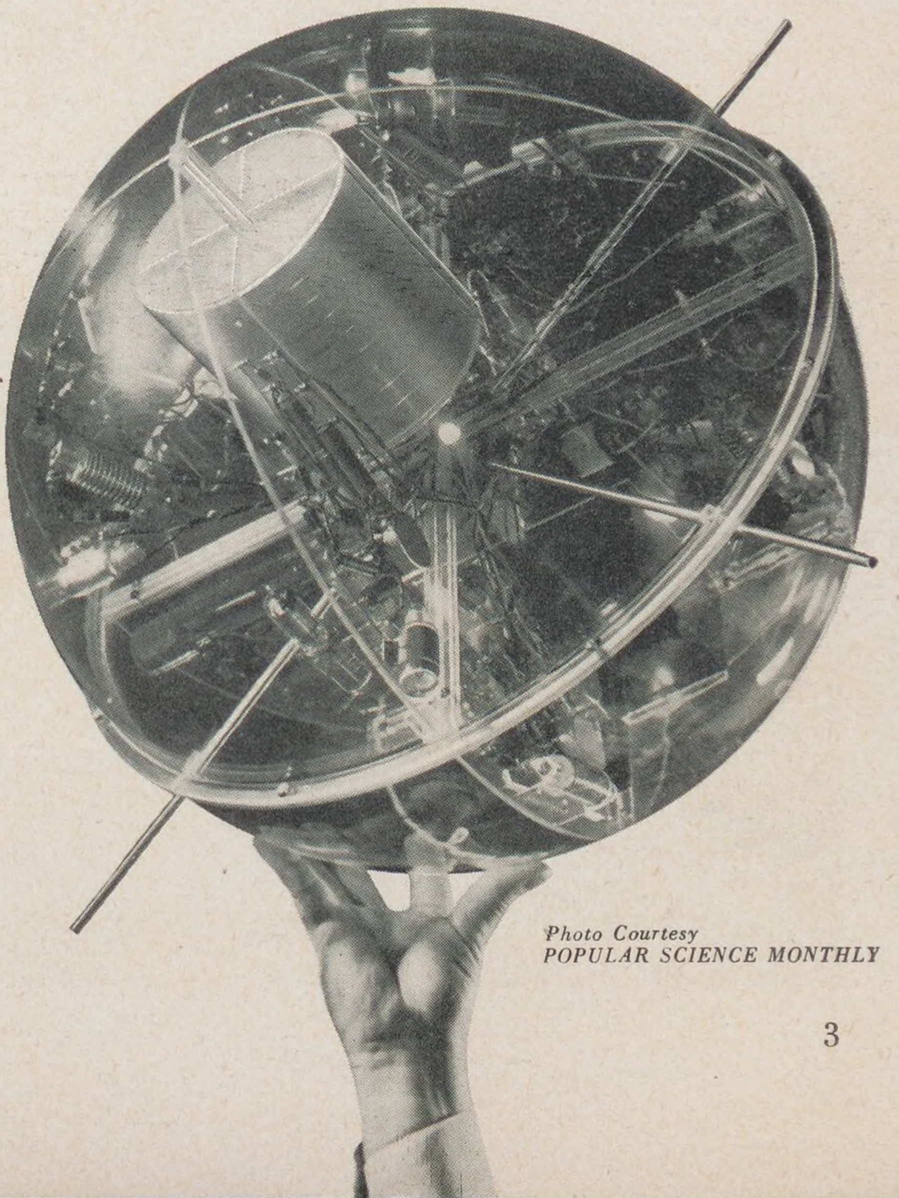
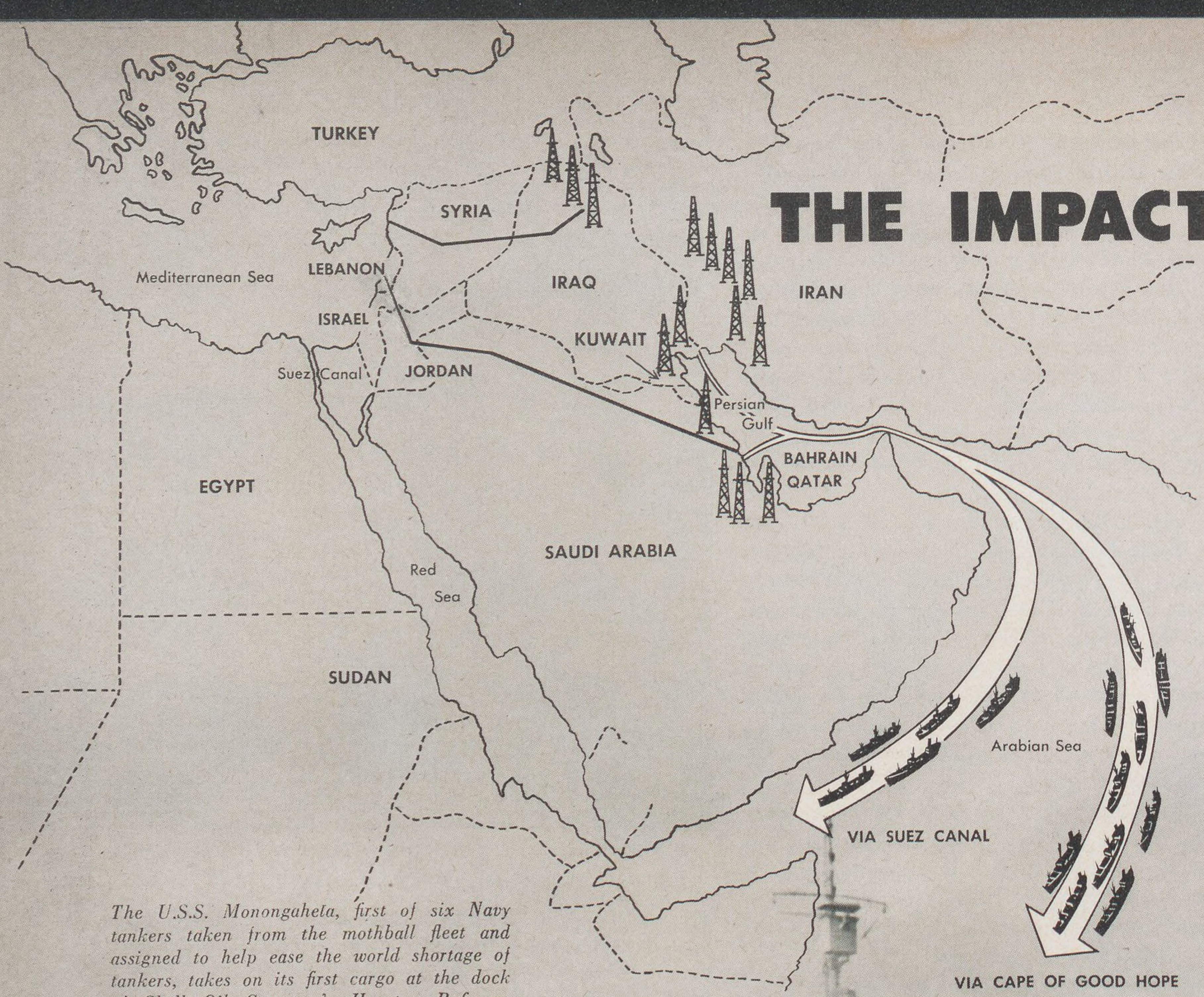


Photo Courtesy POPULAR SCIENCE MONTHLY

THE IMPACT OF



The U.S.S. Monongahela, first of six Navy tankers taken from the mothball fleet and assigned to help ease the world shortage of tankers, takes on its first cargo at the dock of Shell Oil Company's Houston Refinery.

SUEZ

Major U. S. Oil Companies, Including Shell. Are Helping to Ease Europe's Oil Shortage

Ships sunk in the Suez Canal, such as the one shown here, blocked the 42-feet-deep link between the Red Sea and the Mediterranean. Clearing operations are still under way.

WHEN the Suez Canal was closed last November, stopping tanker shipments of Middle East oil to Europe by that route, the life stream of western Europe's industry was drastically reduced. But in a matter of days, major U. S. oil firms, including Shell Oil Company—each working independently—had started a flow of crude oil and products across the Atlantic.

Reduction in oil imports from Middle Eastern fields, which contain about 70 per cent of the free world's known reserves, threatened a European crisis. Europe's power requirements have been rising steadily since the end of World War II. Her coal and hydroelectric power output have not kept pace. That means European industry has relied more and more on oil, and prior to the Suez closure, about 2,100,000 barrels per day of Middle East oil were exported to Europe.

Closing the canal meant that tankers bringing oil to Europe from Persian Gulf ports would have to travel almost twice as far. Tankers which formerly took on cargo in the Persian Gulf and then sailed through the canal into the Mediterranean and on to Western Europe traveled about 6,500 miles. But a tanker loading at the same point now and sailing around the Cape of Good Hope to Western Europe covers 11,300 miles. This almost-doubled distance means Europe would need more tankers to keep up the same amount of imports from east of Suez, and the additional number of tankers is not available.

When the Suez was open, about 1,400,000 barrels of crude oil, plus 200,000 barrels of products, went through it every day north-bound. In addition, 860,000 barrels of crude were loaded on tankers daily at Syrian and Lebanese ports on the Mediterranean, where it was piped in from fields in Iraq and Saudi Arabia. About 540,000 barrels of that pipe line total came through lines across Syria which were disabled when several pumping stations were destroyed. About 320,000 barrels daily still are pumped through the line from Saudi Arabia to the Mediterranean. Not all this oil went to Europe, but these movements supplied the 2,100,000 barrels per day which Europe imported from the Middle East.

Until the Syrian pipe line is repaired and shipments resumed and the Suez Canal is reopened, Europe is obtaining about 300,000 barrels per day from the pipe line still operating, and about 1,000,000 barrels daily from tanker shipments around the Cape. The remaining 800,000 barrels per day needed by Europe are being sought from the Western Hemisphere. Some of it is coming from Venezuela. Some U. S. companies which had been importing oil to the United States from the Middle East, Venezuela and other areas now have diverted some of it to Europe. (Shell is not among these; the only crude Shell Oil Company imports is moving from Western Canada to the Anacortes Refinery.) The third source of emergency supply for Western Europe is from the U. S. However, because of limited U. S. transportation facilities — both pipe line and tanker—it is estimated that Europe will not be able to obtain more than 75 or 80 per cent of its total normal petroleum needs until the Suez is cleared.

U. S. production theoretically could make up Europe's deficit, but the transportation bottleneck cannot be solved quickly enough. When the European emergency started, U. S. crude stocks stood at 283 million barrels, or about 20 million more than is considered normal, even though domestic demand is increasing. In addition, production has been increased. Shell's production at year's end went up 30,000 barrels a day—from 295,000 to 325,000—and U. S. total output increased 400,000 barrels per day.

Existing Louisiana and Texas crude pipe lines bring oil from wells to refineries in the Gulf area, plus 450,000 barrels per day to supply crude for domestic tanker movement around to East Coast refineries. On top of rising domestic demand, the Suez situation imposed the burden of pumping still more crude through the same lines to the Gulf for European export. While Shell and other companies are making maximum use of present pipe lines, there just is not enough pipe line capacity to supply all the crude needed by both U. S. and European refineries.

Most of the pipe lines from producing fields in Louisiana and Texas carry crude to Gulf port regions, but not all lines are routed to the coast. For example, while Shell brings a considerable amount of crude from West Texas to the Houston Refinery, the same area provides the crude that is piped northeast to the Wood River Refinery. Pipe line capacity to the Gulf cannot be expanded in time to meet the increased—and temporary—European demand, so U. S. companies must supply crude for both domestic and European use through present facilities. Shell provided about 2,000,000 barrels of crude oil from the Gulf area for European consumption in November and December. In an effort to get as much crude as possible to seaports, Shell even moved some crude oil from West Texas to the Wood River area by pipe line and then by barge down the Mississippi River to the Gulf for overseas sale. All told, a steady supply by Shell of about 30,000 barrels per day is anticipated through the Suez emergency.

In addition to crude oil, Shell is selling some products—mainly distillate fuel—to Europe. About 800,000 barrels of Shell furnace oil were sent to Europe in November and December, since the relatively warm U. S. winter, up to the end of last year, had left distillate stocks high enough to allow Shell and others to export.

European nations have far fewer automobiles than the U. S., and do not rely as much on motor transportation. This means Europe needs relatively less gasoline in proportion to furnace oil and residuals for heating and industrial use.

The average U. S. refinery produces about 50 per cent gasoline and 15 per cent residual fuel oils; the usual European refinery ratio is about 20 per cent gasoline and about 40 per cent residuals. (The remaining production includes furnace oils, lubricants, asphalt and other products.) For their needs, European refineries want heavy crude, or furnace oils and residuals that are made from the middle and bottom of the crude oil barrel.

But U. S. refiners are not in a position to manufacture products in the proportions Europe needs. Refining processes at U. S. refineries yield a high percentage of gasoline and a low percentage of residual fuels. Increasing U. S. refinery throughputs would produce relatively little more of the products Europe needs, and would add to already well-stocked U. S. supplies of gasoline. Europe's need for gasoline is secondary, and to ship it would take up tanker space needed for crude oil.

U. S. government officials have announced there is no possibility of gasoline rationing in this country, despite Europe's temporary loss of Middle East production and the increased demand for U. S. oil and products. And oil men say the industry will be able to continue exporting oil to Europe—though maybe not as much as those nations need—until the emergency ends, without risking a shortage of petroleum for domestic uses.

MORE FROM SHELL

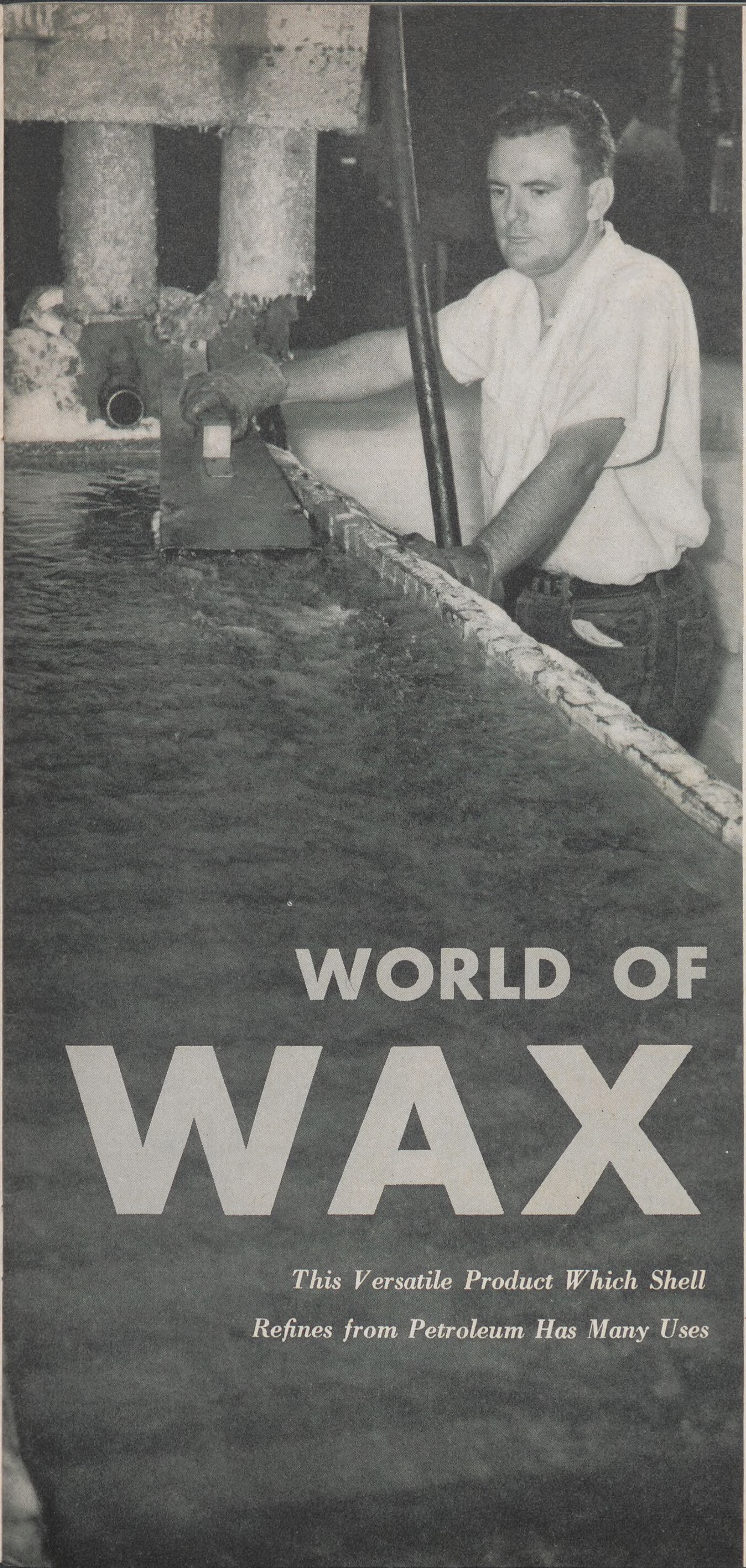
H. S. M. Burns, President of Shell Oil Company, announced early in February that Shell would make available more than one million barrels of crude oil for Europe, which normally would not be available for months, by advancing the dates of scheduled overhauls at Gulf Coast refineries.

He said the oil will be provided by shutting down a catalytic cracking unit at one of Shell's two Gulf Coast refineries, and by overhauling another unit not scheduled to be shut down for maintenance until May.

Shell has cut back its Mid-Continent and Gulf Coast refinery operations to the lowest possible level at which the Company can continue to meet domestic requirements, he said, to make more oil available "during the critical period ahead."

Mr. Burns said that by the end of February Shell would have made available for shipment to Europe more than four million barrels of crude oil and 1,500,000 barrels of fuel oil and other products.

London's Piccadilly Circus, normally crowded with taxicabs and automobiles, is shown virtually deserted shortly after gasoline rationing went into effect in Great Britain.



WORLD OF WAX

This Versatile Product Which Shell Refines from Petroleum Has Many Uses

WAX is more a part of our daily life than we may realize. The conception that "It's what Mom seals her preserves with" is just about as outdated as is tallow in candle making.

All of the preserves on earth couldn't require the estimated one and a third billion pounds of wax consumed annually in the United States. Where do we get and how do we use this veritable mountain of wax?

Although wax can be obtained from various plant and animal life, today more than 95 per cent of the American consumption is petroleum-derived. It is removed from lube oil stocks before they are compounded into motor oils and other lubricants.

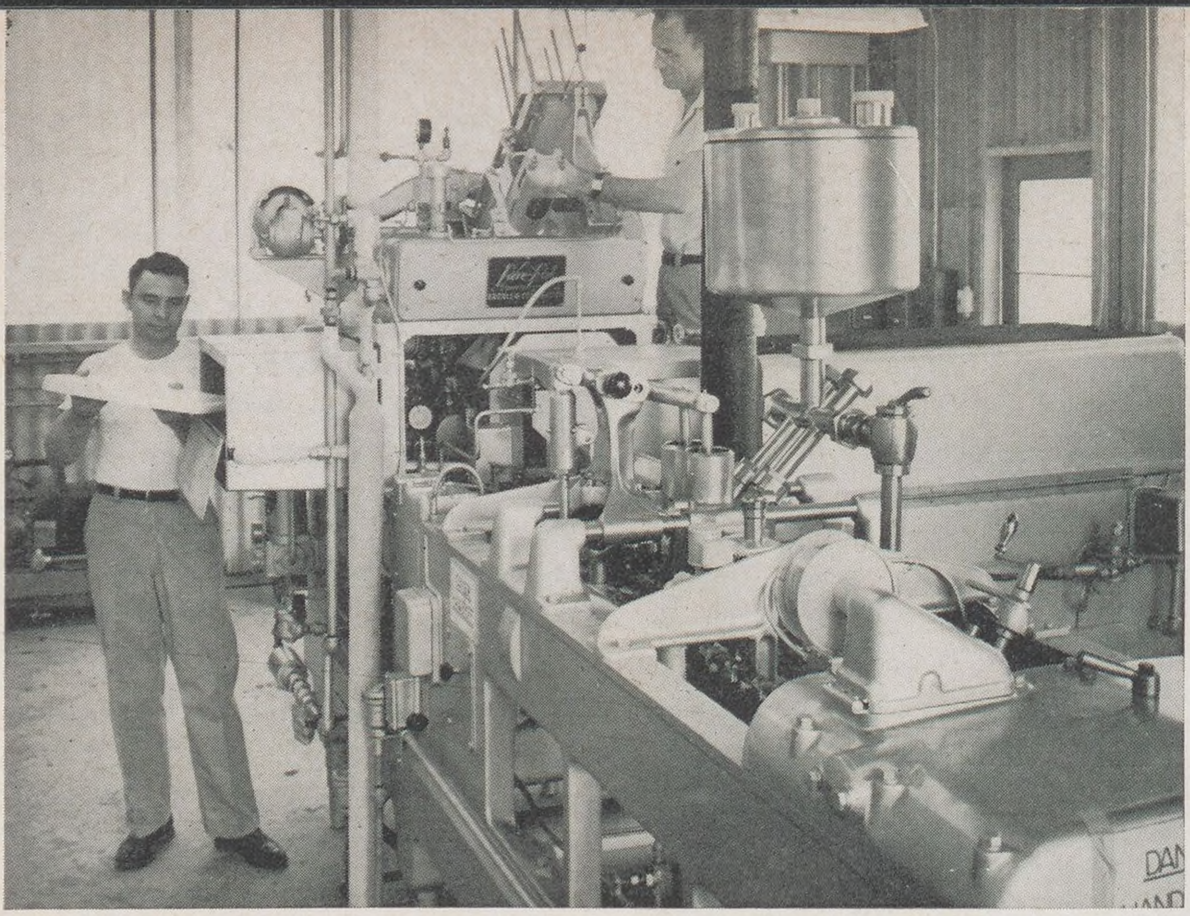
It would be difficult to catalogue completely the applications man has found for this versatile product. In one way or another, we use wax and depend upon it from the time of getting up in the morning until going to bed at night.

Take this article, for instance. The ink used to print these words contained a wax inhibitor to cause even drying. Every cigarette package has a thin film of wax between the foil and the paper.

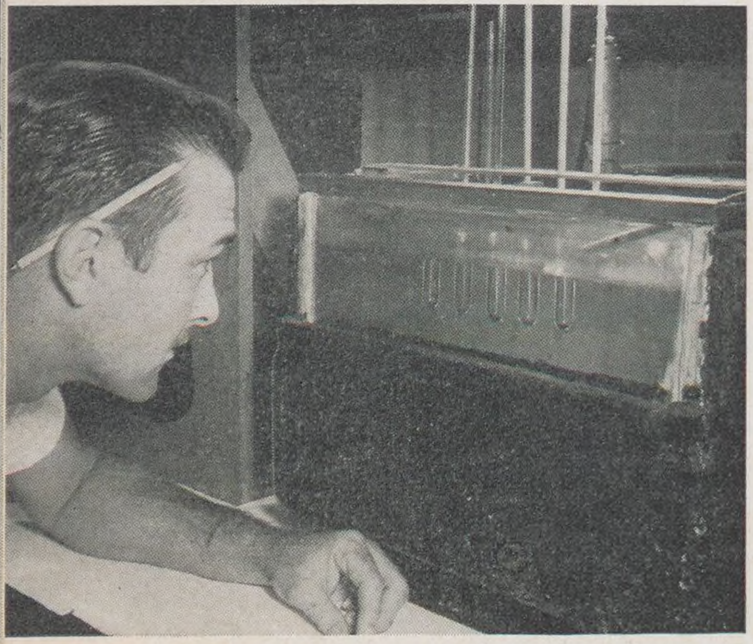
Wax softens the leather used in shoes and is an important material for waterproofing many clothing fabrics. Dentists use it to get impressions for dentures and poultrymen for defeathering Sunday dinners.

Wax made it possible to take milk out of the bottle and put it into cardboard containers. It protectively coats frozen food containers, household wrapping paper, butter cartons, bread, candy and gum wrappers, cereal box liners and disposable paper cups. Among other things, wax is used in the manufacture of soda straws, metal cap liners, lipstick, crayons, leather goods,

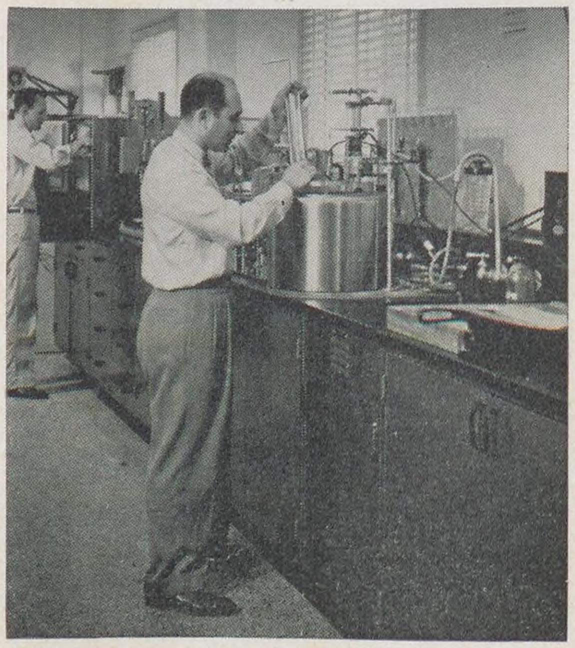
◀ *T. R. McGee, molder, watches stream of wax flow into molds which make 10-pound slabs of finished product at the Houston Refinery.*



A wax suitable for peaked top milk cartons was developed in the Research Laboratory at Houston Refinery. Here, a milk packaging machine, used to test the wax under actual dairy conditions, is operated by J. C. Muyres, left, and D. M. Bartay, both Laboratory Technicians.



T. W. Ferguson, Special Tester in the Houston Control Laboratory, is shown determining the melting points of different waxes.



Bartay, left, and K. G. Arabian, Senior Research Chemist, study gloss and oxidation stability of wax in the research laboratory.

Ten-pound slabs of SHELLWAX® are packaged in burlap for shipment to consumers throughout the U. S. by, left to right, W. H. Davenport, Swamper; H. Andrews, E. D. Davis, and A. L. Grant, all Special Yardmen.

garden hose and automobile tires.

All of the fully refined waxes Shell produces in the United States are made at the Houston Refinery. With more than 100 tons daily output, Shell is one of the nation's largest producers of petroleum waxes.

Shell wax, one of the end products from the processing of East Texas crudes, is removed from various lube oil stocks before they are compounded into finished motor oils. Separating the wax from the oil, called de-waxing, is accomplished by dissolving the oil in a solvent, a mixture of methyl ethyl ketone and toluene. This is followed by a series of processes involving chilling, filtering and purifying. The crude wax derived from de-waxing is further purified by de-oiling with a similar solvent and processing sequence.

The next step takes place in the finishing unit where the melted, de-oiled wax is filtered through a special-type clay to remove objectionable coloring and odor. Some of this pure, molten wax is then molded into 10-pound blocks which are packaged in cardboard boxes or burlap bags for shipment. The remainder is transported in tank cars and tank trucks or in expendable drums.

Shell produces two principal types of waxes at the Houston Refinery. One of them, paraffin, is derived generally from the de-waxing of distilled lubricating oil fractions. It is characterized by its relatively large crystalline structure and has melting points ranging from 110 to 185 degrees F. The other type, microcrystalline, is, as its name implies, composed of extremely fine, needle-like crystals. Microcrystalline waxes, made from residual oils, are extremely tough and flexible and have melting points ranging from 135 degrees to 180 degrees F.

Because of their adhesive properties, microcrystalline waxes are used extensively to fasten one wrapping material to another, such as paper and foil in cigarette packages. The wax also serves as a water vapor barrier in food wrappings. Microcrystallines are also added to paraffin wax to impart some of their characteristics, such as flexibility and adhesiveness, to the mixture.

The quality of every wax must be carefully tested while it is processed and before it is shipped to consumers. The Refinery Laboratory at Houston checks the purity and physical properties of each wax prior to shipment.

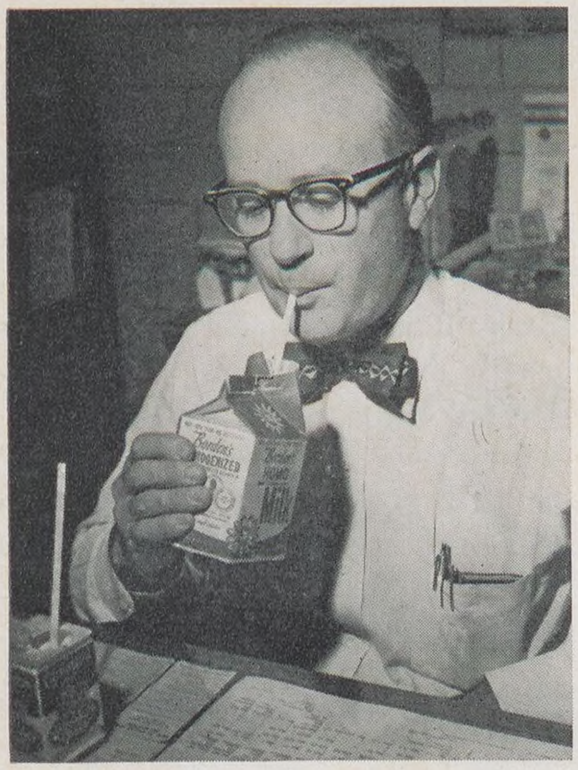
In the Research Laboratory at the refinery, the Wax Products Group engages in process study, product evaluation and basic research that seeks answers to what makes waxes act as they do. Among recent developments made by the group are an improved sealing grade of microcrystalline wax and a new paraffin wax for coating paper cups.

About 10 per cent of the refinery's annual production of wax goes to manufacturers of milk cartons. One of the first outlets for wax produced at Houston was to manufacturers of the familiar square-top milk cartons seen in most grocery stores.

In 1953, wax research at Houston focused on a product which would be suitable for peaked top milk cartons. Because these cartons are formed, waxed and filled with cold milk in one quick operation, the wax has to withstand sudden chilling from its molten state at 175 degrees F. to the temperature of the milk, 40 degrees, without cracking. Wax for the older flat-top cartons is not subjected to this sudden temperature drop because such cartons are waxed at the factory and then shipped to dairies.

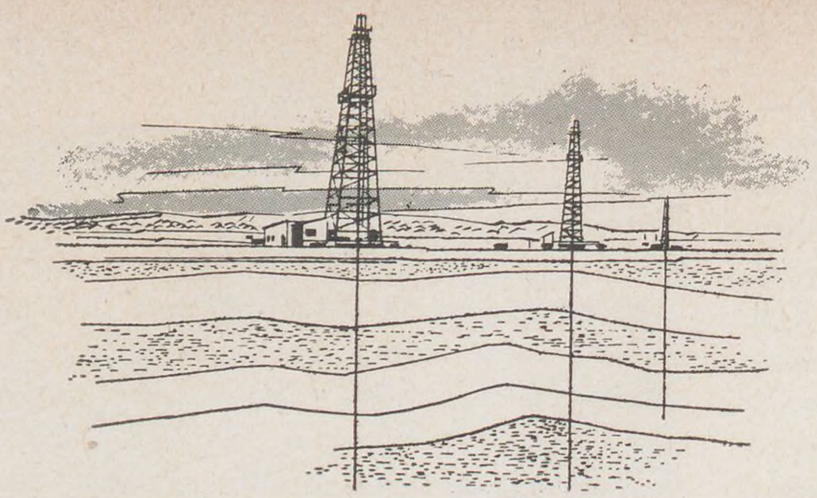
Last year Shell leased a commercial-size Pure-Pak packaging machine from its manufacturer, the Ex-Cell-O Corporation, to test the product under actual dairy conditions. As a result of the combined efforts of the Lubricating Oils Department, the Research Laboratory and the Head Office Products Application Department, a wax meeting the requirements was developed and commercial production began in December, 1956.

As research continues to seek out new applications for wax, the future for this versatile product grows brighter. It already has outshone the flickering candle, once our principal source of light.



H. J. Lewis, Manager of the Houston Refinery Lubricating Oils Department, sips milk from a peaked top container. A special wax for this type of carton was put on the market by Shell in December.

Mrs. R. W. Koehl, wife of R. W. Koehl, of the Houston Refinery, fills her market basket with many products which contain wax or have wax-treated wrappers.



TO BE OR NOT TO BE

. . . a producer? That is the question a drill stem test answers at a dramatic moment in the drilling of a well

THE expression, "We've struck oil!" has passed into the limbo of dead phrases. But the idea lingers vaguely in many people's minds—probably inside as well as outside the oil industry—that an oil strike happens when that "black gold" (also out of date) comes gushing out of the well to the top of the drilling rig.

Nowadays, a gusher happens rarely. In fact, when it does, it is an accident, an expensive one. Oilmen, however, sometimes still have a dramatic moment when they might be tempted to repeat the old cliche about striking oil.

The moment comes when they learn the results of a complicated maneuver called a drill stem test and get their first tangible evidence of whether the well is to be or not to be a profitable producer of oil. (If the well is a wildcat, their chance of finding oil is only one in nine.)

There are several turning points when an oilman may make a decision about a well. One point is when he reads the electric log, a recording device which gives information that indicates the porosity of the underground formation of rock and also the presence of hydrocarbons and water. Another is when he studies the cuttings and cores from various stages of a well being drilled which reveal the type of rock the drill is passing through and the fluid in those formations.

But the drill stem test still is sometimes necessary in order to be sure whether he has come up with a winner. He gets a lot of information from a drill stem test; for example, the amount of pressure in the formation under test which has a bearing on how much oil, gas or water he will get out of it, and also how fast the oil will come out of the well. He also gets an actual sample — though sometimes a small one—of the contents of the reservoir. From this he may decide whether he should run a cement casing in the well; whether he should pass the formation under test and drill down farther, or perhaps go back up to a previously-tested and more likely formation to finish the well.

Here is a highly (experts might well say "overly") simplified version of what happens on a drill stem test:

The instrument used for this test is called—logically enough—a formation tester. It has two main sections—the packer and the tail pipe. These are coupled together, along with recording instruments at the bottom end of the drill pipe and are lowered down the well. When they get down to where the oilman wants the test taken, the packer — equipped with powerful

Crew members assemble the test tool before lowering it into the well. W. E. Harrop, right, from the testing company, watches.

Tool Pusher W. C. Howard, left, and Geologist R. A. Madsen are checking with a bucket of water and a rubber hose to see that the test is working.

When the test tool is brought up, instruments in it are removed. Left to right are: A. V. Brewer, then a Rotary Helper and now a Rotary Engine Man; Rotary Engine Man M. L. Roberts (behind tool); Rotary Helper G. C. Fisk; and Harrop.

Following the drill stem test, the records removed from the test instruments are examined by crew members and the chief tester. This information may point to oil. Left to right are: Rotary Driller J. B. Smith, Harrop and Brewer.

springs—is sealed against the wall of the well. This relieves the section of the well under test from the pressure of the drilling mud already in the hole. With the drilling mud pressure off, a reading can be taken of the pressure of the fluid in the rock formation under test.

This is recorded automatically as the fluid — gas, oil, water or, more likely, a mixture of them—flows from the formation into the tail pipe and upward into the drill pipe.

At the same time, up at the wellhead, the oilman may get some information directly with the help of a rubber hose and a pail of water. As the fluid from the formation rises in the drill pipe, it forces air from the open pipe at the wellhead. The oilman attaches the rubber hose to the drill pipe and then puts the end of the hose in the bucket of water. When bubbles start forming he knows the tailpipe is open and taking in fluid from the formation. And from the rate the bubbles form he can estimate how fast the formation fluid is rising.

The next big step is to prepare to bring the formation tester back up to the surface. First, he closes the holes in the tailpipe to trap the formation fluid. That is done automatically by turning the drill pipe. The packer is unsealed and the drilling mud flows back into the section under test, stopping the flow from the formation into the well.

The oilman then starts pulling up the drill pipe. The dramatic moment comes when he finally gets up the section from the formation tested and sees what it has drawn.

It may be a combination of water, oil and gas. But it is the proportion of each that counts. The experienced oilman can make a pretty good guess as to what these proportions are just from looking at the fluid. When he gets a detailed analysis he can decide his next step—finish the well at this point, go back up to another formation, abandon the well, or drill deeper.

The pictures on these pages were taken during a drill stem test last year on Shell's South Crazy Woman Unit Well No. 1 (how it got that name is another story), a wildcat located in Johnson County, Wyoming. This test took 23 hours. In all, three drill stem tests were made on the well and oil was found at two different levels.

Further testing indicated the well would not produce enough oil to justify its continued operation. So the well was plugged and abandoned.

That's one of the reasons exploring for oil means taking big risks. Methods such as the drill stem test have helped to cut the odds against finding oil in commercial quantities but the odds are still high.

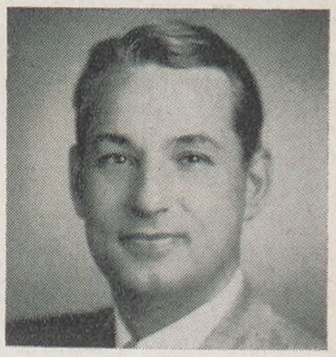
Shell People in the News

Shell Oil Company Marketing Organization

P. C. THOMAS

P. C. THOMAS, Vice President of Shell Oil Company's Midwest Marketing Divisions, will establish his office in Chicago within the next few months. F. H. STAUB, Special Assistant to the General Manager of Head Office Marketing Departments, will become Sales Assistant to the Vice President of Midwest Marketing Divisions, exchanging positions with P. G. DREW.

The move of the Vice President's office is being made in the interest of shortening lines of communications with the field organization. Chicago was selected because of its convenience to the Chicago, Cleveland, Detroit, Indianapolis, Minneapolis and St. Louis Marketing Divisions.



F. H. STAUB

P. G. DREW

Shell Oil Company Exploration and Production

A. S. GILLES has been named Assistant to the Vice President of Shell Oil Company's Denver Exploration and Production Area. Mr. Gilles, who holds a Bachelor's degree in engineering and a Bachelor of Laws degree from the University of Oklahoma, joined Shell Oil Company in 1939 as Compensation Adjuster in the Head Office Personnel Department, then located at St. Louis. In 1941 he was appointed Assistant Department Head in the Industrial Relations Department at the Wood River Refinery. He moved to New York in 1946 as Industrial Relations Representative in the Head Office Industrial Relations Department. In 1948 he was transferred to the Tulsa Exploration and Production Area as Manager of the Personnel and Industrial Relations Department. Mr. Gilles moved to the Denver Area in the same capacity in 1953.

A. S. GILLES

A. A. McLEOD has been named Manager of the Personnel and Industrial Relations Department in Shell Oil Company's Denver Exploration and Production Area. Mr. McLeod, who holds a Master's degree in industrial psychology from the University of Tulsa, joined Shell in 1937 in the Accounting Department at Tulsa. After holding positions of increasing responsibility at various locations in the Tulsa Area, he was appointed Personnel Supervisor in the Area's Personnel and Industrial Relations Department in 1951. Mr. McLeod became Personnel Manager at the Sewaren Plant in 1954 and was transferred to the Midland Exploration and Production Area as Personnel and Industrial Relations Manager in February, 1956.

A. A. McLEOD

L. H. HUMPHREY has been named Manager of the Personnel and Industrial Relations Department in Shell Oil Company's Midland Exploration and Production Area. Mr. Humphrey joined Shell Oil Company in 1936 as a Clerk in the Purchasing-Stores Department at Tulsa, Oklahoma. He was named Training Supervisor in the Personnel and Industrial Relations Department of the Tulsa Exploration and Production Area in 1945 and Area Training Representative in 1951. The following year he was transferred to the Houston Area as Personnel Supervisor in the Personnel and Industrial Relations Department.

L. H. HUMPHREY

Shell Oil Company Transportation and Supplies Organization

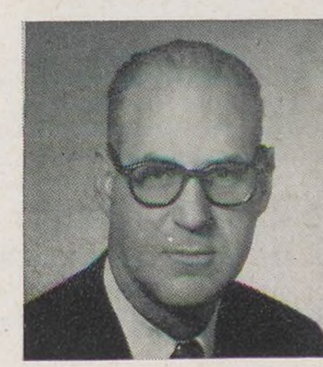
S. B. KIESELHORST has been named Manager of the Crude Oil and Volatiles Department of Shell Oil Company's Head Office Transportation and Supplies Organization, replacing **M. E. OVERMAN** who retired recently. Mr. Kieselhorst, who holds a Bachelor's degree in philosophy from Yale University and a Master's degree in business administration from Harvard University, joined Shell Oil Company in 1934 in the Marketing Organization located at St. Louis. He was named Administrative Assistant in the Head Office Transportation and Supplies Organization in 1945. In 1949 he became Assistant Manager in the Supplies Department (later renamed Products Department) and was appointed Assistant Manager of the Crude Oil and Volatiles Department in June, 1956.

S. B. KIESELHORST

Shell Oil Company Manufacturing Organization

B. W. DUNBAR has been named Chief Technologist at Shell Oil Company's Anacortes Refinery succeeding **C. A. REHBEIN** who has advanced to the Head Office Manufacturing Organization as a Special Technologist.

Mr. Dunbar, who holds a Bachelor's degree in Chemical Engineering from California Institute of Technology, joined Shell Oil Company in 1937 as a Technologist at the Wilmington Refinery. He was transferred to Head Office as a Senior Technologist in the Manufacturing Department in 1948. Mr. Dunbar moved to the Wood River Refinery in 1952 as Department Manager of the Catalytic Cracking Department and was transferred to the Anacortes Refinery in 1955 as Department Manager, Zone B.



B. W. DUNBAR

W. A. MITCHELL has been named Department Manager, Zone B, at Shell Oil Company's Anacortes Refinery. Mr. Mitchell, who holds a Bachelor's degree in chemistry from the University of California, joined Shell Oil Company in 1942 as a Junior Technologist at the Wilmington Refinery. He was transferred to Head Office as a Technologist in the Manufacturing Department in 1951 and was appointed Assistant Department Manager, Zone B, at the Anacortes Refinery in 1955.

W. A. MITCHELL

J. R. BOWEN has been named Assistant Chief Technologist at Shell Oil Company's Norco Refinery. Mr. Bowen, who holds a Master's degree in chemical engineering from Purdue University, joined Shell Oil Company in 1944 as a Junior Technologist at the Norco Refinery. After serving in the same capacity at the Wood River and Houston Refineries, he was transferred to Head Office in 1948 as a Technologist in the Manufacturing Department. Mr. Bowen returned to Norco in 1952 and was appointed Assistant Department Manager of the Gas Department there in 1955. In June, 1956, he was named a Senior Technologist at Norco.

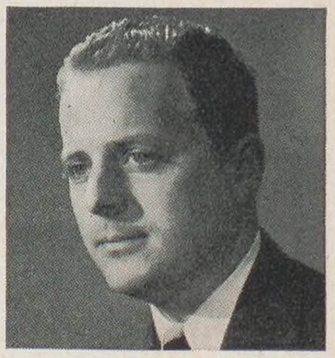
J. R. BOWEN

J. A. HATTON has been named Assistant Chief Technologist at Shell Oil Company's Anacortes Refinery. Mr. Hatton, who holds a Master's degree in chemical engineering from Stanford University, joined Shell Oil Company in 1938 as an Inspector at the Martinez Refinery. In 1942 he was named a Junior Technologist at the Wilmington Refinery and in January, 1950, became Assistant Department Manager of the Alkylation Department at Wilmington. Mr. Hatton was transferred to Head Office in August, 1950, as a Senior Technologist in the Manufacturing Department and in 1955 he was transferred to the Anacortes Refinery in the same capacity.

J. A. HATTON

Shell Oil Company Financial Organization

R. S. MacINTIRE has been named Assistant Manager of Shell Oil Company's Head Office Marketing Accounting Department. Mr. MacIntire, who holds a Master's degree in business administration from the Harvard Business School, joined Shell Oil Company in 1947 as an Accountant in the Head Office Treasury Department. He moved to the Houston Area in 1950 as Area Auditor and was promoted to Chief Accountant in the Area's Treasury Department in 1952. Mr. MacIntire was transferred to the Sewaren Plant in 1955 as Treasury Manager.



R. S. MacINTIRE

R. F. LANTER has been named Treasury Manager of Shell Oil Company's Sewaren Plant. Mr. Lanter, who holds a Bachelor's degree in commerce from St. Louis University, joined Shell Oil Company in 1947 as a Clerk in the Wood River Refinery. He was transferred to Head Office in 1952 as an Auditor in the Auditing Department. Mr. Lanter was appointed Chief Accountant in the Sewaren Plant's Treasury Department in January, 1954.

R. F. LANTER

E. F. DALY has been named Treasury Manager of Shell Oil Company's Sacramento Marketing Division. Mr. Daly joined Shell Oil Company in 1925 as a Clerk in the Accounting Department at St. Louis. He was appointed Chief Accountant in the Des Moines Marketing office in 1936. He was named Assistant Chief Accountant in the Head Office Marketing-Accounting Department in 1942. Mr. Daly was transferred to the Albany Marketing Division in 1944 as Treasury Manager.

E. F. DALY

P. W. WIELD has been named Treasury Manager of Shell Oil Company's Albany Marketing Division. Mr. Wield, who holds a Bachelor's degree in business administration from St. John's University, joined Shell Oil Company in 1941 as a Clerk in the New York Marketing Division Treasury Department. He moved to the Cleveland Marketing Division in 1952 as Chief Accountant. In January, 1956, Mr. Wield was appointed Treasury Manager of the former Shell American Marketing Division and last November he became Senior Auditor in the Head Office Auditing Department.

P. W. WIELD

Shell Development Company

J. B. ROSEN has been named Department Head of the newly-organized Applied Mathematics Department at Shell Development Company's Emeryville Research Center. Mr. Rosen holds a Bachelor's degree from Johns Hopkins University and a Ph.D. degree in applied mathematics from Columbia University. He was associated with the Brookhaven National Laboratory and was Research Associate in the Mathematics Department and the Forrestal Research Center at Princeton University before joining Shell Development Company in 1954 as a Mathematician in the Mechanical and Electrical Engineering Department at Emeryville. He was appointed a Supervisor in that department in 1955.

J. B. ROSEN

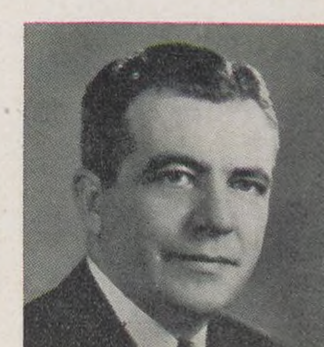
J. H. PARKER has been named Staff Patent Attorney in the Patent Division of Shell Development Company's Emeryville Research Center. Mr. Parker, who holds a Bachelor's degree in chemistry from the University of California and a Bachelor of Laws degree from Golden Gate College, joined Shell Development Company in 1934 as a Laboratory Assistant at Emeryville. He moved to San Francisco in 1938 as a Patent Engineer in the Patent Division. Mr. Parker was appointed Patent Attorney in 1948.

J. H. PARKER

E. J. Griffin Dies

E. J. GRIFFIN, Sales Assistant to the Vice President, West Coast Marketing Divisions, died February 1 in a San Rafael, California, hospital after a brief illness.

Most of Mr. Griffin's 26 years of service with Shell was spent in the West Coast Marketing organization, although he served from 1951 to 1954 as Manager of the Cleveland Marketing Division and from May 1954, to July 1955, as Assistant to the Vice President, Marketing, Head Office. His loss will be felt by his many friends throughout Shell. Mr. Griffin is survived by his wife, Nora.



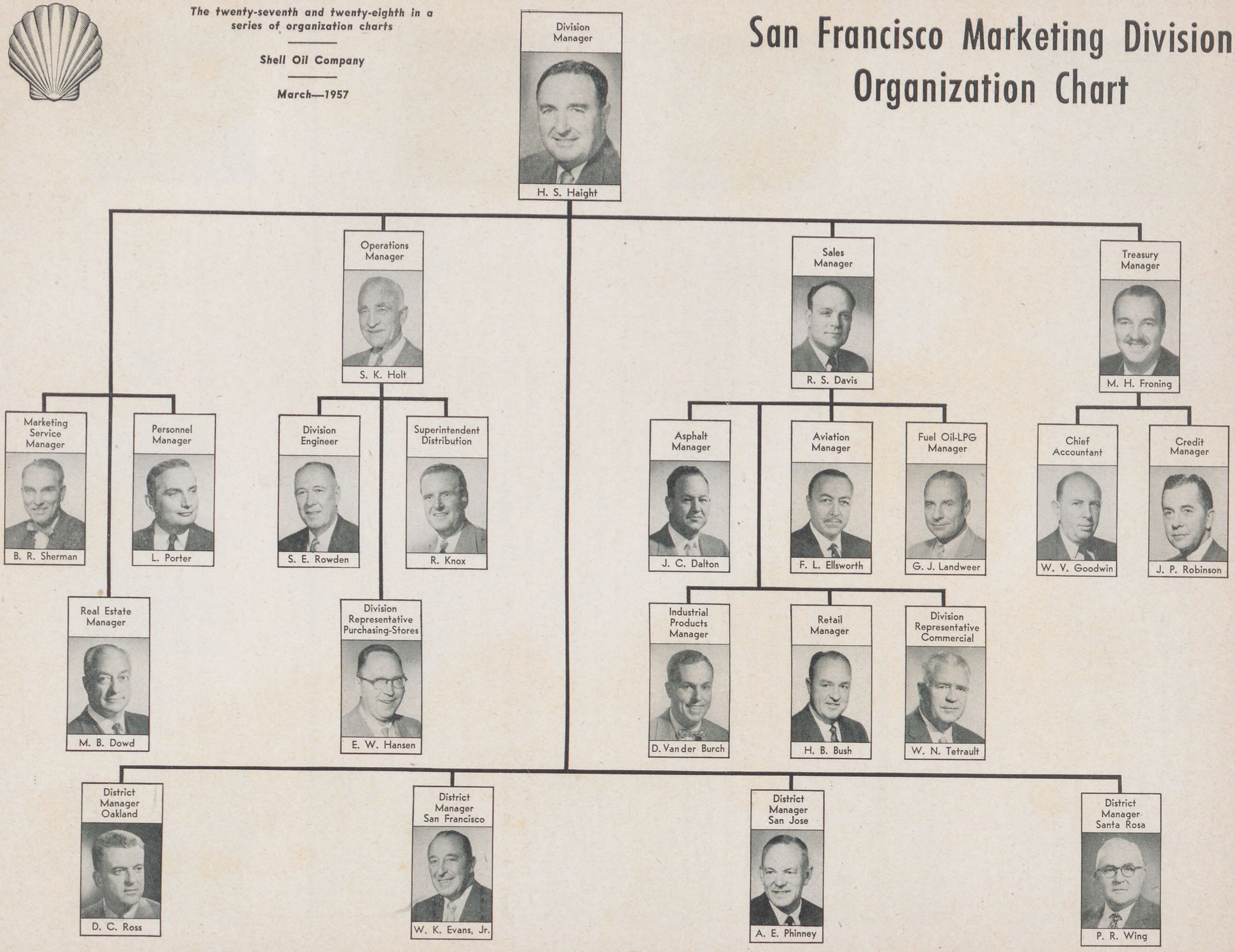
E. J. GRIFFIN

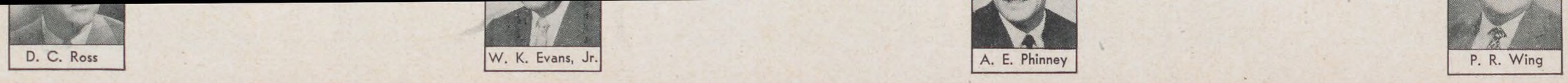
The twenty-seventh and twenty-eighth in a series of organization charts

Shell Oil Company

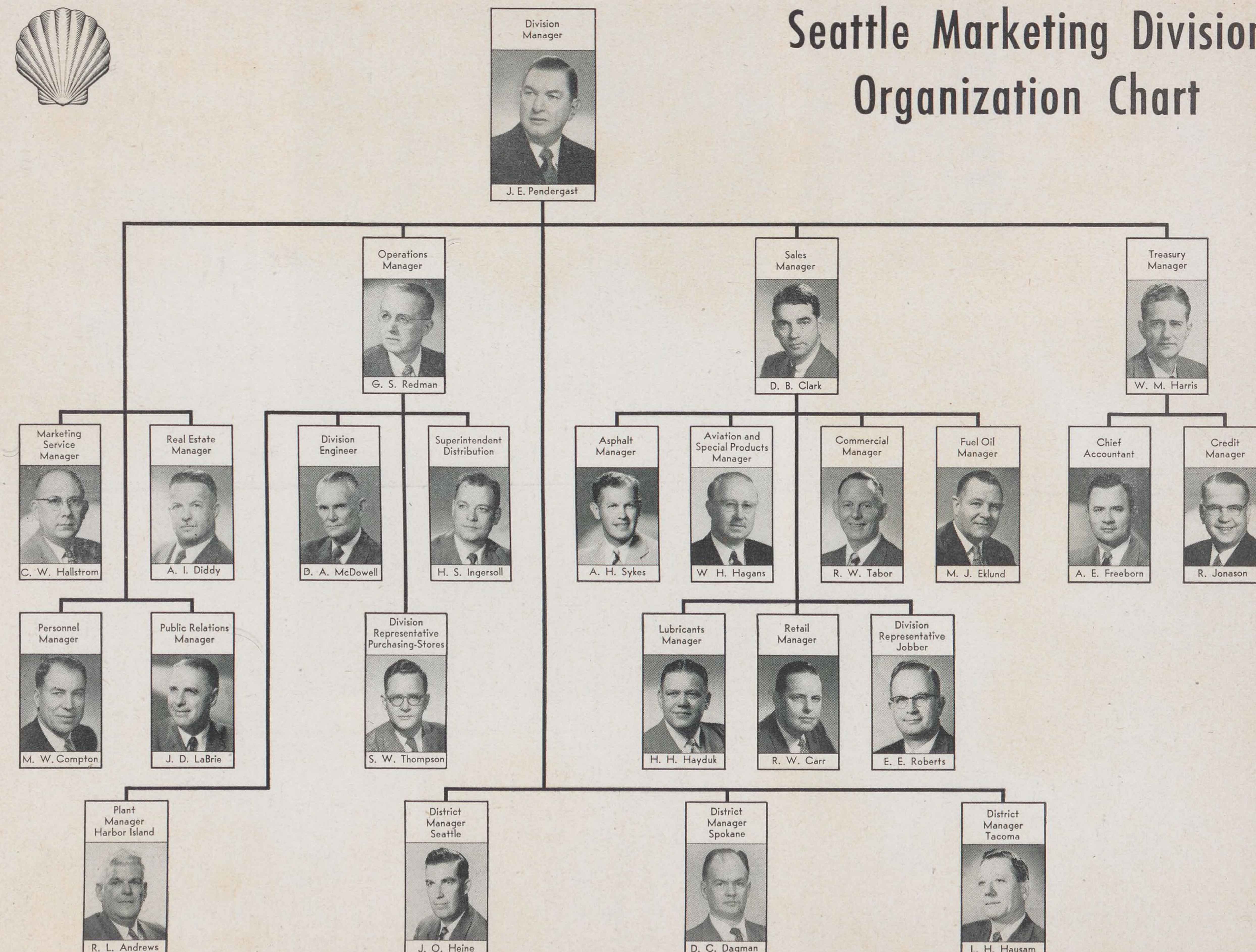
March—1957

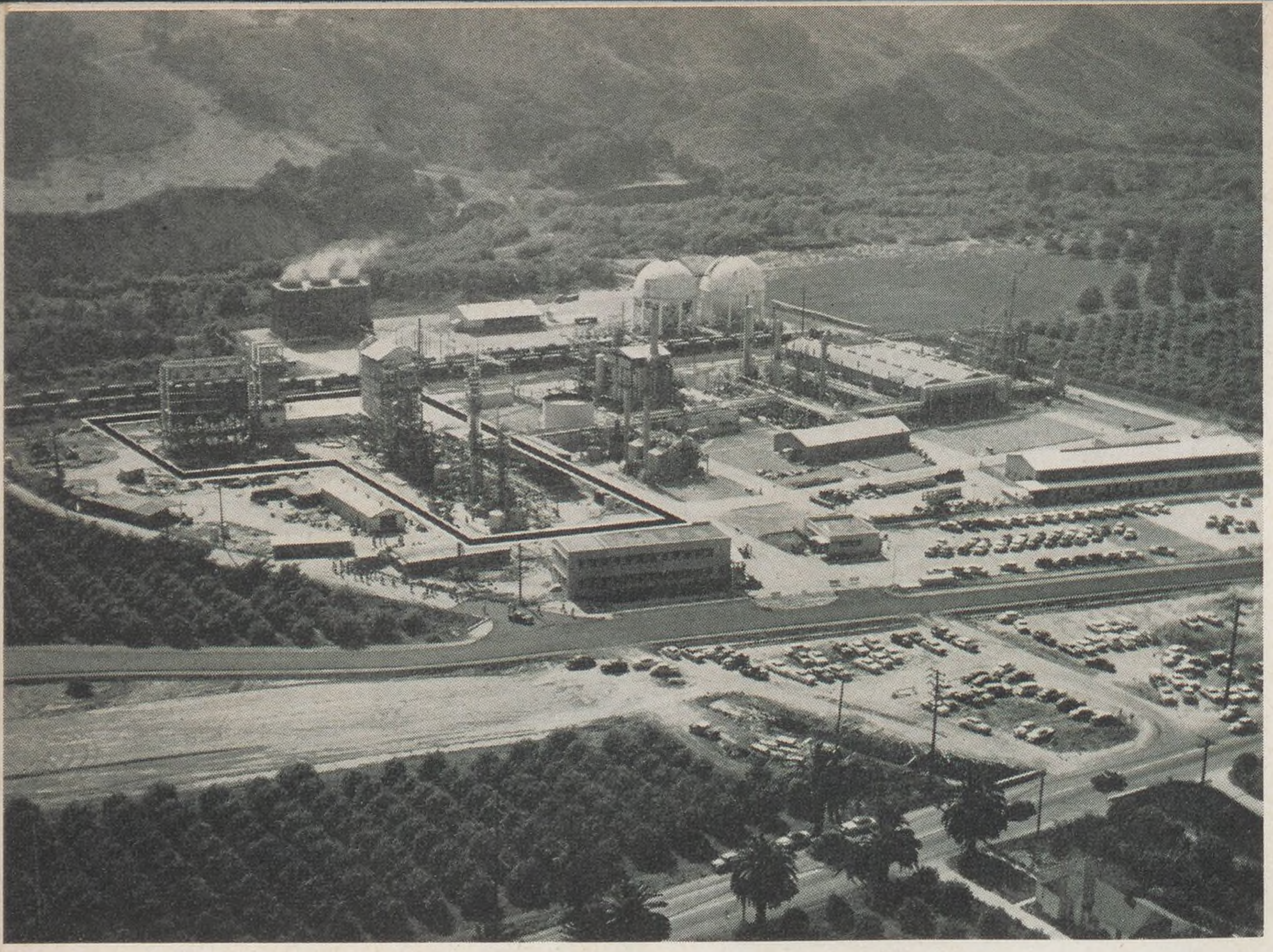
San Francisco Marketing Division Organization Chart





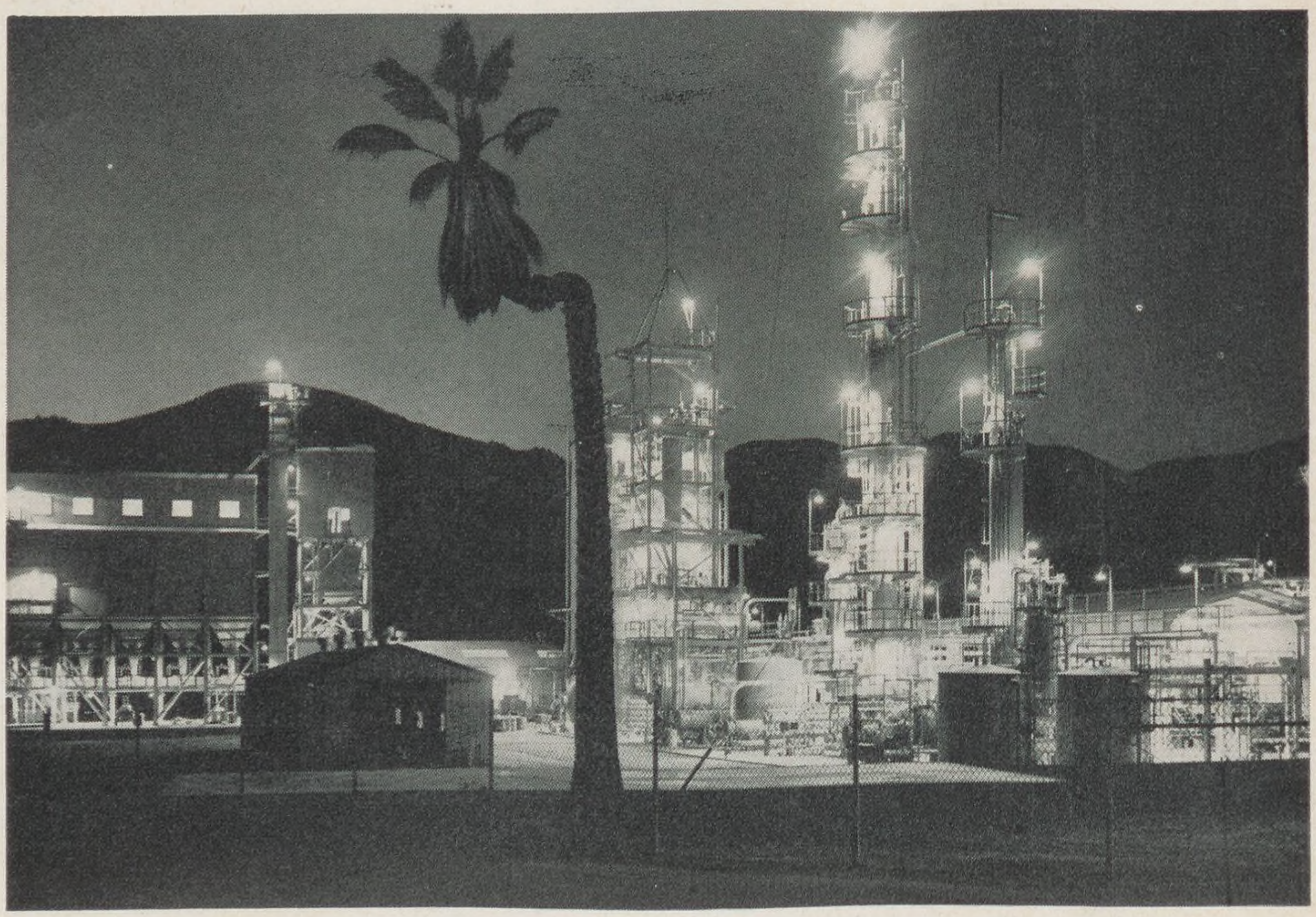
Seattle Marketing Division Organization Chart





Nitrogen For Nature

Shell Chemical's Ventura Plant is Now Manufacturing Urea—a Nitrogen-Rich Fertilizer Which Will Help Western Farmers Boost Crop Yields



Above is an aerial view of Shell Chemical Corporation's Ventura Plant. The new urea installation is in the outlined area. At right is a view of the lighted urea plant after dark.

A PIONEER in providing nitrogen fertilizers for western farmers, Shell Chemical Corporation recently constructed a new plant at Ventura, California, for the manufacture of urea—another product of man's search for new chemical compounds containing life-giving nitrogen.

All life is dependent upon nitrogen, a food vital to the growth of both plants and animals. Without the man-made nitrogen compounds developed during the last 50 years, the world's food production would be declining rapidly and vast populations would be suffering from starvation.

The air around us is filled with an abundant supply of nitrogen, but animals and most plants are unable to use it directly to form the nitrogen compounds and proteins needed in the building of living tissues. Men and animals get the nitrogen compounds they need by eating other animals and by eating plants which obtain nitrogen mainly from the soil. Minerals, rainwater and bacteria are en

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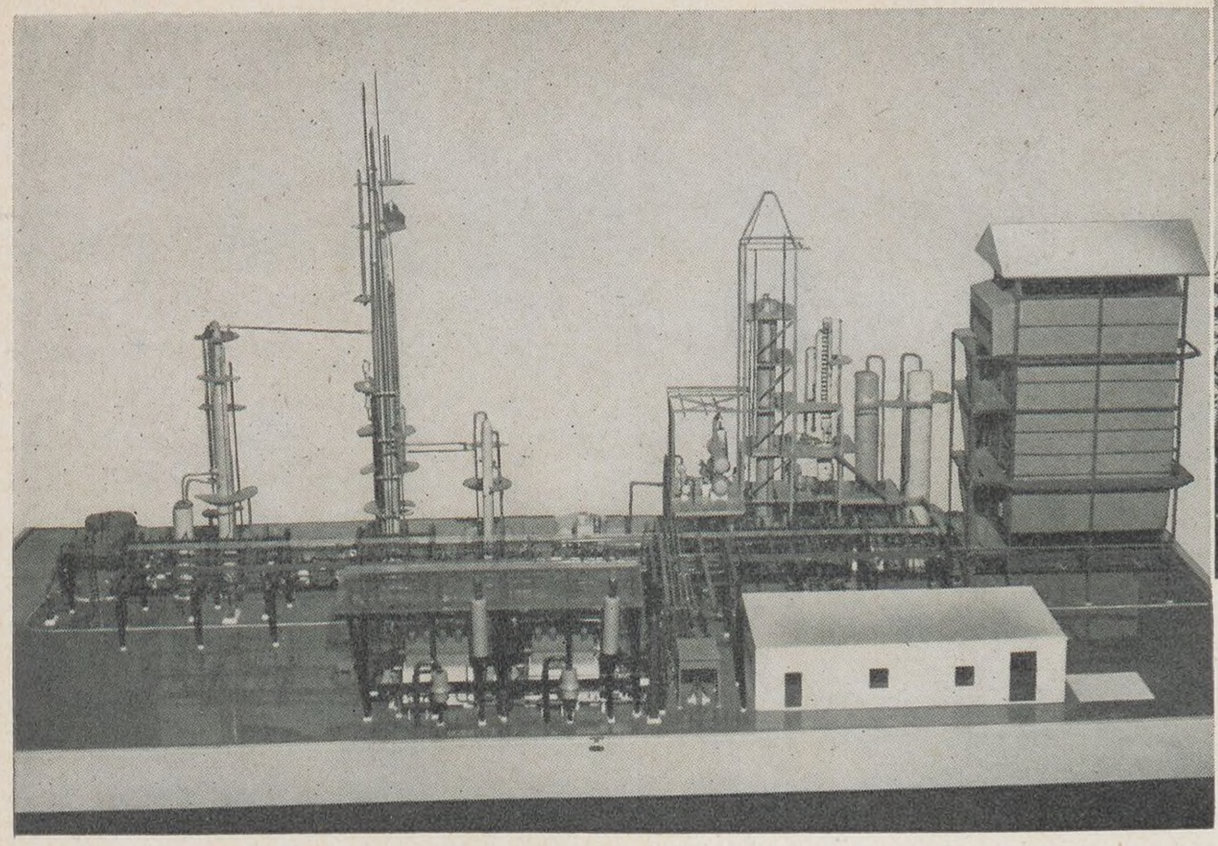
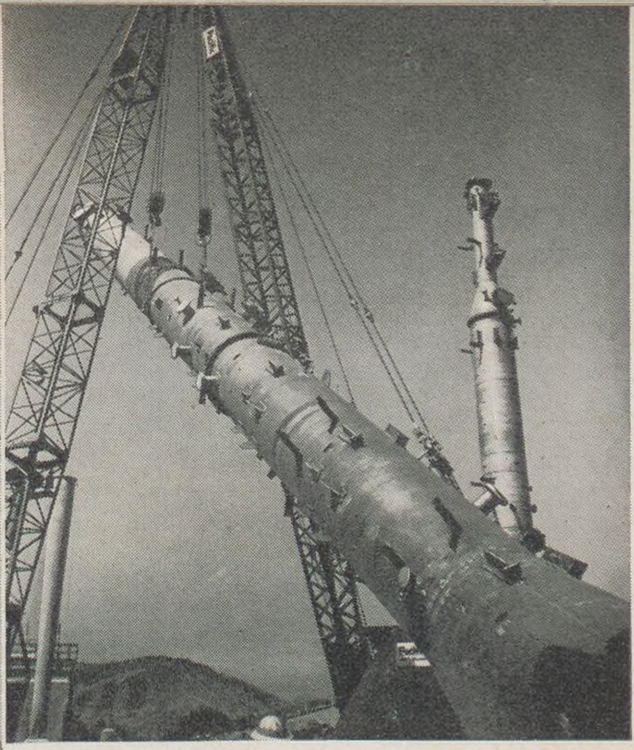


Engineers built a scale model of the urea plant before actual construction was started for the purpose of studying ways to locate equipment and piping in the most efficient way. This study saved several tons of corrosion resistant alloy steel worth thousands of dollars.



A difficult rigging job during the construction of the Ventura urea plant was lifting the ammonia absorber tower into place.

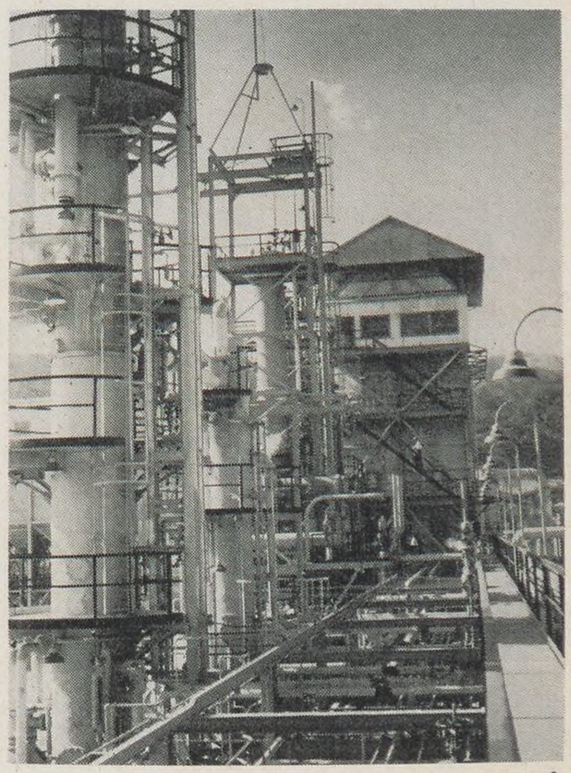
the sources of the natural nitrogen compounds in the soil, but these sources alone cannot keep cultivated land rich in nitrogen.

Before man was able to assist nature in supplying nitrogen to plants, he had to discover a method of converting the nitrogen in the air into a usable form. This problem was solved in 1908 when Dr. Fritz Haber of Germany discovered a way to force atmospheric nitrogen to react with hydrogen, thus producing ammonia. Commercial plants for this purpose soon were built, first in Europe and then in the United States.

Most early ammonia plants obtained hydrogen needed for ammonia synthesis from coke oven gases. In 1931, the Shell Chemical Plant at Pittsburg, California, became the first ammonia plant in the world to use natural gas as a source of hydrogen. In response to the growing demand for ammonia fertilizer in California, Arizona and the Pacific Northwest, a second Shell ammonia plant was built at Ventura in 1954.

Since the needs of farmers are varied, several forms of nitrogen fertilizer have been developed. In addition to agricultural ammonia, Shell Chemical provides western farmers with four dry nitrogen fertilizers — ammonium sulphate, diammonium phosphate, ammonium phosphate sulphate and urea.

The major advantages of urea over other dry nitrogen fertilizers are that it contains a third more nitrogen per pound than any other solid nitrogen



At the end of the catwalk above is the "prill" tower where liquid urea is changed into small spherical particles or prills.

Loading Foreman L. R. Wallace inspects urea prills as the product moves from a hopper to be packaged in heavy paper bags.

fertilizer and can be applied easily to many growing crops, even by spraying, without injuring the foliage. Citrus trees have been successfully fed by spraying a solution of urea in water onto the leaves. Since urea is high in nitrogen content, it enables the farmer to store and handle less weight.

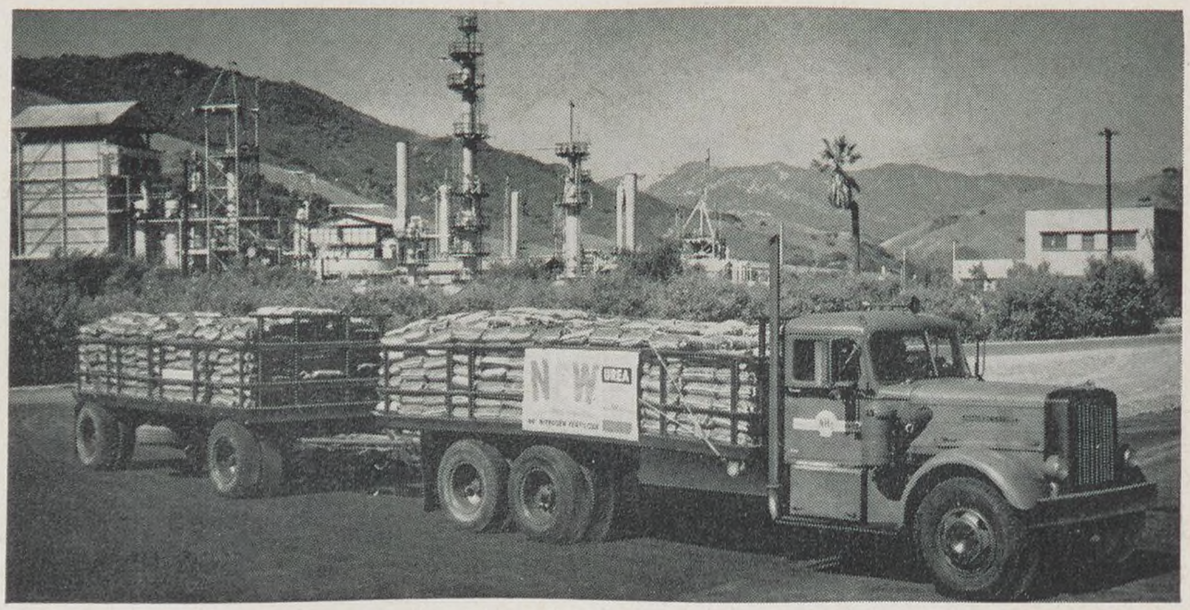
The new urea plant at Ventura will provide a plentiful supply of urea for western farmers at competitive prices. Previously, the farmers purchased urea from eastern firms or abroad since it was not manufactured west of the Rocky Mountains.

The Ventura urea installation uses the Montecatini process and is the first of its kind to be built in the United States. Montecatini is a leading European chemical firm. The urea is manufactured by reacting ammonia with carbon dioxide—materials which are supplied by the Ventura ammonia plant. In the process, the urea is shaped into small free-flowing round beads called "prills." It can be applied by spreader, drill or airplane and is also completely water soluble, making it suitable for application in irrigation water or sprinkler systems.

Although urea is used primarily as a fertilizer, it also has many other applications. Since it is the simplest form of protein and can be assimilated directly by cattle, supplemental feeds often contain urea. Also, urea is used as a raw material in the manufacture of plastics and adhesives and some forms of "ammoniated" toothpastes contain the chemical compound.

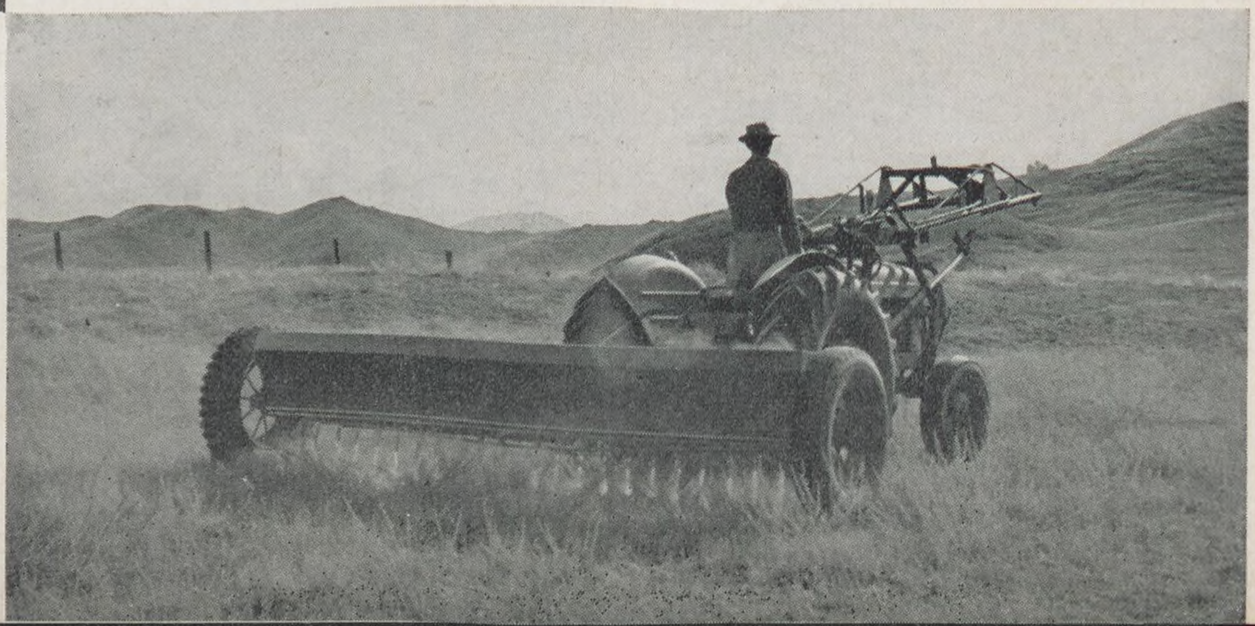
Although Shell's urea production will supply chemical firms, the majority will go to western farmers who rely heavily on nitrogen fertilizers to boost normal crop yields. In so doing, they have made available the equivalent of thousands of additional acres of land to produce food for our increasing population.

Preparing urea for shipment are Loaders G. V. Klingler, left, who operates the bagging machine, and B. J. Isaacs, who seals the paper bags with the sewing machine.

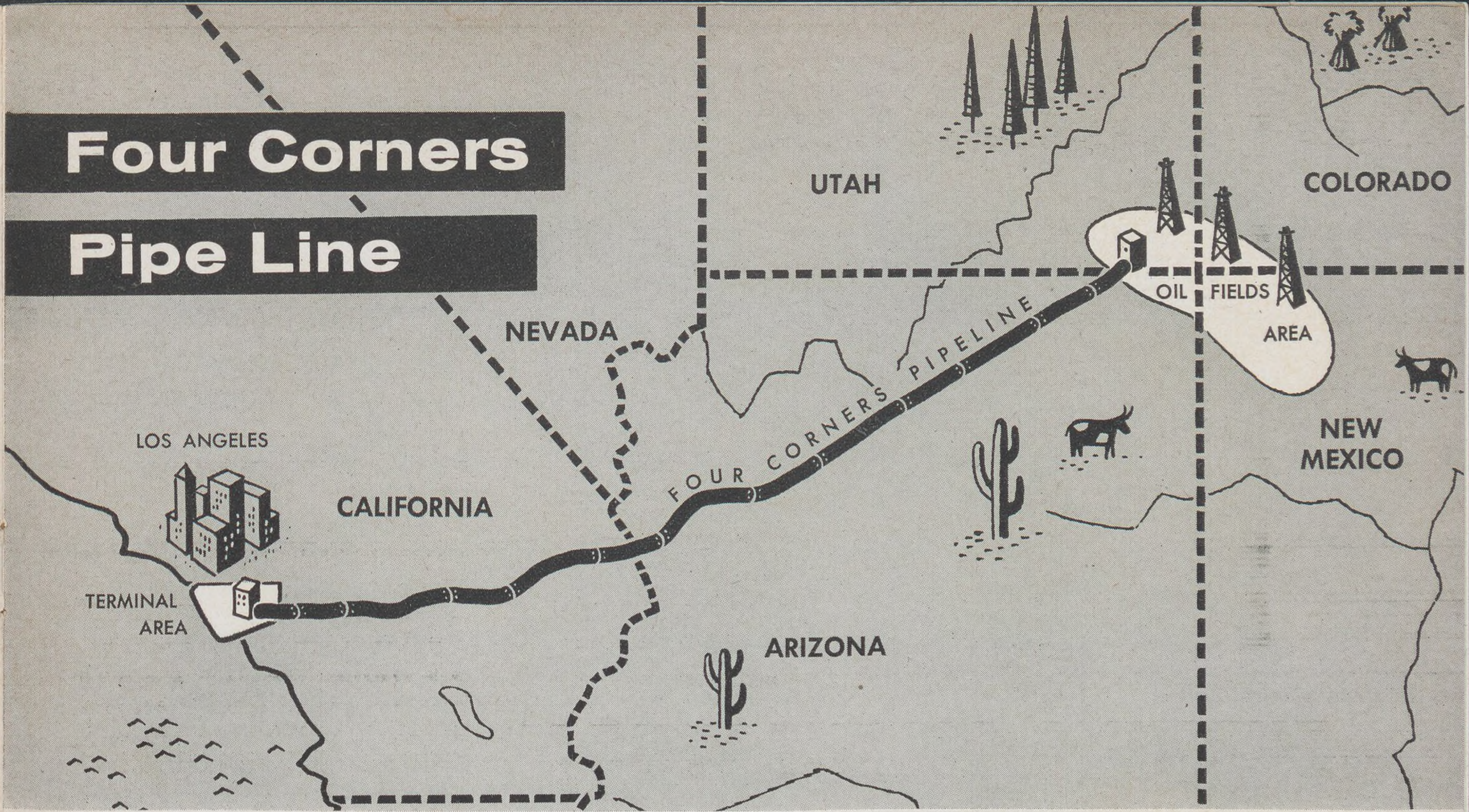


The first truck load of Shell urea is shown here leaving the Ventura Chemical Plant. In the background are the prill tower and the separation columns of the new urea plant.

The picture above and the one at right show urea being used on California rangeland. The rancher above fills a spreader with the nitrogen-rich fertilizer and on the right it is being spread evenly across the range to produce more feed and fatter cattle.



Four Corners Pipe Line



Construction Will Start Soon on a New Line for Carrying Crude From Four Mountain States to the Oil-Hungry West Coast

As a result of several years of exploration and oil field development in the Four Corners area—where the boundaries of Colorado, New Mexico, Arizona and Utah meet—six companies recently announced the formation of the Four Corners Pipe Line Company to construct a 600-mile crude oil pipe line to the West Coast.

Plans for building the pipe line were initiated by Shell Oil Company and Standard Oil Company of California, each of which holds 25 per cent of the stock in the new company. Other companies participating in the project are Gulf Oil Corporation, Richfield Oil Corporation, Superior Oil Company and Continental Pipe Line Company.

The 16-inch pipe line will cost an estimated $50 million and will have an initial capacity of 60,000 barrels of crude daily. However, the capacity can be increased to about 160,000 barrels per day by constructing additional pump stations along the route.

Shell Pipe Line Corporation, which will construct and operate the line as agent for the company, has completed much of the preliminary engineering work and construction will start in April. The line is expected to be in operation by the end of the year.

A pioneer in the development of the Four Corners area, Shell has made several significant discoveries in the last few years, including the Desert Creek Field in Utah and the first producing gas well in Arizona — East Boundary Butte No. 2. Both of these discoveries were made in the autumn of 1954. Shell's recent discoveries include North Desert Creek No. 1 in Utah, which produced initially 1,440 barrels of oil per day, and the Carson No. 1, with initial production of 500 barrels of oil per day. The latter is a major extension of the Bisti Field in New Mexico.

To date, approximately 200 wells have been completed in the Four Corners area and experts estimate that 800 more wells could be drilled within the existing limits of established fields. The oil reserves in the area are conservatively estimated at about 200 million barrels.

Although it has been established that the Four Corners area is a major oil producing province, the development of the area has been slowed because of the lack of facilities for moving the oil to refineries. The new pipe line will solve this problem.

The pipe line is being built westward from the Four Corners area because the Los Angeles refining center is about 400 miles closer to the oil fields than the major refineries on the Gulf Coast. Also, the new line will provide another source of crude oil for the Pacific Coast's expanding economy, while stimulating development of what promises to be a major producing area.

A. L. Taylor, left, of the U. S. Department of Agriculture, J. J. Lawler, center, Sales Manager of Shell Chemical's Agricultural Chemical Sales Division, and W. F. Mai of Cornell University look at live nematodes.

TURNING ON THE WORM

Agriculture Experts From 16 States Learn the Latest in Nematode Control at a "Workshop" Sponsored by Shell Chemical Corporation

MORE than 200 agriculture experts from 16 states gathered recently in New York City's Biltmore Hotel to learn the latest tactics in the underground war with the farmer's most numerous enemy—nematodes.

The Nematology Workshop—first of its kind ever held—was sponsored by Shell Chemical Corporation. For two days the hotel meeting room resembled a large classroom as college teachers, government officials and other agricultural specialists from northeastern and eastern states got expert information on the effects and control of nematodes. Controlling the primitive, root-boring worm is big business. Though each one is so small it is barely visible, together they cost farmers one-half billion dollars each year.

Until the 1940's, crop blight stemming from nematode appetite was blamed on other factors, such as lack of water, insufficient fertilizer or "worn-out" soil. When agricultural experts discovered nematodes were at the root of the trouble, a new science—nematology—was created to identify the different species and find the best way to fight them. More than 1,000 different kinds of nematodes already have been found, and the list lengthens every year.

Nematodes are "perhaps the most numerous of all animals on earth," Dr. W. R. Jenkins of the University of Maryland pointed out at the Nematology Workshop. Under some conditions, such as planting a field with the same crop year after year, the nematode population can build up to several billion per acre.

Anything available on the underground menu, crops and trees alike, suits the nematode's tastes. It starts a life-long meal by puncturing a plant cell with its spear-shaped snout. Once it has drained that cell, it moves on to more and more cells. The result is plant wilting, stunted growth, knots and galls on the roots, and sometimes death of the plant.

To control the nematode, Dr. W. F. Mai of Cornell University recommended steps such as crop rotation, using resistant varieties of plants, flooding the soil, and fumigating the ground with chemical killers such as Shell Chemical's D-D® and Nemagon* soil fumigants.

D-D soil fumigant, a leading nematode nemesis since 1946, is injected into the ground before crops are planted. It goes into the soil as a liquid, then becomes a gas highly effective in reducing the nematode population. Shell's new Nemagon soil fumigant can be used on most crops which already are planted. That makes it particularly useful to agriculturists, such as citrus growers, who do not plant new crops each year.

C. W. McBeth, Head of the Department of Nematology of Shell Development Company's Agricultural Research Division at Modesto, California, explained how D-D and Nemagon soil fumigants kill nematodes by diffusing through the soil as gases. H. T. Hutchinson of Rutgers University added latest information on soil preparation for maximum nematode casualties, and E. F. Feichtmeir, Manager of the Product Application Department of Shell Development's Agricultural Research Division, Denver, explained soil fumigant application equipment.

When the workshop ended, reaction was so favorable that Shell Chemical is considering sponsoring similar workshops in other areas of the country to spread the word on how to curb the nematode.

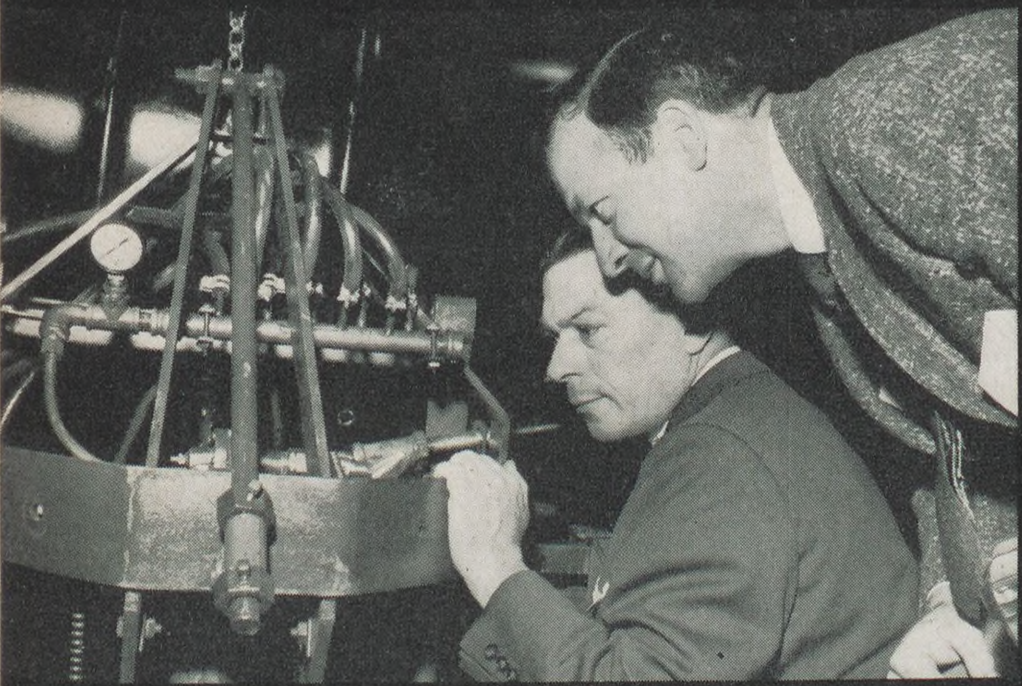
* Trademark Shell Chemical Corporation

More than 200 agricultural specialists from 16 states attended the "Nematode Workshop" sessions held in New York City.

C. W. McBeth of Shell Development's Agricultural Research Division at Modesto, California, spoke on soil fumigants.

E. F. Feichtmeir of Shell Development's Agricultural Research Division at Denver told about soil fumigant equipment.

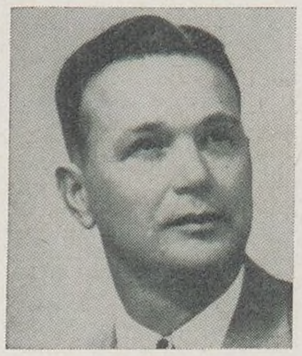
Nematode experts, including Shell Chemical Technical Representative Harold Weitz, second from left, inspect a display.



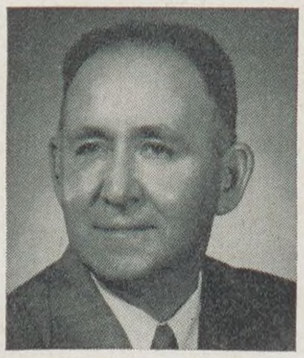
Two of the specialists attending the Workshop take a close look at one of the several soil fumigant equipment displays.

P. L. Pontoriero of Shell Chemical's Columbus, Ohio, District inspects a cluster of live nematode worms through a microscope.

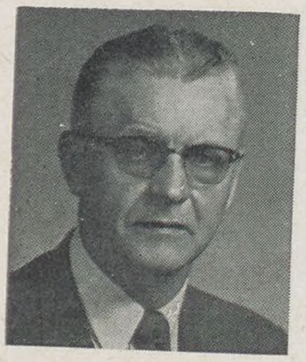
They Have Retired

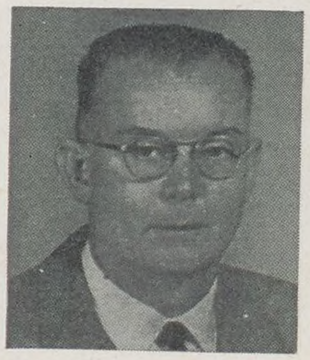

E. AIKENS
Chicago Div.
Operations

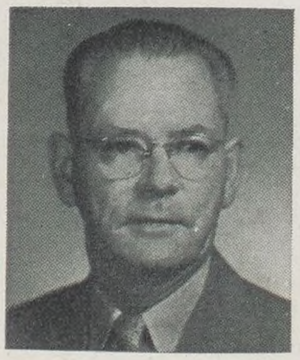

A. M. BAKER
Sacramento Div.
Operations

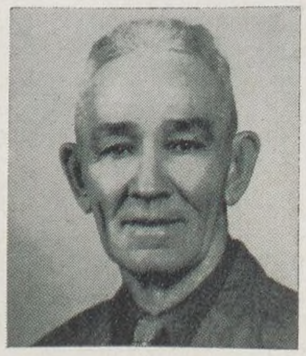

N. P. BECK
Wood River Refy.
Engineering

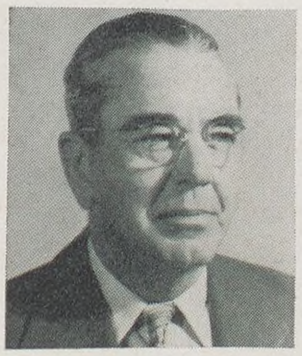

E. D. BELLMYER
Tulsa Area
Gas


C. E. BETTS
Cleveland Div.
Sales

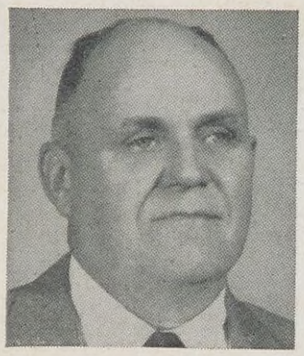

J. N. BRUNS
Wood River Refy.
Catalytic Cracking

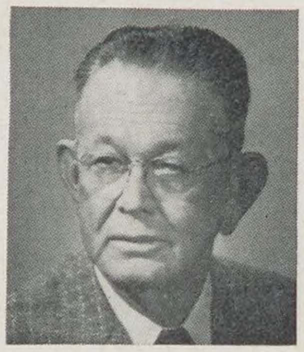

W. M. BUCKMASTER
Shell Pipe Line Corp.
Texas Gulf Area

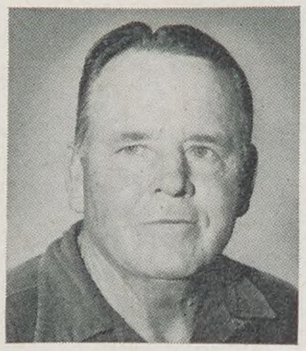

C. C. BUTLER
Tulsa Area
Production


R. B. CARTER
Houston Refy.
Stores


W. F. DAVIDSON
Shell Pipe Line Corp.
Mid-Continent Area


J. L. DOOLEY
Wood River Refy.
Engineering

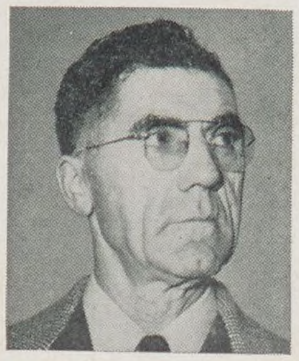

J. D. DUKES
Pacific Coast Area
Production


J. L. DUNHAM
Houston Refy.
Engineering


E. L. ESPOSITO
Head Office
Legal

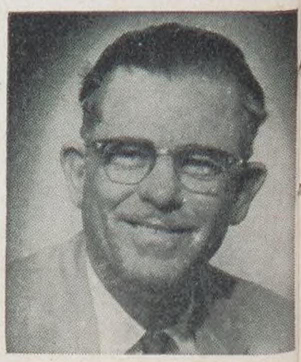

W. GALHEBER
Pacific Coast Area
Production


R. C. HICKS
Tulsa Area
Production


S. C. JOHNSON
Wilmington Refy.
Thermal Cracking

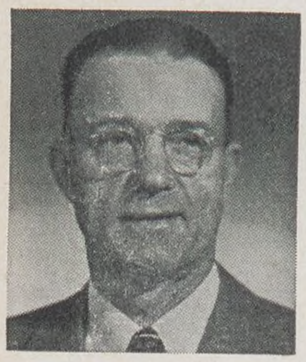

C. C. KAEGI
Shell Pipe Line Corp.
Mid-Continent Area


L. O. KNIGGE
Shell Chemical Corp.
Houston


H. R. MOORE
Shell Pipe Line Corp.
West Texas Area

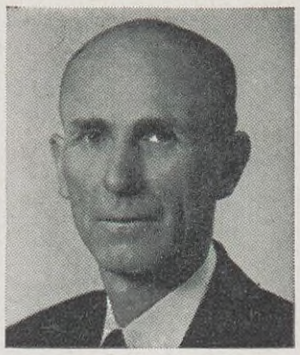
ed

. BELLMYER
Tulsa Area
Gas



L. S. MORGAN
Shell Pipe Line Corp.
Rocky Mountain Div.

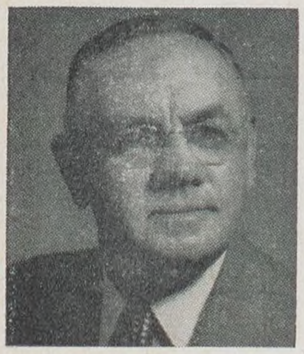
M. E. OVERMAN
Head Office
Transp. & Supplies



W. H. PATRICK
Seattle Div.
Treasury

F. L. PEMBERTON
Houston Refy.
Utilities

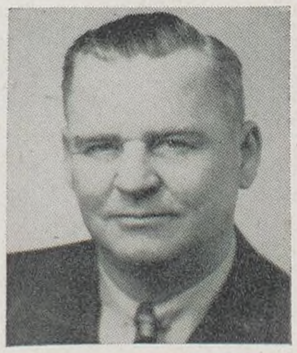
. DAVIDSON
Pipe Line Corp.
ontinent Area



W. T. PLACE
Boston Div.
Operations

B. V. POWELL
Indianapolis Div.
Sales

S. ROGERS
Pacific Coast Area
Production



G. E. SAUNDERS
Chicago Div.
Operations

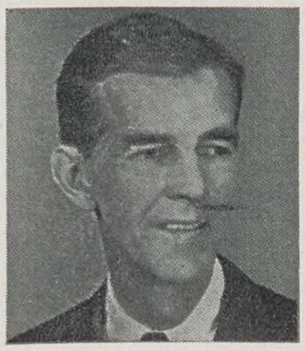
R. J. SAVAGE
Martinez Refy.
Engineering

C. HICKS
lsa Area
oduction

V. I. SCROGGS
Shell Pipe Line Corp.
Mid-Continent Area

R. SOMAS
New York Div.
Operations

L. J. SPRUILL
Tulsa Area
Production



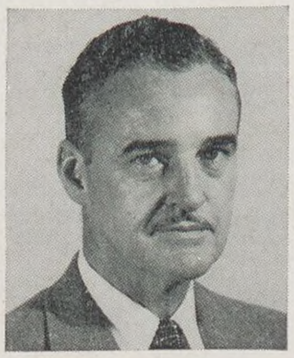
L. B. SULLIVAN
St. Louis Div.
Fuel Oil

J. L. VANN
Wood River Refy.
Lubricating Oils

R. MOORE
Pipe Line Corp.
Texas Area

A. VINCENT
Houston Refy.
Engineering

I. E. WHITCOMB
Wilmington Refy.
Experimental Lab.



C. P. WOODWARD
Los Angeles Div.
Operations

R. H. WOODY
Shell Pipe Line Corp.
Texas Gulf Area

Float Vote

Pat Spaw, above left, and Janice Jones, both of Shell Oil Company's Midland Exploration and Production Office, accept Shell's first prize trophy won by its float in Midland's Oil Progress Week parade from R. A. Minear, chairman of Midland's Oil Progress celebration. Miss Jones is at left on the float and Mrs. Spaw at right.

Fire-Fighting Artillery

WHEN a Cushing, Oklahoma, veterans group recently rolled an old cannon mounted on iron-spoked wheels from its headquarters to a junk yard, it removed a turn-of-the-century device for fighting tank farm fires with firepower at Shell Pipe Line Corporation's Cushing Terminal.

The cannon, with a three-inch bore, was forged by a Tulsa firm specifically for fighting tank fires, not battles. The theory was that if an oil storage tank caught fire, the cannon could be loaded with a pound of gunpowder and an iron ball and fired at the tank. The ball would knock a hole in the side of the tank to drain out the oil before it all could burn.

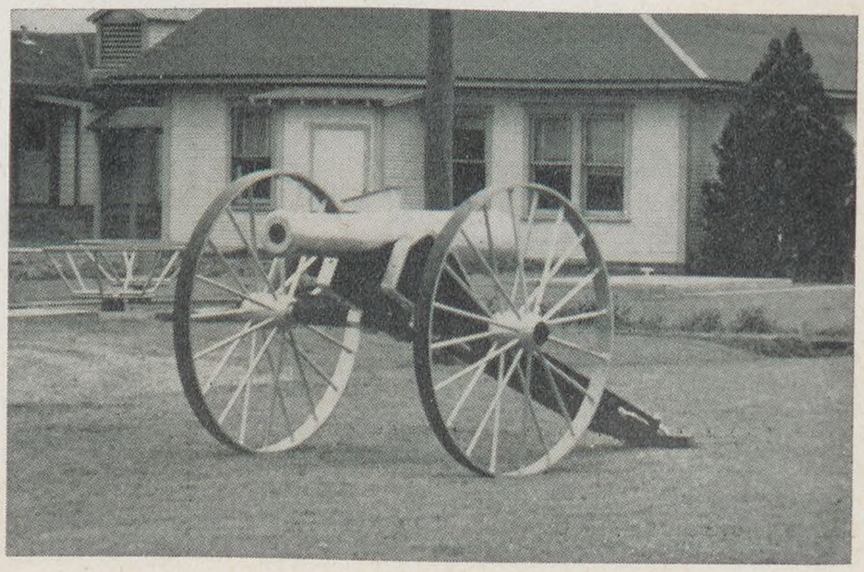
The theory was tried only once by Shell. In July, 1919, lightning struck a 55,000-barrel tank at Cushing and set it on fire. Nine other tanks filled with crude oil were in danger. A team of horses pulled the cannon into position near the blazing tank, and nine cannonballs were fired at it.

Some of the oil drained through the holes in the tank, but not enough to rob the fire of fuel. Flaming crude boiled over and ran down a draw, setting fire to two small buildings and a stack of lumber. However, none of the other tanks was ignited.

A search through the cooling wreckage the next day turned up only three of the cannonballs. The artillerymen never knew if any of the six other rounds ripped through into the tank.

The cannon never was fired at a fire again, although it was set off at regular intervals through the years to keep it in operating condition. When it finally became unsafe to shoot, it was welded closed and retired to a spot in front of office buildings adjoining the Cushing tank farm. There it stayed until it was given to a veterans' group about 10 years ago. From there it went to the junk yard.

A cannon with a three inch bore, used years ago to fight a tank farm fire, formerly stood in front of offices of Shell Pipe Line Corporation's Cushing Terminal. The gun, used in fighting only one fire, has since been junked.



Service Birthdays

Forty Years


A. C. SAUL
San Francisco Office
Transp. & Supplies

Thirty-Five Years


R. H. BLAKELY
Tulsa Area
Land


G. F. FONTANA
Los Angeles Div.
Treasury


J. A. HOWDESHELL
Wood River Refy.
Utilities


W. E. ISENSEE
Pacific Coast Area
Purchasing-Stores


C. C. KOEHNE
Tulsa Area
Production


A. L. KURTH
Sacramento Div.
Operations


H. G. RENFRO
Tulsa Area
Land


J. O. ST. AMANT
Norco Refy.
Catalytic Cracking


J. F. SHAW
Wood River Refy.
Engineering

Thirty Years


W. R. ALBERTS
Pipe Line Dept.
Bourbonnais, Ill.

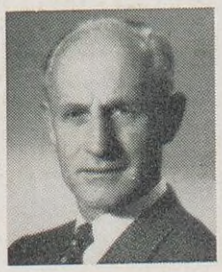

F. BALESTRIERI
Martinez Refy.
Distilling


E. E. BARONI
Martinez Refy.
Compounding


R. T. BEARD
Wilmington Refy.
Engineering


W. H. BELL
Sacramento Div.
Treasury


JOE T. DICKERSON
Shell Pipe Line Corp.
President


W. W. EHRICH
Pacific Coast Area
Gas


J. G. ELLIS
Wilmington Refy.
Catalytic Cracking

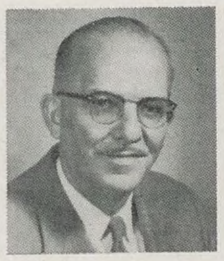

E. M. FARRA
Seattle Div.
Treasury


J. M. GRIFFIN
Indianapolis Div.
Marketing Service


J. M. HACKETT
Wilmington Refy.
Control Laboratory


W. S. HENRY
Denver Area
Land


C. L. JAEGER
Los Angeles Div.
Sales


A. N. JOHNSON
Portland Div.
Sales


L. L. KELLY
Atlanta Div.
Sales


C. S. MAPLE
Seattle Div.
Marketing Service


J. L McGOWAN
Shell Pipe Line Corp.
Mid-Continent Area


J. T. MORRIS
Wilmington Refy.
Engineering


T. F. PHILLIANS
Pipe Line Dept.
Los Angeles, Calif.


D. R. RICHARDS
Indianapolis Div.
Operations


L. I. RUCKER
Pipe Line Dept.
Bourbonnais, Ill.


H. J. RUHLANDER
Pipe Line Dept.
Harristown, Ill.


F. R. SCHMIEDER
Pacific Coast Area
Production


E. M. SCOTT
Seattle Div.
Operations

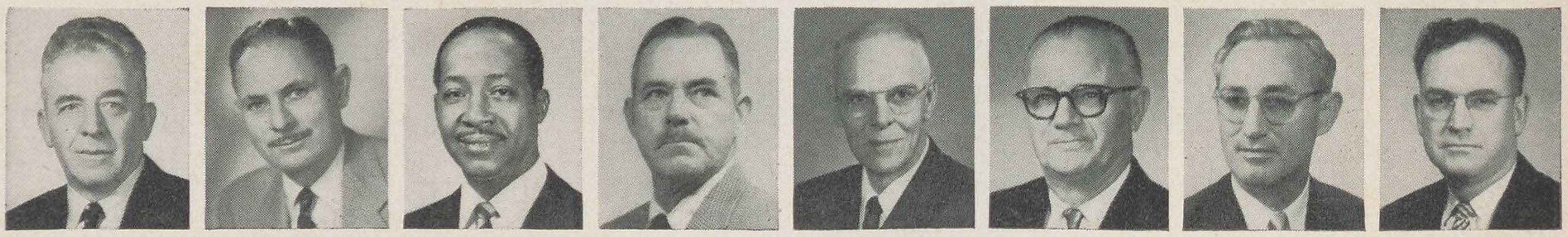

H. C. SCRUGGS
Wood River Refy.
Engineering


D. F. SEARS
Shell Pipe Line Corp
Vice President

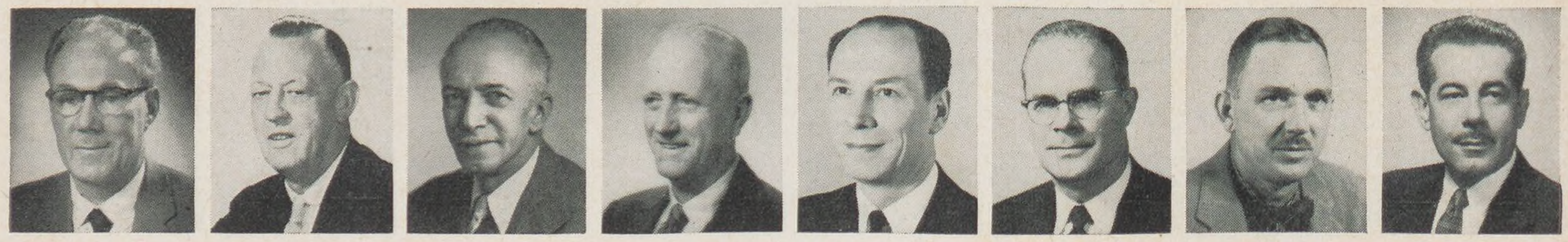
Thirty Years (cont'd)

K. A. SORENSON Calgary Area Production	F. SPILLMAN Tulsa Area Production	E. M. TILLMAN Pacific Coast Area Treasury	W. M. TRINKLE Tulsa Area Production	R. A. VETTER Portland Div. Treasury	H. A. WALDREP New Orleans Area Production	R. H. WHILDEN Houston Area Legal	T. B. WINNINGHAM New Orleans Area Gas	M. L. YOUNG Wood River Refy. Engineering

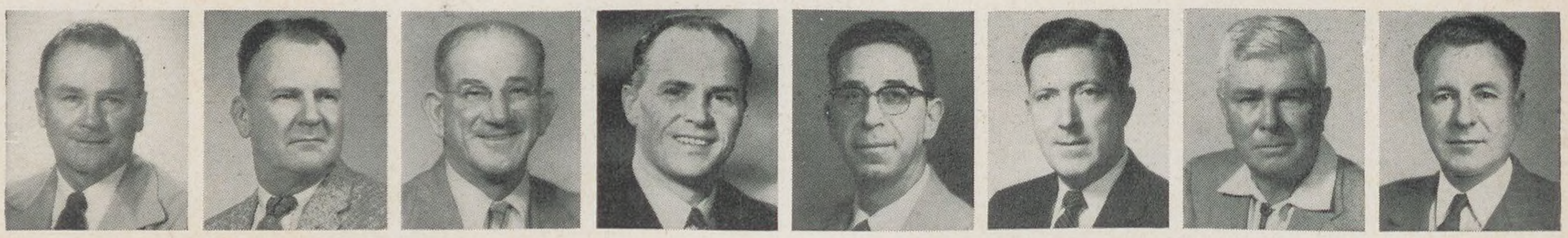
Twenty-Five Years



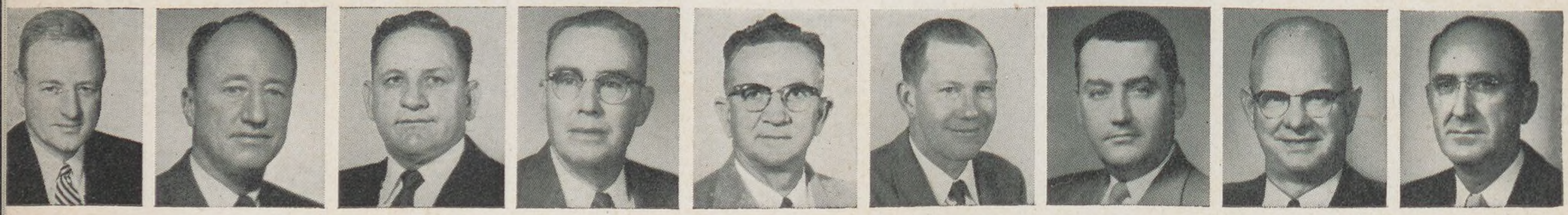
A. BATTOCCHIO New York Div. Operations	J. W. BOWEN, JR. Los Angeles Div. Sales	T. L. BRAXTON St. Louis Div. Operations	K. C. CAREY San Francisco Div. Operations	W. A. CLIPPINGDALE Portland Div. Treasury	H. A. COLLIS Pipe Line Dept. Lost Hills, Calif.	F. C. EDWARDS Detroit Div. Sales	D. W. GLENDINNING Anacortes Refy. Zone C



M. H. HARVEY Pacific Coast Area Treasury	F. W. HATCH Shell Chemical Corp. Agri. Chem. Sales Div.	W. C. HOMAN Atlanta Div. Treasury	A. P. HYRUP Pacific Coast Area Production	J. R. JANSSEN Head Office Personnel	I. A. KELLER Boston Div. Treasury	D. S. LA FRANCE Shell Development Co. Emeryville	D. J. LA MONT Los Angeles Div. Sales



T. G. LINDNER San Francisco Div. Operations	R. M. MACEY Anacortes Refy. Zone A	E. E. MARSHALL Indianapolis Div. Operations	C. F. MARTINEAU New York Div. Sales	A. W. MAY Wood River Refy. Gas	F. D. McGRATH New York Div. Operations	V. MOON Pacific Coast Area Production	M. A. OAKES Boston Div. Operations



V. J. OLDFIELD Head Office Marketing	J. H. POLHEMUS San Francisco Div. Marketing Service	L. J. RICHARD Norco Refy. Gas	R. R. RIGNEY Houston Area Gas	M. J. ROUSSEL Shell Chemical Corp. Norco	W. N. SCHEEL Portland Div. Operations	J. O. SMITH Detroit Div. Operations	A. H. THORSEN Seattle Div. Treasury	B. A. VIOLETT St. Louis Div. Operations

SHELL OIL COMPANY

Head Office

20 Years

R. B. Lewis	Marketing
J. E. Morehouse	Organization & Salary
H. N. Pollard	Marketing

15 Years

Ruby N. Hagaman	Financial
Betty Lou Lake	Financial
Edna Stecko	Legal
Mildred B. Szachacz	Financial
W. M. Upchurch, Jr.	Shell Co's. Found., Inc.

10 Years

Rose W. Campbell	Financial
F. J. Carey	Marketing
A. K. Eaton, Jr.	Marketing
R. M. Harmon	Financial
N. C. Theel	Financial

San Francisco Office

15 Years

J. A. Lettier	Manufacturing

10 Years

W. J. Krohn	Transp. & Supplies

Exploration and Production

HOUSTON OFFICE

20 Years

G. T. Tennison	Transp. & Supplies

CALGARY AREA

10 Years

G. Cormack	Production

DENVER AREA

20 Years

F. R. Versaw	Exploration

10 Years

A. R. Crawford	Exploration
A. B. Neely	Production

HOUSTON AREA

20 Years

W. D. Mahan	Production
H. T. Miller	Exploration
C. H. Taylor	Production

15 Years

H. H. Herricks	Production
D. R. Perry	Production
R. W. Rees	Exploration

10 Years

J. L. Baines	Treasury
H. L. Baker	Gas
C. E. Mathewes	Production
G. Wiedenfeld	Production

MIDLAND AREA

20 Years

R. Stroder	Production

10 Years

C. A. Goldsmith	Land
J. C. Hart	Crude Oil
H. B. Jones	Production
V. T. Kerr	Gas
S. P. Shaw	Production

NEW ORLEANS AREA

20 Years

E. C. Barnes	Gas
D. W. Cook	Production
H. J. Kember	Production
C. H. Miller	Production
J. F. West	Exploration

15 Years

H. W. Miller	Gas
P. B. Thiac	Production
J. A. Troscl air	Production

10 Years

E. M. Bahle	Administrative
E. Bancroft	Exploration
E. Bradshaw	Production
I. L. Black	Production
J. Meaus	Production
W. M. Phillips	Land
L. J. Whaylen	Gas

PACIFIC COAST AREA

20 Years

R. T. Baird	Production
J. O. Herrington	Pers. & Indus. Rel.
W. C. Little, Jr.	Gas

15 Years

Gladys D. Chapman	Treasury

10 Years

M. W. Dimock	Purchasing-Stores
J. E. Gordon	Pers. & Indus. Rel.
G. R. Huston	Land
H. C. Mashburn	Production

TULSA AREA

20 Years

J. C. Hutcheson	Production
H. R. Neal	Production
J. A. Walraven	Production
G. G. Williams	Gas

15 Years

C. C. Corona	Gas

10 Years

B. C. Heatly	Production
L. M. Ramsey	Land
L. D. Scarberry	Gas

Manufacturing

ANACORTES REFINERY

20 Years

W. O. Linder	Engineering
C. G. Mackenzie	Technological

HOUSTON REFINERY

20 Years

R. L. Davis	Engineering
A. Padilla	Engineering
C. W. Posern	Gas

15 Years

T. J. Cross	Control Laboratory
J. B. Davis, Jr.	Stores
D. R. Julian	Engineering
M. L. Renquist	Gas
H. R. Willingham	Engineering
R. A. Wilpitz	Research Laboratory
J. D. Wood	Engineering

10 Years

J. H. Morriss	Research Laboratory
R. J. Pitts	Engineering

MARTINEZ REFINERY

20 Years

V. S. Bruno	Control Laboratory
J. R. Eisele	Lubricating Oils
J. Skorja	Engineering

15 Years

W. F. Bailey	Economics & Sched.
W. Fischer	Thermal Cracking

10 Years

F. C. Buckthought	Engineering
M. H. Drechsel	Engineering
H. P. Dudley	Thermal Cracking
T. A. Gore	Engineering
T. E. McCue	Engineering
L. H. Miener	Engineering
A. J. Mieto	Thermal Cracking
P. D. Predd	Engineering
D. E. Thayer	Engineering

NORCO REFINERY

15 Years

A. J. Brignac	Thermal Cracking
R. J. Colon	Dispatching

L. H. Dicharry..........Control Laboratory
L. B. Gonzales....................Treasury
R. M. Kuebler...........Control Laboratory

10 Years

J. D. Ramsey..................Engineering
D. T. Roussel.............Pers. & Indus. Rel.

WILMINGTON REFINERY

15 Years

B. S. Fonnesbeck........Control Laboratory
E. O. Jones.............Catalytic Cracking
T. O. Jones.............Control Laboratory
W. H. Snyder....................Alkylation
R. L. Wiles.......................Treasury

10 Years

J. R. McCoy............Control Laboratory

WOOD RIVER REFINERY

20 Years

H. A. Dumont...............Technological
C. W. Hunze...........Control Laboratory
R. F. Sunkel..................Engineering

15 Years

A. W. Barr....................Engineering
J. Brussatti...................Engineering
W. E. Dowland..........Control Laboratory
G. C. Evans...................Engineering
C. G. Forrler.....................Utilities
W. H. Frohock................Engineering
W. R. Jones...................Engineering
E. L. Kimmel...........Research Laboratory
L. L. Lyles....................Engineering
F. G. Meier...................Engineering
C. E. Needham..............Compounding
C. T. Payne.......................Utilities
W. H. Schneider...................Utilities
C. G. Spindler.............Lubricating Oils
C. T. Thacker..................Engineering
V. T. Welch............Research Laboratory
J. W. Willeford...............Engineering

10 Years

E. E. Gerig....................Engineering
G. R. Postlewait...............Engineering

Marketing

MARKETING DIVISIONS

20 Years

J. M. Appler...........Albany, Operations
B. F. Corson..........Baltimore, Operations
K. E. Hazlehurst.....Baltimore, Mktg. Service
W. B. Bennett...........Detroit, Operations
E. D. Carter.......Indianapolis, Operations
L. D. Higdon...Indianapolis, Administration
T. T. Clark.............Los Angeles, Sales
F. E. Ware, Jr.........Los Angeles, Treasury
D. T. Gilman.......Minneapolis, Operations
R. D. Hyde.............Minneapolis, Sales
C. S. Sims............Minneapolis, Treasury
W. H. Lockhart....New Orleans, Operations
E. H. Hoffman........New York, Operations
C. W. Medley.........Portland, Operations
G. A. Fox...San Francisco, Marketing Service
A. B. Ogden............Seattle, Operations

15 Years

E. R. Hathaway.........Atlanta, Operations
N. W. St. Laurent.......Boston, Operations
Eleanor H. Milke..........Detroit, Treasury
F. D. Hubler.......Minneapolis, Operations
R. C. Derby..............Seattle, Treasury
R. L. Gouge................Seattle, Sales

10 Years

H. C. Purcell...........Atlanta, Operations
W. R. Seale.................Atlanta, Sales
M. Y. Ford............Baltimore, Treasury
W. O. M. Hurley........Boston, Operations
W. V. Douglas..........Detroit, Operations
A. J. Erwin..................Detroit, Sales
T. Arakaki ....Honolulu, Operations
H. Watanabe ....Honolulu, Operations
R. B. Downey.......Indianapolis, Operations
R. D. Kimmell.........Indianapolis, Treasury
A. D. Ramey.......Indianapolis, Operations
R. H. Bartlett............Minneapolis, Sales
R. W. Parlier............Minneapolis, Sales
D. L. Oetter.........New Orleans, Treasury
J. E. Bernard.........New York, Operations
R. E. Fischer..........New York, Operations
J. T. Kona............New York, Operations
E. C. Macdonald......New York, Real Estate
L. E. Brock.............Portland, Treasury
F. Churchich...........Portland, Operations
W. R. Conn...........Portland, Operations
F. Curcio.............Portland, Operations
J. K. Dixon.................St. Louis, Sales
J. R. Pardue...........St. Louis, Operations

SEWAREN PLANT

20 Years

C. L. Covil...................Laboratory

10 Years

J. R. Egan, Jr....................Treasury
A. H. Lasek...............Engrg. & Maint.
E. A. Skiba...............Engrg. & Maint.

Pipe Line Department

20 Years

R. L. Ayers..............Manchester, Mich.
H. H. Chapman...........Tracy, California
C. F. Maguire..........Hammond, Indiana
Evelyn M. McGaughey....East Chicago, Ind.
F. D. Smith..............East Chicago, Ind.
W. W. Williams...........Tracy, California

10 Years

W. C. Jackson........Crows Landing, Calif.
Helen I. Ullman................Lima, Ohio

SHELL CHEMICAL CORPORATION

20 Years

W. C. Smith....................Houston

15 Years

W. J. Driskill.....................Houston
R. B. Simmons...................Houston
D. O. Starnes....................Houston
N. A. Tippit......................Houston
G. J. Brown.....................Martinez
J. J. Babin.........................Norco
E. J. Crochet.......................Norco
A. L. Faucheux.....................Norco
C. R. Rehbock..............San Francisco
D. A. Bell.....................Shell Point
H. E. Ludricks.................Shell Point
Z. J. Valencia.................Shell Point

10 Years

N. M. Cedarburg..............Dominguez
M. Mulholland................Dominguez
E. W. Clark......................Houston
D. A. Davidson..................Houston
B. F. George.....................Houston
B. P. Jones......................Houston
J. N. Lanier......................Houston
C. A. Parker.....................Houston
O. N. Snell......................Houston
E. F. Walzel.....................Houston
A. C. Keary.....................Martinez
G. J. Vitali......................Martinez
G. W. Lathrop.................Shell Point
Juanita J. Price................Shell Point

SHELL DEVELOPMENT COMPANY

20 Years

W. L. Everson..................Emeryville
J. W. Hickling.................Emeryville
J. L. Ralph....................Emeryville
H. E. Sturdivant, Jr.............Emeryville

15 Years

T. W. Lamb......................Houston

10 Years

R. W. McDonald................Emeryville
Helen A. Shaw.................Emeryville

SHELL PIPE LINE CORPORATION

20 Years

E. C. Myrow...............Texas Gulf Area
G. F. Smith...............West Texas Area
R. T. Womack................Head Office

15 Years

B. S. Groff............Mid-Continent Area
C. H. Martin..........Mid-Continent Area

10 Years

D. J. Anderson.........Mid-Continent Area matters of *fact*

target for tomorrow

A young boy knows he must improve his game to make the varsity. And with ability and effort, he'll make it. The time-honored doctrine of self-improvement is a sure guide to progress, whether it be in sports or the oil business. And to assist you in your self-improvement program, Shell provides continuing on-the-job training as well as special training courses.

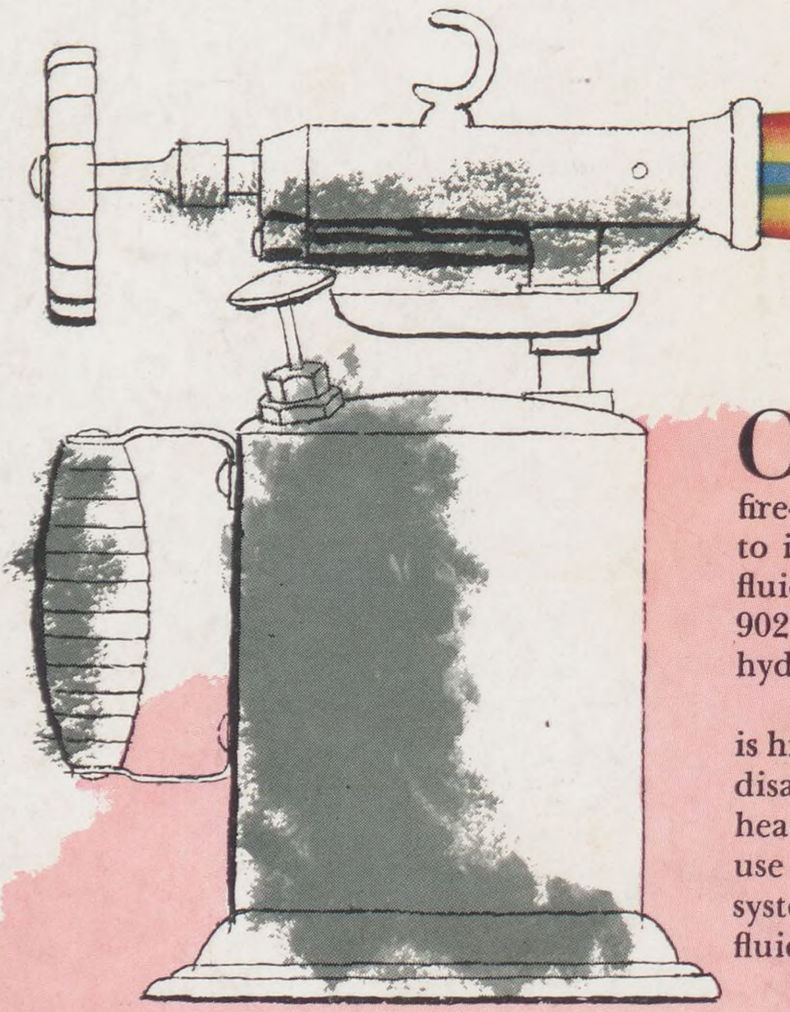
SHELL OIL COMPANY
50 West 50th Street
NEW YORK 20, N. Y.
RETURN POSTAGE GUARANTEED

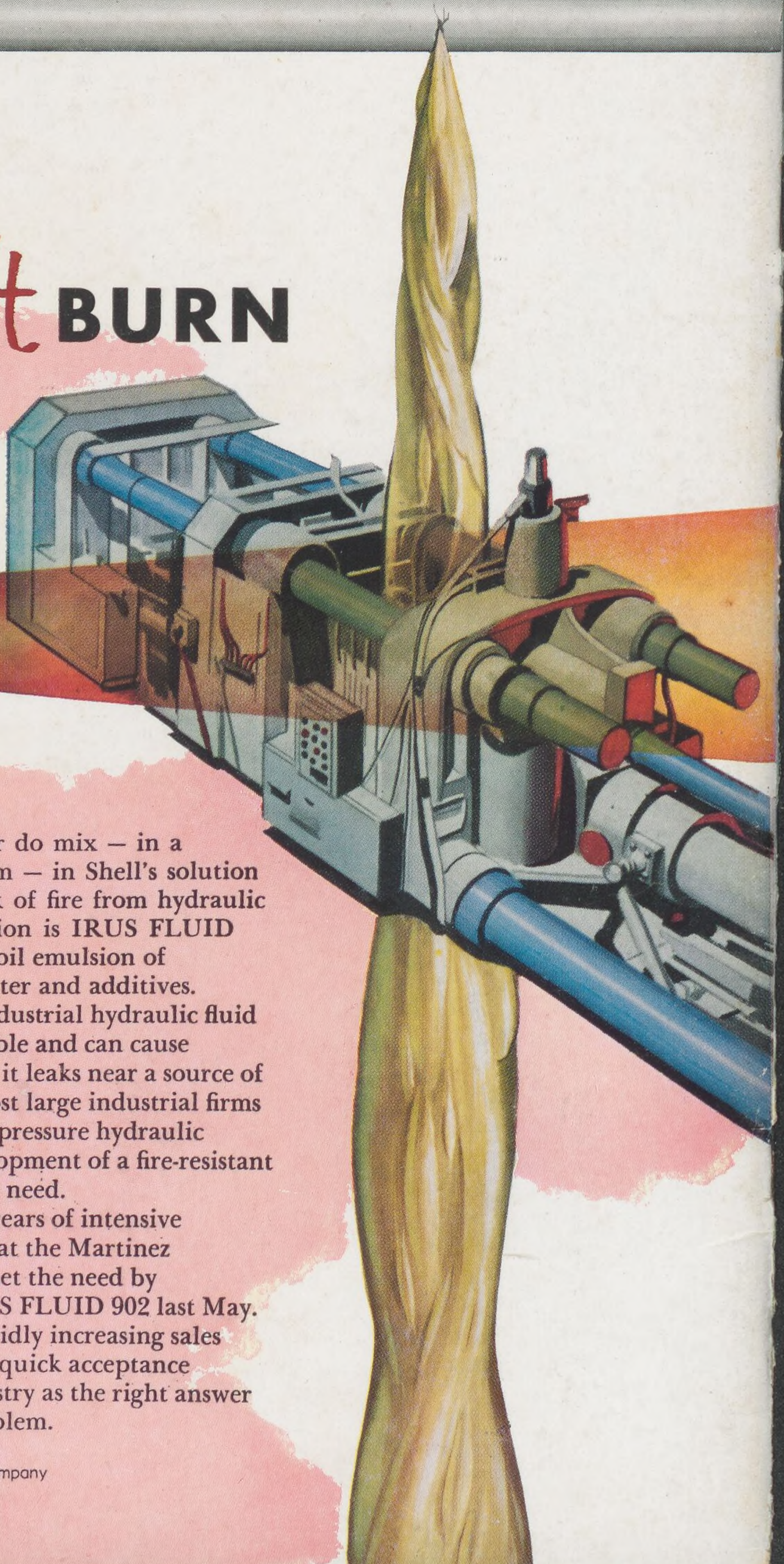
J. B. Bradshaw
4710 Bell
Houston, Texas

SCC

BULK RATE
U. S. POSTAGE
PAID
New York, N. Y.
Permit No. 1101

OIL THAT *won't* BURN





Oil and water do mix – in a fire-resistant form – in Shell's solution to industry's risk of fire from hydraulic fluid. The solution is IRUS FLUID 902*, a water-in-oil emulsion of hydraulic oil, water and additives.

Ordinary industrial hydraulic fluid is highly flammable and can cause disastrous fires if it leaks near a source of heat. Because most large industrial firms use some type of pressure hydraulic system, the development of a fire-resistant fluid was a major need.

After three years of intensive research, mainly at the Martinez Refinery, Shell met the need by introducing IRUS FLUID 902 last May. Since then its rapidly increasing sales have reflected its quick acceptance throughout industry as the right answer to a burning problem.

*Trademark Shell Oil Company