

NTIQUES

SHELL NEWS

SHELL

A REVIEW OF SHELL'S 43RD YEAR

A Good Year for Shell

By H. S. M. Burns, President, Shell Oil Company

HE year 1955 had been predicted to be a good one for the American economy, but few, if any, foresaw the extent to which gains would be made. Due in large part to a surge in general business, demand for petroleum products was up approximately 8 per cent over 1954. This compares favorably with a 2 per cent increase in petroleum demand in the previous year.

Sales of Shell products increased 11 per cent over 1954 to reach a record high. You will be interested to know that, since 1946, we have experienced an average annual growth in volume of refined products sold of 7.1 per cent compared with an industry average of about 5.7 per cent.

This impressive growth has necessitated increased emphasis on discovering new crude oil reserves. We have been able to withstand the drain made by increasing product demand and even have improved our reserve position during this period—but only by making tremendous outlays of capital for widespread exploration and development activities. We plan to continue to make such outlays. I fully expect that we shall spend over a billion dollars in exploration and production work during the next five years.

We have already laid the groundwork for future exploration by leasing millions of acres in the potential oil areas of the United States and Western Canada. In the offshore waters of the Gulf of Mexico, for example, Shell is the largest single company leaseholder. We have found substantial reserves there and expect to find considerably more. At the end of last year we were producing 33,500 barrels of crude oil per day in the Louisiana offshore out of a total industry production of 93,300 barrels per day. We made interesting discoveries in California, Montana, Louisiana and in Saskatchewan during the year. The California discoveries are of particular interest because just about every acre of possible oil producing land in that state has been examined by oil men over the years. Consequently, California discoveries are rare.

Additions to our crude oil reserves in 1955 substantially exceeded the total production for the year. This was due to extensions to existing fields and upward revision of previous estimates, as well as to discoveries.

Shell Refineries Run At Capacity

The oil industry in 1955 was characterized by a substantial increase in refinery runs under the stimulus of growing demand. The reserve refinery capacity built over the last few years in the interests of national defense made it possible to meet this need for expanded refinery operations, but at times caused a tendency toward excessive runs. Over-all, however, stocks of most products remained in reasonable relationship to demand.

For most of the year, Shell refineries operated approximately at capacity. With the completion of the refinery at Anacortes, Washington, together with minor improvements at the recently enlarged Norco Refinery, the total rated crude oil distilling capacity of our six refineries was increased from 504,000 to 561,000 barrels per day at the end of the year.

Intense competition continued in marketing and, from time to time, price wars flared up. We gave our dealers the greatest possible assistance through vigorous merchandising and advertising programs featuring Shell Gasoline with TCP* and the new premium grade Shell X-100[®] Motor Oil.

Best Year For Shell Chemical

Shell Chemical Corporation had the largest sales in its history. The new business arising from the acquisition of the synthetic rubber facilities at Torrance, together with important increases in sales of resins, plastics and agricultural chemicals were responsible for this achievement. Sales of agricultural ammonia were affected by overproduction in that industry. We expect this condition to continue in 1956. However, the outlook for the chemical business is very encouraging -so much so that we made an outlay of \$42 million for chemical plants and facilities in 1955. The Norco Plant

* Trademark Shell Oil Company

went on stream in March and is already being expanded.

Research

The research phase of Shell's activities continued to receive the attention appropriate to this important work. Shell Development Company's facilities at Emeryville Research Center are being enlarged by 50 per cent and will be completed gradually; its new facilities adjoining the Houston Laboratory have been occupied. A research group has been set up at Torrance to work in the field of rubber technology and a long range supporting program has been launched at Emeryville with emphasis on new rubber compositions and new processes.

Prospects For 1956

The rise in level of petroleum products demand experienced in 1955 is expected to continue through 1956 though not as steeply. Shell's economists now estimate that domestic demand will be up about 4 per cent this year, or an increase of approximately 335,000 barrels per day in the nation's consumption of petroleum products.

I am confident that Shell will at least equal and perhaps exceed this rate of growth. The capital expenditures we have made during the last few years (\$271 million in 1955 alone) have enabled us to develop the facilities and products to do the job. As has been well demonstrated, Shell employees have the "know-how" to use these facilities effectively in the manufacture of outstanding products. In the face of tough competition, there is no room for complacencybut we have every right to be confident, both for 1956 and the years ahead.

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ANTIQUE TO MODERN

Perhaps there is no better symbol of the great strides in product improvement and customer service which have been made by the oil industry over the years than the two service stations on this month's front cover. The ancient shack and peeling pumps denote an age long gone. The new station—modern in more than its facade—was designed by Shell in 1955 for experimental construction this year. It symbolizes dynamic progress in all phases of an integrated oil business. Though Shell Drilled Fewer Wells in 1955, Reserves Were Maintained and Production Records Were Broken

Exploration and Production

HELL's aggressive search for new oil reserves continued unabated throughout 1955 as the Company's exploration and drilling crews fanned out over the greater portion of the continent. They probed far north into the Canadian wilderness; they drilled a successful well not far from the Texas-Mexico border. They moved far out into the Gulf of Mexico, explored in the waters off the coast of California, and moved eastward to drill in Kentucky and Tennessee. These operations brought about extensive leasing activities.

Of prime importance during the vear were Shell's activities in the Gulf of Mexico, where the Company is one of the leading operators. Shell's oil and gas fields in the waters off Louisiana are proving to be of substantial proportions, and a drilling program was conducted throughout 1955 which resulted in steadily increasing production in that area. At the end of the year, Shell was producing 33,500 barrels of crude oil per day in the Louisiana offshore area, which was more than a third of the total produced by all companies. Shell offshore acreage holdings in the Gulf for future exploration and development were expanded by the pur-

In a barley field of southern Alberta, Canada, Shell Surveyor Vic Loewen symbolizes the Exploration and Production Organization's continued search for places to drill which are likely to yield new oil reserves.



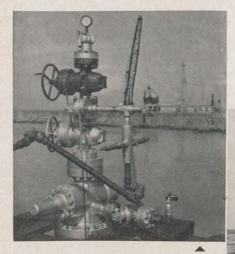


With a typewriter on the tailgate of his small truck, Land Man R. N. Joeckel, right, typed a leasing agreement and closed a deal with a Wyoming rancher on the spot. About 18,000 new leases covering approximately 950,000 acres were obtained in 1955 in the Denver Area.

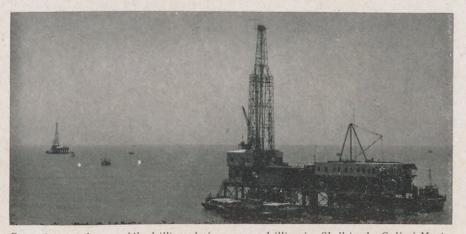
The risk and expense of offshore explora-

tion were illustrated by two dry holes drilled off the Texas coast by "Mr. Gus," a mobile

drilling platform under Shell contract.



This wellhead tops the discovery well of the Burrwood field, one of seven New Orleans Area wildcat discoveries in 1955.



For a time two huge mobile drilling platforms were drilling for Shell in the Gulf of Mexico within 1,300 yards of each other. In the distance is "Mr. Charlie," first platform ever to go under contract to Shell. In the foreground is the John Hayward, owned by the same contractor.

Exploration and Production - 1955

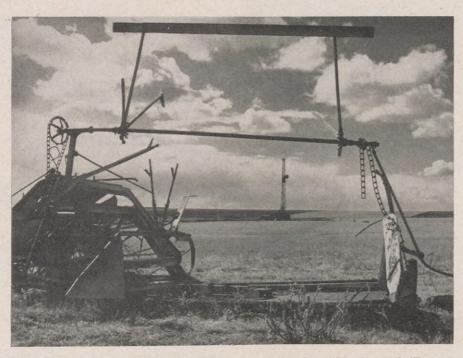
Net Crude Oil Produced (barrels)	1955 101,581,000	1954 97,694,000	
Natural Gas Produced (million cubic feet)	348,431	340,040	
Wells Drilled · Oil	628	703	
Wells Drilled - Gas	55	68	
Wells Drilled - Dry Holes	216	225	

chase of large lease blocks put up for sale in federal and state lease auctions. Among these leases was an unusually large block of 103,000 acres located 60 and more miles off the southeast coast of Texas. A drilling site has been staked in the block 63 miles offshore for a joint venture with another company.

Altogether, Shell drilled 207 exploratory tests in 1955 (four fewer than the year before) and brought in 52 oil and gas discovery wells (one more than the year before). There were successful wildcats in all of the Exploration and Production Areas, and among the most promising discoveries were:

• Posuncula No. 1 in Kern County, California, completed on a 2,070-acre block of leases. The well was perforated from 12,360 to 12,410 feet and flowed at a daily rate of 1,047 barrels of oil and 864 million cubic feet of gas.

• Santa Paula-Saticoy No. 2, south and east of the Ventura field in California, was completed flowing 236 barrels of oil per day from three perforated intervals from 7,425 to 7,640 feet. Shell drilled the wildcat on land jointly held by two other companies and under the agreement obtained a 50 per cent interest in the well. Numerous difficulties were encountered in drilling the lease, including the fact that it was a dry hole at



Amid the wheat fields of central Alberta, in the Calgary Area, Carbon A-7-31 (background) discovered natural gas. Its daily potential was 35 million cubic feet of gas.

In the Denver Area, State No. 22X-36 discovered the Pennel oil field on the Cedar Creek anticline about 55 miles southeast of Glendive, Montana. This well and one which established the Gas City field not far away are considered the most important of the Denver Area's seven oil and two gas wildcat discoveries. 12,020 feet on the first try. Portions of the well were redrilled three times until directional drilling picked up the producing formations.

• State Lease 2565 No. 1, in the Mississippi River delta country near the Southwest Pass, brought in the Burrwood field from a depth of 10,610 feet. The well flowed 250 barrels of oil per day.

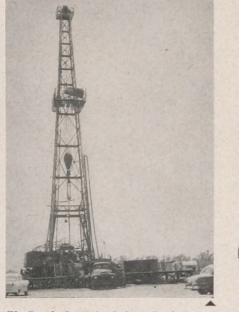
• Caffery et al No. 1, located atop the Cote Blanche salt dome in southern Louisiana, discovered gas and distillate in a producing interval from 16,410 to 16,415 feet. It flowed at a rate of 6.3 million cubic feet of gas and 177 barrels of distillate per day. This deep discovery was made at a salt dome where only minor shallow production was previously obtained. The crew of Company Rig No. 4 drilled through more than 12,000 feet of solid salt to reach the projected target in the producing sand.

• State No. 22X-36 discovered the Pennel field on the Cedar Creek anticline in eastern Montana. It was perforated from 8,625 to 8,800 feet and pumped 205 barrels of oil per day.

• Gas City Unit No. 33X-21 brought in the Gas City oil field, also on the Cedar Creek anticline, flowing 202 barrels per day. It produces from two intervals from 9,092 to 9,155 feet and from 9,165 to 9,186 feet. This and the Pennel field discovery are of particular significance because they are both in the portion of the Williston Basin which is now served by the new Butte Pipe Line, completed last November.

• Two significant wildcat strikes were made west of the Midale Oil field in Saskatchewan, Canada.

Again in 1955, state proration regulations (particularly in Louisiana and Texas) held down Shell's crude oil production. But new discoveries and successful development drilling helped boost the year's production to an average of 278,000 barrels per day. This was about 10,000 barrels per day more than in the previous year



The Pacific Coast Area's Santa Paula-Saticoy No. 2 (shown drilling here) vied with Posuncula No. 1, another wildcat well, as the Area's most important oil discovery of the year.

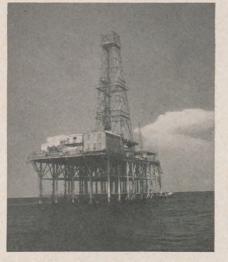
and was considerably aided by higher production allowables permitted by State conservation authorities during the last quarter of the year. In the month of December, Shell attained its all-time high production record of 301,000 barrels per day.

Production activities which helped Shell break its previous record included the drilling of 692 development wells during the year (93 fewer than the year before). Of these, 631 were completed as producing wells (89 fewer than the year before). Other significant and interesting production activities included:

CALGARY AREA-In the Midale field, Saskatchewan, where the bulk of the Area's development drilling was concentrated, the field's average production was boosted from 500 barrels per day in 1954 to over 2,000 barrels per day last year. Some development wells also were drilled in the Sturgeon Lake and Homeglen-Rimbey areas and in one of them, Sturgeon Lake SB-7-12, commercial oil was obtained from an additional producing zone. Shell also produced oil for the first time in Manitoba Province as development of Shell leases in the Virden area began.

DENVER AREA—Development drilling was spread through several fields and, in addition to increasing production, resulted in the extension of the producing areas of five of them. For example, the proved productive area of the Pine field was increased by 3,160 acres. Other extensions of proved productive area were in the Cabin Creek, Jacinto, Ash Creek and Battle Canyon fields.

HOUSTON AREA—The Big Foot field in southeast Texas headed the list of development drilling activity with eight new producing wells. In the Baldwin field, Shell completed the first oil producer where previously only gas condensate had been obtained. The well, Gallagher No. 1, has six pay sands and was dually completed as an oil and gas producer.



Shell's first permanent offshore drilling platform, above, was completed in 1955 in the Gulf of Mexico off the Mississippi Delta.

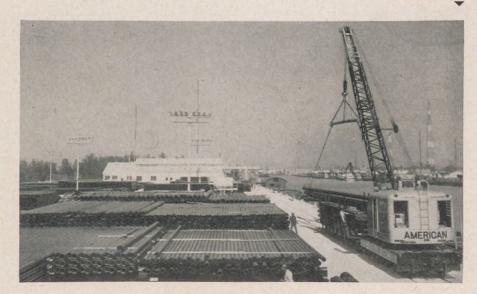


This suspension bridge was built to carry a natural gas pipe line supplying the Jumping Pound Gas and Sulfur Plant in Alberta.



This production platform was put into operation to handle increasing crude oil production in the Eugene Island field on the Louisiana coast. An oil storage barge and an LSM breakwater are anchored alongside it.

A waterside supply terminal and warehouse were completed at Harvey, Louisiana, to handle the huge volume of supplies and equipment needed for Shell's increasing offshore activity in the New Orleans Area.





The equipment shown here was used in hydraulic fracturing of oil-bearing formations to open up their "pores" and increase production from many new as well as old wells in the Midland Area. Fracturing in one old field raised the average per-well production from three to 36 barrels daily.

Company Rig No. 1 (shown below, left, as the derrick was being raised), the largest rotary drilling rig in Canada, went into operation late in 1955 to drill an exploratory test nine miles west of Shell's Jumping Pound gas field in Alberta.

In March 1955, the Pacific Coast Area took over the operation and production of 29 wells purchased in the Race Track Hill field of Kern County, California. Pumping wells, like the one shown, produce from one or more of three producing zones.



Earlier in the year new life was given to the aging Mexia field when new and deeper production was brought in by a well owned jointly by Shell and another company.

MIDLAND AREA—Development drilling added about 150 commercial producers to the Area's roster—a 39 per cent increase over 1954—and helped boost the Area's daily crude oil production by close to 5,000 barrels. Average production for the year was 49,680 barrels per day. Hydraulic fracturing also played an important role in raising production. For example, in the declining Harper field in West Texas, where the average production per well had decreased to three barrels per day, fracturing boosted the average to about 38 barrels per day. Following these successes, Shell drilled 48 more wells in the field.

NEW ORLEANS AREA-In spite of a reduction of allowables amounting to approximately 19 per cent for the year, development drilling helped increase the area's crude oil and distillate production by better than 17 per cent. The total for 1955 was 271/2 million barrels. Drilling brought about major extensions in the proved productive area of five fields: Eugene Island Block 18, East Cameron Block 17, Lake Washington, South Pass Block 27 and South Pass Block 24. PACIFIC COAST AREA—As development drilling continued in several fields, Shell purchased 29 producing wells in four parcels of the Race Track Hill field of Kern County, California. The wells, all of them pumping, average about 4,300 feet in depth and produce from one or more of three producing zones. Total current production is about 1,450 barrels per day.

TULSA AREA—Though 71 development wells were drilled in the Area (51 of them completed as producers), the major activity in 1955 was devoted to the techniques of increasing the production of existing wells. Five full-scale water flooding projects were in operation in Illinois, one small flooding project was in North Texas, and two pilot projects were under way in Oklahoma. Gas lift operations were expanded in the Elk City field of western Oklahoma, and an experimental fracturing treatment program began in the Healdton field in the southern part of the state.

Shell's natural gas production and reserves increased in 1955, mainly as a result of the primary search for oil. Interesting gas field discoveries were made at Loisel in southern Louisiana, near Oblate in the southern tip of Texas, and in the Carbon area of central Alberta.

The principal gas handling facilities completed during the year were: Expansion of the Iowa Plant in Louisiana, a new gas gathering and compression plant in the Russell field of West Texas, and extensions of the gathering systems supplying the Wasson Plant in West Texas, the Mt. Hope Plant in Colorado, and the Long Beach and Ten Section Plants in California.

In addition to concluding a number of relatively small sales to interstate gas pipe lines from several Gulf Coast fields, Federal Power Commission certification was received for the sale of approximately 50 million cubic feet of gas per day from the South Pass, Main Pass and Halter Island areas on the Louisiana coast.

Backing up and assisting the field operations were the continuing research and advisory activities of the Exploration and Production Technical Services Divisions headquartered in Houston. A major project of the Exploration Technical Services Division was a unique study of sediments and marine life in the Gulf off the coasts of Florida and the Bahamas. Skin diving geologists collected samples and photographed coral formations to gain information about the formation of reefs and possibly lead to clues of the formation of the ancient oil-bearing reefs. Shell Development Company's Exploration and Production Research Division in Houston cooperated in the study.

The Production Technical Services Division cooperated with Exploration and Production Areas and with Shell Development Company scientists in several projects designed to increase the efficiency, economy and productivity of Shell's drilling and producing, activities. Basic problems associated with offshore drilling—such as oceanographic phenomena, soil mechanics, and the design of marine equipment warranted major attention.





Skin diving geologists, working for the Exploration Technical Services Division, collected samples and made studies of sediments and marine life off the west coast of Florida in a long-range geological investigation.

Skin diving engineers of the Production Technical Services Division checked foundations for offshore drilling and production platforms and made observations of underwater currents, soil conditions, corrosion and other factors affecting offshore operations.

Manufacturing

Completion of the Anacortes Refinery and Expansion of Other Refining Facilities Increased Throughput to a Record Level in 1955



Manufacturing's major milestone for 1955 was the completion of the new Anacortes Refinery in Washington State. The refinery has a capacity of 50,000 barrels per day. Crude oil distillation began there last September and other processing units went on stream as completed.

ONE new refinery, expansion of existing plants, and research which produced some new products and improved others helped in 1955 to put Manufacturing a long stride ahead of its previous annual throughput records.

Shell's six refineries processed 169 million barrels of crude oil in 1955. That total represents an increase of 7 per cent over 1954. Completion of the new Anacortes Refinery, plus expansion of other refineries, increased Shell's total daily crude oil processing capacity from 504,000 to 561,000 barrels by the end of 1955.

Major refinery expansion during the year included:

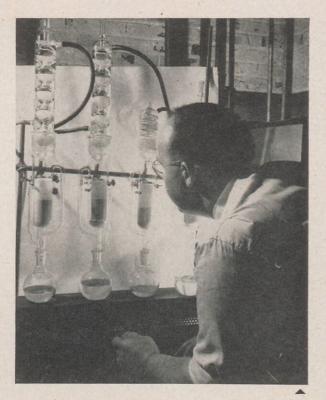
ANACORTES: With all utilities and some processing units completed, crude oil distillation began in September. Other processing units, including catalytic reforming, catalytic cracking with feed preparation, gas recovery and polymerization, started operation later in 1955. The refinery has a rated capacity of 50,000 barrels a day. Its major products are gasolines, stove oil, diesel fuel, bunker fuel and liquefied petroleum gas.

WOOD RIVER: Administrative and maintenance facilities were increased in 1955 to keep pace with processing expansions completed in 1954. Completed construction included an office building for maintenance and construction personnel. One large maintenance shop was completed and construction started on a second maintenance shop. Extensive revisions were made on the catalytic cracking unit, and engineering work started late in 1955 on a major revamping of the waste water purification system. This system, when completed, will be one of the most outstanding in the United States, both as to design and efficiency of operation. Contracts were let for a new catalytic reforming unit with feed desulfurization faciliA new Tergol unit was constructed during 1955 at the Martinez Refinery to increase Shell's production of this improved motor oil additive. Facilities for canning lubricants were expanded at Martinez and improvements were made in plant utilities.

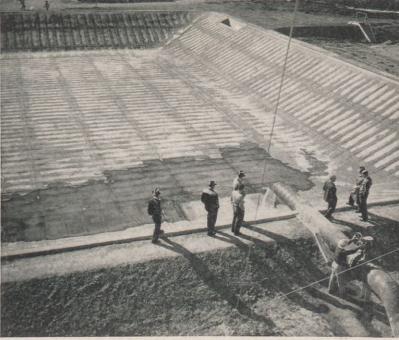


ties, which are scheduled to go on stream in 1956. NORCO: A thermal cracking unit was converted to the manufacture of catalytic cracking feed stock to produce more high octane gasolines. Plans were laid to boost the capacity of the alkylation plant to increase manufacture of high-octane aviation fuels.

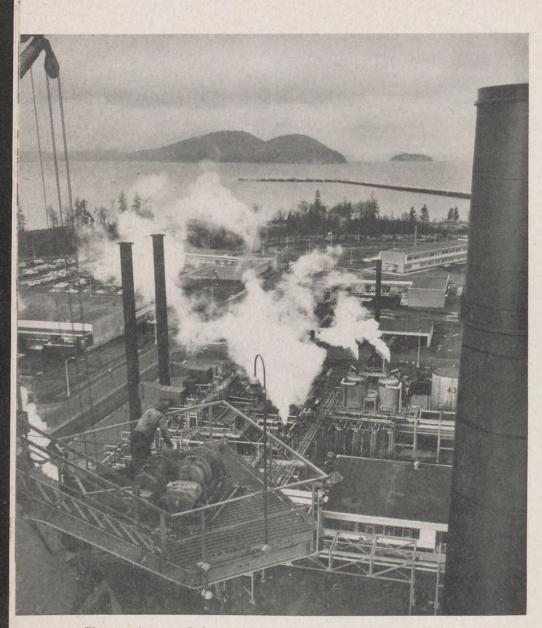
HOUSTON: A new catalytic reforming unit with feed desulfurization facilities was constructed during 1955. It too will help Shell to maintain its competitive octane number position. The new unit is similar to the one planned for the Wood River Refinery. Also completed was a water system to bring five million gallons of fresh water per day more than 25 miles from the Lake Houston Reservoir to the Houston Refinery. It will provide water needed for future expansion of the refinery and chemical plant and at the same time will help maintain the water



A close watch for ways of improving product quality was kept by scientists. Here, at the Wood River Research Laboratory, Chemist L. R. Alsberg watches a breakdown of asphalt.



The Houston Refinery completed an addition to its water system which brings five million gallons of water per day from the Lake Houston Reservoir, more than 25 miles away. Here the valve has been opened to fill the new Refinery reservoir.



The new Anacortes Refinery, seen here from the top of the catalytic cracker, produces gasolines, stove oil, diesel fuel and bunker fuel, and liquefied petroleum gases.

		BARRELS/DAY
CURRENT	Wood River	170,000
CORRENT	Houston	
REFINERY	Norco	
DADAOITY	Wilmington	
CAPACITY	Martinez	
	Anacortes	
		561,000



table level in Houston and vicinity. Additional facilities on the drawing board and programmed for 1956 include units to make Ex-Cell-O wax, Shell SOL 72, and two other grades of industrial solvents. During 1955 four of the largest storage tanks ever installed at Shell refineries were erected. Each tank holds 250,000 barrels.

MARTINEZ: New facilities went into operation to manufacture an improved motor oil additive to increase the anti-wear characteristics of Shell X-100[®] Premium Motor Oil and other lubricating oils. Construction also started on a radiochemical laboratory.

WILMINGTON: Facilities for canning lubricating oil were expanded, in addition to improvements made in plant utilities.

The intensely competitive trend in the petroleum industry brought increased emphasis on manufacturing research activities. Those activities took two major paths, seeking (1) new and improved products, and (2)

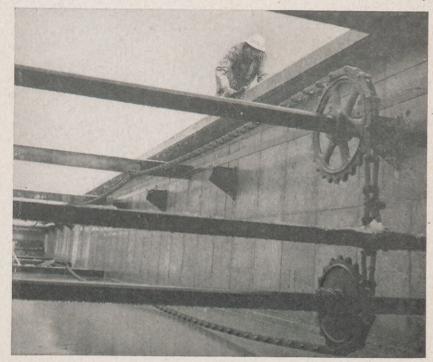


better processes for production of motor gasoline. Major achievements were made in catalytic cracking and catalytic reforming.

Researchers developed a method of tailoring motor fuels to combat icing in carburetors during winter weather. Domestic heating oils were improved so they now remain stable longer while in storage. And Shell's X-100 motor oils gained greater ability to meet the severe lubrication requirements of modern automotive engines.

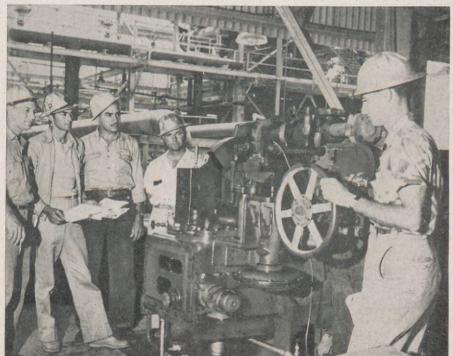
Entirely new products developed during 1955 included fire-resistant hydraulic fluids for industrial uses (which means less danger of factory fires caused by broken hydraulic lines) and a new multi-purpose grease which could be used equally well at low or high temperatures. The grease has a clay filler and has no melting point, which makes it particularly effective at high temperatures.

New research tools and techniques also were features of Manufacturing's research program. Two of the new Martinez Refinery Research Technologist G. T. Coker, Jr., contrasts the flammability of a typical hydraulic fluid (at top) with a new fire-resistant fluid developed in 1955. The Anacortes Refinery's waste water purification system is the most modern available. Here a construction workman prepares one of two huge separator boxes for operation.



major research aids were radioactive tracers and a mass spectrometer. The tracers were used primarily to learn more about the flow patterns within catalytic cracking units and the chemical changes that take place in the catalysts used in those units. The mass spectrometer, installed at the Houston Research Laboratory, is an improved model which Shell Oil Company scientists there helped to develop. It is used as an improved method for analyzing heavy petroleum fractions, including asphalts.

At Norco groups of employees are continuously trained to operate and maintain units of the expanding refinery, like these men studying the operation of an air compressor. In 1955 a thermal cracking unit was converted to make catalytic cracking feed stock.



Expanded Pipe Line Systems and Waterways Shipments, Coupled with New Terminal Tankage, Kept Shell Product Supplies Abreast of Demand

Transportation and Supplies

The tanker "Monmouth" docks at the new Anacortes Refinery with fuel oil to start the Refinery on stream. The Refinery processes crude oil brought from Canadian fields via the Trans Mountain Oil Pipe Line.

HTUDMINDUTH

Shell Crude and Products Moved in 1955

Pipe Lines:	BARRELS	INCREASE FROM 1954
Products	73.0 Million	12.5%
Crude and Natural Gasoline	155.7 Million	3.9%
Tankers	72.3 Million	4.3%
Barges	91.1 Million	10.3%
Tank Cars and "For Hire" Trucks* *Basis: Freight paid by Shell	70.4 Million	6.7%

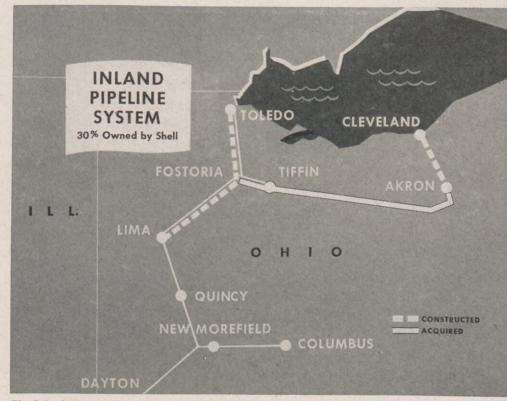


New bulk products terminals were built at Niles, Michigan, above, on the Wolverine Pipe Line; at Dayton, Ohio, on the Inland Pipe Line, and at Cincinnati on the Ohio River, during 1955. A new asphalt terminal was completed at South Portland, Maine.

HELL's increased crude oil production and refinery output in 1955 meant another record year for the Transportation and Supplies Organization. More than 462 million barrels of petroleum were transported during the year by pipe lines, tankers, barges, tank cars and trucks-an increase of 30 million barrels over 1954. Only on the Pacific Coast did Shell have to supplement its refinery output, and that was necessary only until the Anacortes Refinery went on stream late in the year. East of the Rocky Mountains, expansion of the Wood River and Norco Refineries helped maintain an adequate flow of products through the year.

To supply the new Anacortes Refinery with crude oil, the Trans Mountain Oil Pipe Line began delivering crude oil from western Canadian fields to the new refinery. A major step in keeping raw material flowing to major refining centers, including Wood River, was the completion in November by Butte Pipe Line Company (owned 60% by Shell) of a 500-mile pipeline to carry crude oil from Williston Basin fields in Montana south to other major pipe lines, which, in turn, transport the crude eastward.

Products pipe lines also were expanded to handle increasing refinery

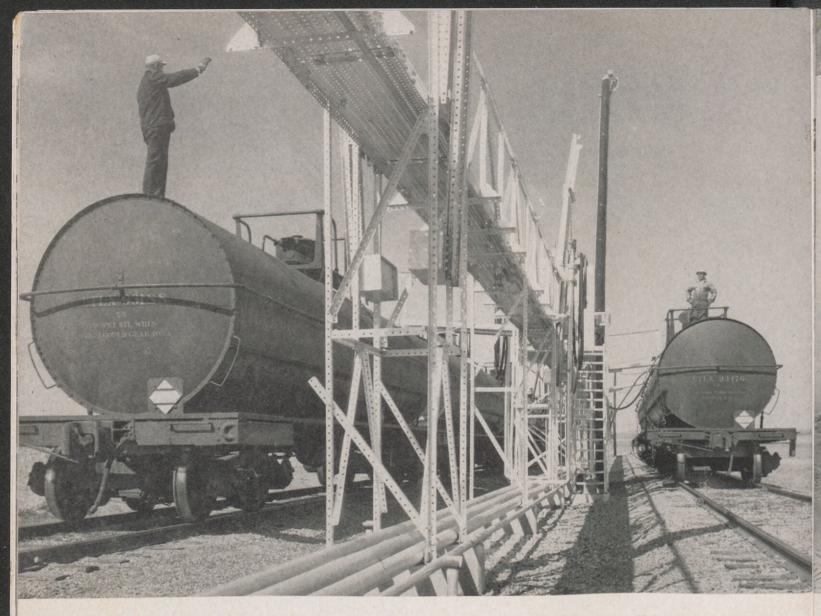


The Inland Corporation completed an expansion program in Ohio during 1955. Included was the acquisition of an existing pipe line from Fostoria to Akron and construction of a new line from Akron to Cleveland. Other expansion included construction of new products lines paralleling lines from Lima to Toledo.

throughput. In Louisiana a new Shell pipe line was completed to carry products from the Norco Refinery to Baton Rouge, where the Plantation Pipe Line System carries them on to southeastern markets. The Plantation System, in which Shell owns a 24 per cent

interest, announced an expansion program that will include a third parallel line from Baton Rouge to Helena, Alabama, and a substantial increase in input capacity at Baton Rouge.

In the southwest, Shell arranged to use the Southern Pacific Pipeline,



which was completed in January 1956, to supply its expanding markets in Phoenix and Tucson.

Another products pipe line expansion program was completed in Ohio during the year by Inland Corporation (owned 30 per cent by Shell). The expansion included laying parallel lines from Lima to Toledo, increasing pumping capacity and extending the Inland System to Akron and Cleveland, Ohio, by acquiring an existing line and constructing another section. Until the extension was available, some of Shell's product shipments to this area were made by marine vessels. Frozen waters usually shut off supplies in winter months. New connections at Toledo also permit movement of products from there to Cleveland through the Buckeye Pipe Line.

While a pipe line replaced water delivery in the Cleveland area, water transportation was still on the increase. During the year, the first tanker movements from Anacortes were made. Styrene, tergol, and D-D® soil fumigant also were shipped by tanker for the first time during 1955. Arrangements were made for movement of asphalt in barges up the Columbia River from Shell's Willbridge Terminal at Portland to serve the markets of eastern Oregon and Washington. A long-term arrangement was made for movement of supplies and equipment to the offshore drilling sites in the Gulf of Mexico via 32 new seagoing deck cargo barges now being built.

More than 100 railroad tank cars,

Tank cars are filled with Elk City Plant products at the loading rack at Hooker, Oklahoma. In December 1955, the 10,000th carload of propane was shipped from the plant, which went on stream in early 1951.

lined with Shell Chemical's EPON[®] resin, were put into service, providing increased car-use flexibility and lower cleaning costs.

Construction of barge loading and storage facilities started at Southwest Pass, Louisiana, to handle Shell's stepped-up production in the South Pass area. Growth in Shell products sales necessitated corresponding increases in terminal storage capacity. Over-all, Shell built 1,350,000 barrels of terminal tankage-525,000 barrels of it to accumulate heating oils in the summer months to supply winter's peak demands.



Shell asphalt and ammonia were shipped by barge up the Columbia River from Portland, Oregon, to this independent terminal at Pasco, and from there were distributed to eastern Washington and Oregon markets.

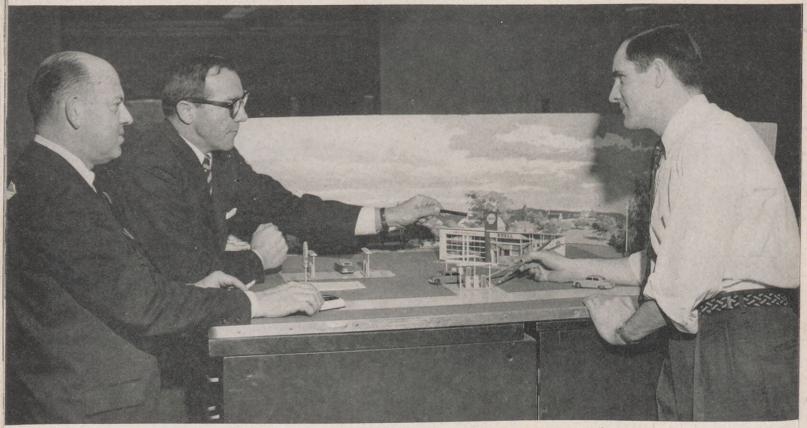
Included in the new construction were terminals at Dayton, Ohio, on the Inland Pipe Line, and at Niles, Michigan, on the Wolverine Pipe Line. Another new terminal at Cincinnati, Ohio, was completed during the year, as was a new asphalt terminal at South Portland, Maine. Additional storage capacity was leased over a wide area; and, with an eye to future expansion needs, Shell bought 167 acres of land in various sections of the country. These acres will serve as sites for expansion or new facilities in coming years.



The new 450-mile Butte Pipe Line, shown here under construction, carries crude oil from fields in Montana southward to lines leading east to refining centers.

Marketing

Shell's Sales Volume Exceeded the General Increase in Demand for Refined Petroleum Products in 1955



About 530 new Shell service stations were added during 1955, continuing the program to concentrate retail outlets in key locations. Plans were being made for construction of still more stations in 1956. Above, as they discussed a model of Shell's newest and most modern service station design (see front cover) were left to right: Harry Wearne, then Acting Manager of the Head Office Engineering Department and now Albany Division Operations Manager, Architect T. L. Jones, and Draftsman William Van Bree, who constructed the model.

DHELL Oil Company again achieved record-breaking product sales in 1955. The volume increase was 11 per cent over 1954, and was greater than that for the industry as a whole. Over-all U. S. demand for refined petroleum products rose about 8 per cent during the year.

Shell's most noteworthy marketing achievements were made in these fields:

GASOLINES AND MOTOR OILS: Intensive merchandising,

backed by strong advertising campaigns, boosted sales of gasolines and motor oils. Shell X-100[®] Premium, the multigrade motor oil, received outstanding public acceptance.

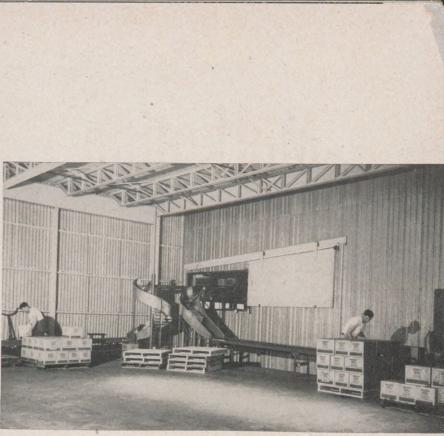
ASPHALTS: Shell asphalt sales were well ahead of average gains throughout the industry. Asphalt marketing facilities were expanded to meet the demands growing out of current state highway construction and plans for future government road construction.



To service its account with Capital Airlines, Shell, as the Nation's first supplier of turbo-prop engine fuel to a scheduled airline, developed innovations in aircraft fueling equipment like the refueller truck, above, with special pumps for handling turbine fuel. Below, under the wing of an Eastern Air Lines Silver Falcon passenger liner, a man holds a special under-wing fueling attachment, pioneered earlier by Shell, which facilitates the job.



FUEL OILS: A marked gain was registered in the sale of all grades of fuel oils, largely as a result of the extremely cold weather early in 1955. During the year, a new additive for Shell Furnace Oil was introduced on the Pacific Coast. It will be adopted nation-wide when adequate supplies are available. Developed by Shell research, the additive has proved five times more effective in preventing screen clogging than the fuel



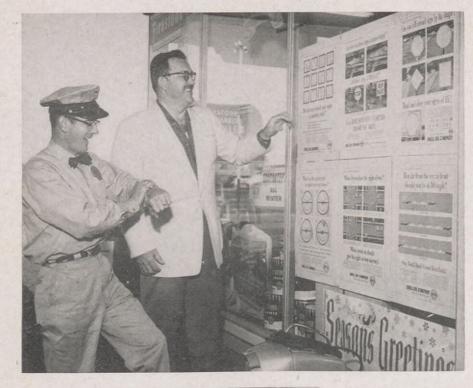
Additional warehousing space and streamlined facilities for handling packaged products, above, were made available at Sewaren, New Jersey, to facilitate the flow of an increasing volume of products.

oil additive used previously.

AVIATION PRODUCTS: Shell continued to be the nation's leading supplier of aviation fuel to commercial airlines; and the sale of all aviation products was at a peace-time high. Continued increase in demand for aviation gasoline is indicated in airlines' orders for new aircraft. Some of these orders are for turbine-powered planes, pointing to a considerable market for jet fuels. During 1955 Shell was the sole supplier of jet fuel to Capital Airlines, the only domestic airline operating turbopropeller aircraft.

INDUSTRIAL PRODUCTS: In the industrial field, several new Shell products were introduced including: Shell Voluta Oil 23 and Shell Voluta Oil 972, quenching oils; Shell Vexilla Oil 47, a textile needle oil; Shell Dromus Oil E, a soluble cutting oil used in metal-working; and Shell Darina Grease 2, a highmelting point grease.

SPECIAL PRODUCTS: Sales of special products were 17 per cent above 1954. More than one million gallons of Shell 360 Solvent and Shell 140 Solvent now are sold each month. Originally introduced as superior dry cleaning solvents, they now are also used extensively by the paint industry. Sales of refined paraffins and micro-crystalline waxes reached the capacity of refining facilities with a rate of 36,000 tons a year. Sales of crude waxes totaled more than 9,000 tons in 1955, 80 per cent higher than 1954.



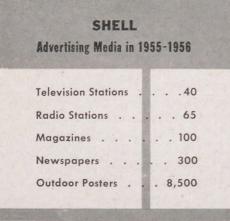


New barge terminals were completed at Mobile, Alabama, left, and at Cincinnati, Ohio, with combined storage capacity of 150,000 barrels. At both terminals, facilities for distribution by truck and tank car will meet growing gasoline needs throughout their areas. Shell dealers helped promote a traffic safety campaign in which drivers tested their reactions by answering quizzes published in Shell newspaper advertisements throughout the country. Public response was enthusiastic.



Along with over-all products sales volume increases, notable gains were recorded in public acceptance of Shell X-100 Motor Oil Premium. A strong advertising campaign, above, helped sell the premium lubricant.

Training was intensified in Marketing's activities, with many training schools and sales meetings. Below, dealers get pointers at a session in Lexington, Kentucky.







Shell took its first steps into the toll road service station field when four stations were opened at two service plazas on the new Ohio Turnpike. Experience at such stations as the one above will determine Shell's future plans for obtaining and operating turnpike outlets elsewhere.

LIQUEFIED PETROLEUM GAS: Late in 1955 Shell withdrew from the direct marketing of "bottled gas" in the Midwest, after 25 years of this activity. The National Propane Corporation took over the marketing facilities and an exclusive franchise to market SHELLANE[®] in nine midwestern states. Shell will supply most of National's requirements of bulk propane.

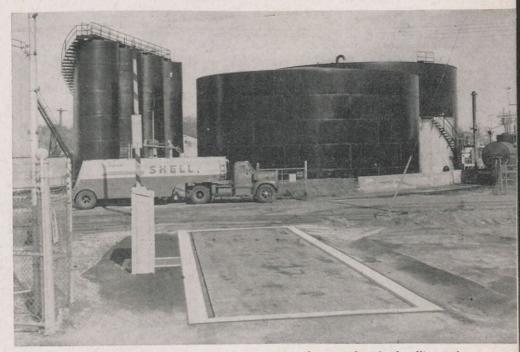
Shell's over-all increase in sales was accompanied by these important expansions of distribution facilities:

About 530 new Shell service stations were added. This furthered the Company's aim to obtain key service station locations in profitable marketing areas, and to upgrade Shell representation in established areas by replacing small volume and nonrepresentative outlets. Included among the new stations are four on the Ohio Turnpike. They are Shell's first toll road stations.

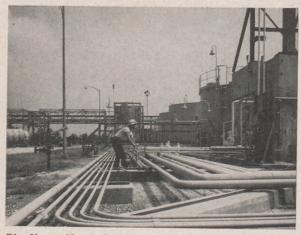
New barge terminals were completed at Mobile, Alabama, and Cincinnati, Ohio, with a total storage capacity of 150,000 barrels and facilities for distribution by truck and tank car. At the Sewaren (New Jersey) Plant, additional warehouse space was provided and handling and packaging lines were streamlined to take care of a 25 per cent increase in the volume of products packaged. At the Argo (Illinois) Terminal, warehouse space and lubricating oil storage were increased and a new railroad spur was completed. These additions will permit consolidation of facilities to improve the efficiency of operations in the Chicago area.

In the distribution of aviation fuels, Shell became the first company to develop handling methods for fuels used in turbine-powered aircraft. These facilities were installed for Capital Airlines' turbo-propeller fleet at Washington, Norfolk, Pittsburgh, Chicago, Detroit, Milwaukee and New York. They also are being constructed at six other major airports. Shell also designed and had built a fleet of special airport refueling trucks for use in the service to Capital Airlines.

Activity in the fields of recruitment, evaluation, development and training of Marketing personnel was intensifield. Programs carried out in these fields aim to insure that employees have outstanding qualifications in a highly-competitive field.



Asphalt sales were well ahead of average industry gains and a new plant for handling and distributing several grades of the product was opened last year at South Portland, Maine.



The Norco Chemical Plant went on stream in May. These pipes serve products storage tanks and the chlorine absorber.

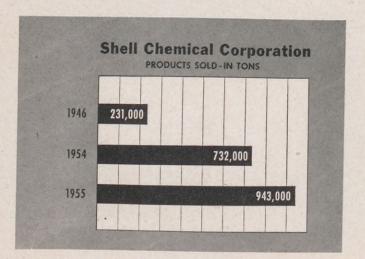
Shell Chemical Corporation

A New Sales Record and Expanded Plant Facilities to Keep Pace With Demand Made the Corporation's 26th Year Its Best

HELL Chemical Corporation's record sales and expanded production facilities in 1955 combined to make the Corporation's 26th year its biggest yet. In the highly competitive chemical industry, Shell's sales during the year were higher than ever, spurring plant expansion and construction and plans for additional construction in 1956.

Chemical sales during the year totaled more than \$193 million, or approximately \$55 million more than in 1954. The largest percentages of increase were in dollar sales of agricultural chemicals, resins and plastics. Synthetic rubber sales, which were started by Shell Chemical in 1955, also contributed to the total sales gain.

In April, Shell Chemical purchased from the Federal Government and took possession of the entire synthetic rubber facilities at Torrance, California. The butadiene portion of the plant had been built and operated by Shell



Chemical for the Federal Government since 1943. The Plant produces butadiene and styrene, and combines them to make several types of synthetic rubber. It was hard pressed to keep pace with demand for rubber products during the year. To grow with expanding markets, Shell Chemical began enlarging and improving various parts of the plant to allow production of additional types of rubber and to improve the quality of all the plant's products. The Corporation also made plans to construct the first facilities west of the Rocky Mountains to produce cold high solids latex, an important ingredient of foam rubber.

Production of EPON[®] resins was tripled in 1955 and a new plant was opened in May at Norco, Louisiana, to produce chemical ingredients for EPON resins and the chemical intermediates of glycerine. This new source of feed stocks, coupled with expanded manufacturing facilities at the Houston Chemical Plant, meant a considerable increase in EPON resin output.

In addition to more EPON resin production, the Houston Plant also stepped up its manufacture of glycerine by adding new facilities. Shell Chemical now supplies more than one-third of the nation's glycerine needs.

Again at Norco, construction started late last year on a new hydrogen peroxide plant. The chemical, used as a bleach in paper and textile manufacturing and as a chemical reaction agent, will be made by a new process perfected by Shell Development Company research. The plant will be capable of making more than 30 million pounds of hydrogen peroxide a year. Ultimately units to make acrolein and glycerine by a new process using hydrogen peroxide are expected to follow at Norco.

Plans were laid in 1955 for still another expansion at

Nemagon soil fumigant was introduced commercially in 1955 after extensive field tests showed it has great promise as a nematode killer when applied with conventional soil fumigation equipment. Here Technical Representative W. E. Feistner, Jr., and Research Representative Jay Pinchard check some ivy plant roots for nematodes at a Florida nursery, one of the places where the new product was tested.



Endrin, a Shell Chemical Corporation insecticide, was instrumental in controlling the worst cotton insect infestation in several years, especially in the Mississippi Delta. Endrin, dusted on cotton plants or sprayed from helicopters, below, and airplanes, played a leading role in the war against boll weevils, boll worms, leaf worms, cabbage loopers and other crop-killers which cut down cotton production.







Shell Chemical took possession of the entire synthetic rubber facilities at Torrance, California, in 1955 and began expansion to produce more types of rubber. Here Laboratory Assistant Mrs. Gladys E. Sweeny tests a sample of synthetic rubber used in automobile tires.

ine production facilities at the Houston Chemical Plant, the first in the world making glycerine from pe-

The fractionating towers above are part of the glycer-

Norco-this one to make 40 million pounds of methyl ethyl ketone per year. Completion date for the unit has been set for early in 1957. MEK is used in making lacquers and lacquer thinners, for dewaxing lubricating oils and in the production of many chemical intermediates. Shell Chemical plants at Houston and at Martinez and Dominguez, California, now make MEK, but an anticipated growth in uses by the surface coating and vinyl resin industries is expected to increase MEK demands.

Farmers and the chemical industry both have an interest in a new urea plant begun at Ventura, California. Scheduled to be completed in September 1956, the new plant will produce 100 tons of urea per day and will enable Shell Chemical to offer farmers in the western United States 1) a wider variety of fertilizers with a high nitrogen content and 2) a supplement which can be added to cattle feeds to increase their protein value. Urea also is used in the manufacture of resins and plastics.

Increased sales of agricultural chemicals in the central United States made it necessary for the Agricultural Chemicals Sales Division to open an office in Columbus, Ohio, in March. Later, in June, the headquarters of this Division was moved from Denver, Colorado, to New York City to gain easier access to national markets and to better coordinate marketing activities.

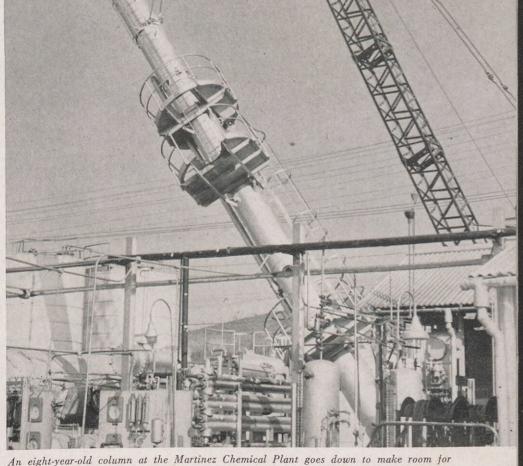


troleum gases. These facilities were expanded during 1955, and Shell Chemical now supplies more than one-third of American industry's glycerine needs.

While sales and advertising programs were creating customer demand, research coupled with the versatility of aldrin, dieldrin and endrin insecticides proved their effectiveness in almost every phase of insect control. Dieldrin, for example, was approved for chemical control of termites and sweet-potato weevils. Aldrin's deadly effect on soil insects protected such crops as potatoes and peanuts, while endrin took the lead in controlling cotton insect infestation. Aldrin and dieldrin also were combined with seed-treating fungicides by leading formulators because their effectiveness is unimpaired by the combination.

Demand for D-D[®], a liquid soil fumigant, to control nematodes is being partially supplied from the Norco Plant where Shell Chemical started manufacturing it last spring. Manufacture of D-D continued at the Houston Plant. New bulk storage and drumming facilities were installed for tobacco growers' convenience at Wilmington, North Carolina, where D-D is received by sea-going tanker from the Houston and Norco Chemical Plants.

A new Shell product, Nemagon soil fumigant, showed such promise after an extensive development program in 1955 that it will be marketed as a commercial nematode control product this year. Nemagon soil fumigant is applied with conventional soil fumigation equipment.



modern grid tray columns in 1955's expansion of the plant's Ionol® antioxidant production

facilities. New units for making TBBA, an acid used in paints, also went on stream in 1955.

A New Department and Improvements in Products and Processes Highlighted the Company's 1955 Achievements

Shell Development Company

SHELL Development Company scientists, whose research lays the foundations for Shell's future, advanced in 1955 toward such diverse goals as improving pestdestroying insecticides and the techniques of finding more offshore oil. These varied goals emphasized the increasing demands on research to disclose new fundamentals, develop new products and improve operating processes and techniques.

A key factor in the growth of the petroleum industry is the discovery of more oil reserves to keep pace with rising demand. The opening of new offshore areas for exploratory drilling and the increasing depth of both landbased and offshore wells presented new problems in engineering and equipment. To meet these needs Shell Development formed an Engineering Department in its Exploration and Production Research Division at Houston, which will pursue both immediate and long-range research aimed at finding and producing more oil. In offshore drilling, for example, the drilling platform must remain stable in choppy seas, geologists cannot scan the sea floor's topography for clues to subterranean formations, and disposal of mud and rock cuttings is more difficult.

Research on offshore drilling problems included theoretical studies of the energy and motion of ocean waves to gather data used to carry out more accurate engineering calculations on the effect of wave forces on offshore drilling platforms. The results are being used to design more stable platforms. To equip Shell's sea-going geologists with underwater eyes, a new method of electrical exploration for offshore use was developed and produced encouraging results in field tests. The new method records information about geologic structures under the ocean's

Shell Development Company initiated a long-range rubber research program at its Emeryville Laboratory after Shell Chemical Corporation acquired the synthetic rubber plant at Torrance, California, in 1955. Below, Chemist R. J. Reynolds, left, and Laboratory Assistant F. W. Morss, at Emeryville, are seeking new and better types of rubber and improved methods of catalysis in rubber production.





An ElectroData computer installed at Emeryville during 1955 helps to reduce the time between basic research and commercial production by quickly solving complex mathematical problems. Above, W. Yuen, left, and F. G. Stockton run a problem through the computer.

floor by use of electrical equipment.

But scientists are not satisfied with probing beneath the ocean's floor merely to find out what the present geological structure is. A general research program also was launched to learn what produced these formations. The answers may point the way toward better methods of locating other undersea oil reservoirs. An important phase in that program, undertaken jointly with Shell Oil Company's Exploration and Production Technical Services Divisions, was a study of Recent sediments and marine life off the Florida-Bahama Banks.

Other geological research during 1955 developed standards for identifying the geologic environments which produced the various deposits of subsurface sediments. That knowledge helps in predicting the trends of sand deposits, which often may contain oil.

Studies of the chemical composition of clays laid the foundations of new methods of zoning and correlating thick shale deposits. These studies of the molecular make-up of clays led Shell Development scientists to new ways of estimating the hydrocarbon content of underground strata by their resistance to electric currents.

Other Shell Development laboratory projects concentrated on getting more oil out of existing wells. One such project started during 1955 was to develop methods to prevent or decrease the rapid drop in production from some oil wells because of deposits of asphalt or paraffin. Laboratory studies also led to improved treatment of the water used to flood wells to force out all possible oil.

While the Exploration and Production Division sought better ways of finding and producing oil, activities at the Emeryville Research Center concentrated on developing new petroleum and chemical products and improving both present products and the methods of manufacturing them.

New types of instruments were developed which disclosed basic knowledge of the behavior of engine fuel fractions and additives. The application of this new knowledge is enabling Shell to make fuels better tailored to meet the rigid requirements of modern engines. Advanced engine designs also demand new additives and refining processes, and Shell Development scientists laid the research foundations to meet those needs.

Continued studies of the fundamentals of lubrication opened new approaches to the manufacture of engine oils, greases and industrial oils. Additives of completely new types for



Modesto Agricultural Laboratory Horticulturist W. J. Hughes and Plant Physiologist Mary Tagami make a check on plant growth aids.



K. E. Marple, left, Manager of the Denver Research Laboratory, and Chemist J. G. Kudnera discuss molecular models of test chemicals.

Research Supervisor C. W. Schroeder and Assistant Mrs. N. P. Dill, working at Emeryville, test EPON resin's ability to make cloth wrinkle-free.





This new building was constructed during 1955 and occupied last February to provide additional office and laboratory space for the Shell Development Exploration and Production Research Division Laboratory at Houston, as well as to accommodate the Technical Services Divisions of Shell Oil Company's Exploration and Production Organization. The building contains approximately 93,000 square feet of floor space. Also opened by Shell Development at Houston in 1955 was a radiation laboratory, which houses a Van de Graaff particle accelerator.

lubricants and fuels moved from the research to the experimental stage during 1955 and promising experimental products using them now are in development or reaching the market.

Basic studies of the composition of oil and its properties disclosed a possible new way to handle asphalt, and provided leads to improved processing of heavy crude oil at refineries.

Research aimed at improving refining processes included close attention to hydrogenation and dehydrogenation-methods of treating oil streams by adding or removing hydrogen. Emeryville scientists also experimented with several new types of catalysts which encourage or speed the rearrangement of petroleum molecules to form refinery products.

- In addition to developing new refining methods, Shell Development research also gained new insight into what takes place during the processing of petroleum by adding radioactive tracers to the catalyst or process stream. These "hot" tags made it possible to follow the refining pattern in detail never known before. Instruments sensitive to radioactivity gave details of the action of catalyst particles. These instruments traced the pattern of oil flow through refinery units, and identified the sources of trouble in vacuum flashing units, where the separation of hot oil into vapors and liquid is often plagued by liquid carry-over or "entrainment." Such information is the foundation of improvements in plant operations and in the design of future equipment.

The Exploration and Production Research Laboratory at Houston continued experiments with its twomillion volt Van de Graaff particle accelerator testing the effects of positive ions on geological specimens. Another Van de Graaff accelerator, a three-million volt one which fires electrons instead of positive ions, was purchased by Shell Development and installation will be completed at Emeryville this June. It will be used to study the effects of irradiation on plastics, lubricants and fuels.

Interpretation of research information was made far more rapidly than before by using a new ElectroData computer installed last summer at Emeryville. The new machine cuts the time gap between basic research and commercial production because, among other accomplishments, it can run a mass spectroscopic analysis in about two minutes—compared to several hours if calculated by handand compute data sent by teletype from distant plants.

The year saw three new chemical processes move to final stages of development. Two of these produce hydrogen peroxide and acrolein and the third yields glycerine as a derivative of the first two. Construction of a new hydrogen peroxide unit started at the Norco Chemical Plant in 1955 and will incorporate one of the new processes worked out by Shell Development. Units to make acrolein and glycerine also are expected to be built at Norco in the future-again utilizing the new Shell Development processes. Many other derivatives of hydrogen peroxide and acrolein are under study to find more uses for those chemicals. In still another direction, advances were made in research on important new classes of aromatic derivatives of petroleum.

New developments in EPON[®] resins, already used for such diverse duties as airplane coating and in molding dies, indicate they soon may be used to make cloth wrinkle-proof and shrink-proof. Certain forms of EPON resins show promise in that direction and now are undergoing field tests. Other new forms of the resins showed excellent properties under extreme conditions of use, which may open up new EPON resin horizons.

Shell Development scientists also sought new combinations of synthetic rubber components to form new types and grades of rubber. When Shell Chemical Corporation acquired the synthetic rubber plant at Torrance, California, in 1955, a long-range supporting program was initiated at Emeryville to emphasize new combinations of monomers (the molecular building blocks of rubber polymers), new methods of catalysis in rubber production and related goals.

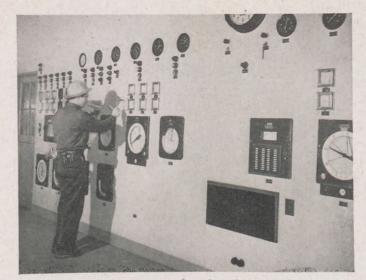
Shell Development's Agricultural Research Division at Denver and Modesto, California, made large-scale laboratory and field tests of two new products in 1955. Commercial manufacture for one of them—NEMAGON* soil fumigant—is planned for 1956, while limited experimental sales of the other—known as OS 2046—may be made during this year.

Nemagon soil fumigant is an improved nematode-killer, many times more deadly to this root-destroying pest than other commercial products. It also has the advantage of being non-toxic to many living plants. Nemagon soil fumigant also can be mixed and applied with fertilizer or it may be injected into the soil with conventional soil fumigant equipment.

OS 2046, a new phosphate insecticide, is highly toxic to mites and insects such as boll weevils, aphids and cabbage worms. The insecticide is absorbed by the plant and moves within it from one part to another, controlling insects otherwise protected within leaf folds and other inaccessible places. Since it remains effective for a relatively short time, OS 2046 may be used near harvest time without risk of leaving harmful residues.

* Trademark Shell Chemical Corporation

A slim hole velocity logger, which measures sound velocity through rocks, is lowered into a test well at the Houston E & P Laboratory by Logging Operator R. A. Herolz.



Pilot plants, with instrument panels such as this one being checked by Operator K. K. Cooke at Emeryville, helped perfect new processes such as those to make hydrogen peroxide, acrolein and glycerine.



1955 Marked a New Record Throughput, the Addition of 340 Miles of Pipe Line and Completion of the Butte System

Shell Pipe Line Corporation



HELL Pipe Line Corporation pumped more crude oil and products through its underground oil arteries in 1955 than ever before. The Corporation's total movements amounted to approximately 69 billion barrelmiles of petroleum through its lines —an increase of 4 billion barrel-miles over the previous year.

During the year, 341 miles of line were purchased or constructed for the corporation's use, bringing the total pipe lines operated by Shell Pipe Line to approximately 6,500 miles. The lines constructed or acquired in 1955 included:

• A 65-mile products line constructed from the Norco Refinery to Baton Rouge, Louisiana.

• A 134-mile crude oil gathering system purchased in Lea County, New Mexico.

• A 95-mile crude oil gathering system purchased in Yoakum, Winkler and Ward Counties, Texas.

• A 47-mile crude oil gathering system constructed to the Brahaney and West Ropes Fields in West Texas.

The 12-inch line from Norco currently moves 32,000 barrels of products per day to the Plantation Pipe

A major Shell Pipe Line Corporation accomplishment in 1955 was designing and supervising construction of the 500-mile Butte Pipe Line. Here inspectors check a valve.



A 65-mile products line was completed from the Norco Refinery to Baton Rouge, Louisiana. The 12-inch line currently moves 32,000 barrels of products per day to the Plantation Pipe Line Terminal at Baton Rouge. Here a welding inspector checks a join before the pipe is put underground.

Line Terminal at Baton Rouge. It is an important link in the petroleum supply chain to southeastern states.

The Corporation purchased the New Mexico and Texas crude oil lines from other companies. These systems gather crude oil from 26 oil fields extending along 130 miles of the western rim of the Permian Basin in West Texas for movement through the Rancho and Basin-Ozark Pipe Lines to the Houston and Wood River Refineries, respectively.

The Corporation laid new lines to the Brahaney and West Ropes Fields. Both are new producing areas.

During the year, Shell Pipe Line, acting as an agent, completed the task of designing and constructing the 500-mile Butte Pipe Line, and began operating it late in the year. The Butte Line, so named because it crosses many butte formations in Montana and Wyoming, rises from 2,000 feet to 4,300 feet above sea level, and reaches 5,000 feet at one point.

This new crude oil pipe line is

The products pipe line from the Norco Refinery to Baton Rouge goes through swamplands and marshy soil along part of its 65mile length. A cement coating, such as workmen are applying here, gives pipe greater weight and resistance to corrosion.

The Butte Pipe Line travels over hills and across rivers and rises from 2,000 to 4,300 feet above sea level to carry crude oil from Montana and Wyoming fields. Here a Shell Pipe Line inspector examines the primer coat on the line before it is wrapped.







Shell Pipe Line's battle against corrosion was helped by instruments such as these. Engineer L. R. Sheppard of the Houston Experimental Laboratory is checking old models of a vibroground and a potentiometer, while new models of those instruments are in the foreground.



The Corporation's outstanding safety record over a four-year period won it the National Safety Council's Award of Honor, here presented to Joe T. Dickerson, seated, President of Shell Pipe Line, by R. B. Roper, Safety Council representative at Houston, Texas.

owned by the Butte Pipe Line Company, of which Shell Oil Company owns a 60 per cent stock interest. The line moves crude oil from the Williston Basin fields towards markets in the midwest and east. It extends from Poplar, Montana, to Fort Laramie and Guernsey, Wyoming, where it joins two other major carriers. Included in the Butte Pipe Line is a 35-mile segment which Shell Pipe Line built in 1954 to bring crude oil from the Pine Unit and Cabin Creek fields to tank car loading racks at Glendive, Montana. This line was sold to the Butte Pipe Line Company and now is a part of the Butte Line.

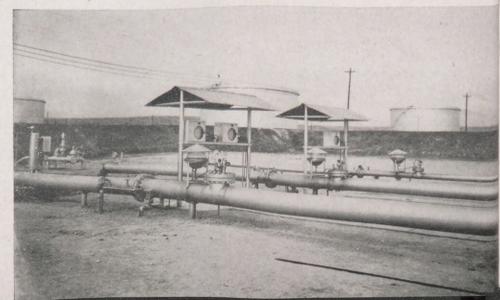
The new pipe line went into operation last November with a daily capacity of 37,000 barrels. If required, a third pumping station can be added to boost the pumping capacity to 70,000 barrels per day.

 SHELL PIPE LINE CORPORATION IN 1955

 New Lines Constructed 112 miles
 New Lines Constructed for others 500 miles
 Pipe Lines Purchased 229 miles

 Total Lines Operated
 6,500 miles

Instruments such as these on the Rancho Pipe Line at McCamey, Texas, take samples and record the gravity of crude oil pumped through the lines. Approximately 69 billion barrel-miles in petroleum movements were made through Shell Pipe Line's system in 1955.



Statement of Financial Condition

SHELL OIL COMPANY AND SUBSIDIARY COMPANIES

DECEMBER 31, 1955

HE financial aspects of the activities described on the preceding pages are summarized in Shell's Statement of Financial Condition, below, and in the Income Statement on the following page. These statements, which are included in the Company's Annual Report to Shareholders for 1955, are reproduced here in condensed form.

The Statement of Financial Condition shows what the Company *owned* and what it *owed* at December 31, 1955. The Income Statement is a summary of the year's business. Corporate assets exceeded the billion dollar level for the second consecutive year and were at their highest point in the Company's history. As in previous years, working capital (represented by the excess of current assets over current liabilities) reflected the Company's strong financial position.

Expenditures totaling \$271 million for properties, plant and equipment brought the total gross value of properties to more than \$2 billion for the first time.

WEOWN		WE OWE	
CURRENT ASSETS		CURRENT LIABILITIES	
Money in offices and banks U. S. Government securities (less those set aside to pay Federal in- come taxes) Due from customers and affiliated companies Inventories—crude oil, refined products, ma- terials and supplies TOTAL CURRENT ASSETS	35 million	Owed to suppliers and others Owed for taxes \$ 99 million Less U. S. Government securities held for payment of federal income taxes	\$ 156 million 35 million 191 million
PROPERTIES, PLANT AND EQUIPMENT		BORROWED MONEY	201 million
Drilling and production	1,017 million 644 million 179 million 216 million	TOTAL LIABILITIES SHAREHOLDERS' INVESTMENT Capital Standard Signification Signification Signification Signification Signification Signification Capital Capital Signification Signification Capital Capital Signification Signification Signification Capital Capital	392 million
AND EQUIPMENT Less depreciation, depletion and amor-	2,056 million	Earnings employed in the business 577 million	
tization NET PROPERTIES, PLANT AND EQUIPMENT	1,328 million 728 million	TOTAL	815 million
OTHER ASSETS	57 million	TOTAL LIABILITIES AND	
TOTAL ASSETS	\$1,207 million	SHAREHOLDERS' INVESTMENT \$	1,207 million

FOR YOUR INFORMATION: Copies of the Shell Oil Company Annual Report for 1955 are available to employees. If you would like a copy, ask your supervisor. He will arrange to obtain one for you.

Income Statement

For the Year 1955

WHAT CAME IN

	From customers	\$1,484 m	nillion	
	Other transactions	22 m	nillion	
WHA	IT WENT OUT			
	To suppliers for goods and services	805 m	nillion	
	To more than 38,000 Shell Employees for wages, salaries and benefits	265 m	nillion	
	Towards replacement of plant, equipment and crude oil underground	189 m	nillion	
	Direct taxes—Federal, state and local	117 m	nillion	
	Interest on borrowed money	5 m	nillion	
WHA	T WAS LEFT			
	Profits from the year's business	125 m	nillion	
DIVII	DED AS FOLLOWS			
	Cash dividends to the more than 19,000 shareholders who invested their money in the Company	55 m	illion	
	Retained earnings employed in the business	70 m	iillion	

T

HE Income Statement, above, shows that receipts from customers totaled \$1,484 million in 1955. This was a 13 per cent increase over the previous year and was the highest annual revenue in the Company's history.

Earnings for the year's business, after all expenses, were more than \$125 million, including \$6 million non-recurring profit from sale of SHELLANE [®] marketing assets. These earnings were divided as follows: Cash dividend payments to shareholders amounted to \$55 million. The remaining \$70 million, or 56 per cent of the earnings, was retained in the business to help finance Company expansion.

The continued growth of operations was reflected in a 10 per cent increase in the number of employees—to more than 38,000 at the end of the year. Wages, salaries and benefits totaled \$265 million, an increase of 14 per cent over 1954. Service and family allowances, as applicable, were continued for 594 employees on military leave. During the year, 399 employees retired on pension, making a total of 3,813 pensioners retired under the Shell Pension Plan since its adoption in 1938.

Forty Years



L. A. MASSEY Tulsa Area Production



Service **Birthdays**

Thirty-Five Years



N. WITHERS Tulsa Area Production

Thirty Years



R. D. BOYLAN Wilmington Refy. Catalytic Cracking



W. A. CARNAHAN **Head Office** Financial



Engineering

T. L. JUDY

Treasury

Wood River Refy.



E. J. CHAISSON Norco Refinery Engineering



T. M. COLLINS Martinez Refy. Compounding



R. V. CONOVER Shell Pipe Line Corp. Texas Gulf Area



C. E. FRANCIS Martinez Refy. **Research Laboratory**



H. J. GOMEZ Norco Refinery Engineering



P. J. JACOB Norco Refinery Shell Chemical Corp. Utilities Shell Point Plant



H. M. KAY Wood River Refy. Catalytic Cracking



G. KNAUSS Wood River Refy. Engineering



S. LARSON Martinez Refy. Engineering



New Orleans Area

Vice President

W. LAUDERBACH Martinez Refy. Engineering



M. C. LAWTON Pacific Coast Area Gas



S. S. LORENZ Shell Pipe Line Corp. Mid-Continent Area



R. T. LUDEWICK Tulsa Area Transport



C. C. McGUIRE A. G. MacDONALD New Orleans Div. Seattle Division Sales



J. T. McMAHAN Shell Chemical Corp. **Houston Plant**



E. R. MEEKS Houston Refinery Thermal Cracking



S. H. MORPHEW Shell Pipe Line Corp. Mid-Continent Area



C. F. OGLESBY Wood River Refy. Compounding

Thirty Years (cont'd)



J. P. O'KEEFE Head Office Financial



G. C. POPP Chicago Division Operations



J. W. PUCKETT Portland Div. San Francisco Div. Marketing Service



G. C. RALLS Martinez Refy. Engineering



G. S. REDMAN Seattle Div. Operations



St. Louis Div.

Marketing Service

E. H. SCHNARRE Pipe Line Dept. Sibley, Illinois



Shell Pipe Line Corp. Mid-Continent Area



E. T. SIMONEAUX Norco Refinery Engineering



G. L. PRATT

Operations

Martinez Refy. Cracking



R. W. TABOR Seattle Div. Sales



Norco Refy. Engineering









Los Angeles Div. Treasury



A. J. SYDENSTRICKER





P. WEBER





Twenty-Five Years



R. B. ALLEN **Portland Division** Treasury



A. M. BELDEN Pacific Coast Area Production



S. J. BONANNO

Shell Point Plant

Norco Refinery

Engineering

F. G. NEWMAN

Houston Area

Gas

E. C. BOTNER Shell Chemical Corp. Tulsa Area Production



W. E. BOYD Los Angeles Division Operations



J. J. CARL Wilmington Refy. Engineering



Wood River Refy.

Thermal Cracking

F. E. DUTILH New Orleans Division Operations



J. J. FORD Shell Chemical Corp. **Houston Plant**



P. L. FRIEND **Boston Division** Operations



San Francisco





W. O. HOPPER, JR. Houston Refinery **Control Laboratory**



J. KARA Sewaren Plant **General Plant**



L. E. KNIGHT Shell Chemical Corp. Shell Point Plant



D. McLENNAN Shell Chemical Corp. Shell Point Plant



A. L. SCHNEIDER Sacramento Division Operations



J. A. TETLOW New Orleans Division Sales



B. TYLER Wood River Refy. Thermal Cracking



R. M. WALLACE

Wilmington Refy.

Engineering



A. C. WEBB Shell Pipe Line Corp. Texas Gulf Area





W. F. GUBERT, JR. C. L. HEDMAN Shell Chemical Corp.

H. J. HESP









SHELL OIL COMPANY

Head Office

20 Years

R.	E.	McAdams.							. Expl. & Prod.
J.	F.	Redmond							. Expl. & Prod.

15 Years Helen C. Petrie.....Trans. & Supplies Frances M. Steinbach....Trans. & Supplies C. W. Summers......Financial

10 Years

San Francisco Office

10 Years W. Beinhorn, Jr.....Trans. & Supplies

Exploration and Production

TECHNICAL SERVICES DIVISIONS (HOUSTON)

10 Years

F. D. Leigh.....Production

CALGARY AREA

20 Years E. R. Shorey Production

DENVER AREA

20 Years W. C. Finch.....Exploration

15 Years

R. W. Allee.....Production L. F. Schombel.....Exploration 10 Years

HOUSTON AREA

20 Years

н.	D,	Parks											. Production
A.	D.	Tinker	• •	-					•		•		. Production

15 Years J. E. Doffing Land

10	Years	

D. M. BrumbeloeTreasury
R. DobbsTransport
J. C. EwingLand
M. C. Foster Production
J. R. GarciaProduction
E. B. Hoffpauir Exploration
J. W. PerlmanExploration
J. F. PrazakProduction
E. J. Richardson Production

MIDLAND AREA

20 Years

J. M. Nuttall		į.	1			-	÷	÷	÷	4					. L	.ar	Id	
W. A. Simpson											.1	Pr	0	d	uc	tic	on	

10 Years

5.	D	Abbo	TT	 		 		 	
F.	Bai	uchan	n	 	 			 	Production
R.	A.	Seb	esta	 	 			 	Exploration
R.	She	ort		 				 	Production
W	. T.	State	en	 	 	 		 	Gas

NEW ORLEANS AREA

20 Years

C.	J.	Boudrea	u	X								Production
L.	W.	Guidry.										Production
C.	A.	Landry.										Production
J.	L.	Robbins.										Production

15 Years

L. C. AllenProduction	
G. O. BroussardProduction	
A. E. CampbellProduction	
J. R. DrackettProduction	
M. W. Gray Production	
J. K. Larsen Exploration	
C. A. LucasPurchasing-Stores	
G. W. Wynn Production	

10 Years

C.	F. Bajon Production
R.	J. Ourso Exploration
	RunnelsProduction
D.	SpellGas
R.	A. Williams Production

PACIFIC COAST AREA

15 Years

J.	H.	Hammond Exploration
F.	R.	Hoesley Exploration
Κ.	F.	PilgrimProduction
F.	М.	Wilson Purchasing-Stores

10 Years

Н.	W. Curtis												Production
E	J. Greenlee.	ï						2				•	Production
1	W. Hodkins												Production
1	I Howry			i.		ų,	l.		÷				Production
G.	B. Kramer.									•		•	Production

TULSA AREA

20 Years

G.	н.	Calhoun									•	•	•	Production
J.	L. C	ollins		• •	• •		• •	•	• •	•	•	4	•	. Production
G.	. М.	Dressel		• •	1.1	•	• •	•			•	•	•	. Production
J.	W.	Timothy		• •	4	• •	•	•		•	• •	•		Exploration
			1	F	1	V.			~					

P.	٧.	Bryant.												. Production
1.	R.	Hulsizer				4								Production
C	M.	Marsde	n.										÷	. Production
D.	C.	McCov			5				ŝ	ų,		÷		. Production
R.	F.	Wicks				•	÷	,				•	•	. Production

10 Years

C. W. Denney..... Exploration

Manufacturing

ANACORTES REFINERY

20 Years

		DittesZone A
C.	Ρ.	HackethalTechnological

15 Years

R. M.	LaumbattusZone B
	10 Years
A. O.	OehlmanTechnological

HOUSTON REFINERY

15 Years

Salla Call

J. F. BowleyStores	ŝ
E. D. BurrLubricating Oils	5
H. R. Byrne Thermal Cracking	1
F. Darden Engineering	
.J. DrenonEngineering	1
C. C. Hyatt Catalytic Cracking	
C. W. Lyons Engineering	
M. L. McLaughlinEngineering	
W. A. StabsEngineering	
U. M. TomlinsonDispatching	1

10 Years

J. C. Hallaman	. Engineering .
W. Johnson.	Engineering
W. N. McKnight L. Smith	Engineering
V. M. Torres	Engineering
D. H. Wheeler	. Engineering

MARTINEZ REFINERY

20 Years

D.	н.	Neilson.	•	÷		•			4	4	(Co	n	tr	0	1	L	a	boratory	
0.	D.	Phelps	÷		•	•		•	•										Cracking	

15 Years

C. Q. Bonavera	Compounding
W. L. Buchanan	Engineering
E. A. Fauth	Engineering
F. S. Lucido	Dispatching
D. Sanfilippo	Engineering
W. Stanley	Engineering

10 Years

Τ.	R.	Frink	Control Laboratory
М.	C.	Murphy	Dispatching

NORCO REFINERY

20 Years

H. A. LeBlanc, Jr.....Catalytic Cracking

15 Years

М.	J.	ClarkDistilling
J.	E.	EngladeEngineering
Η.	Τ.	GaudetEngineering
N.	J.	SchexnayderEngineering
		10 Years

R. J. Roussel.....Treasury

WILMINGTON REFINERY

20 Years

R. E. Lees.....Engineering A. T. Zamora....Catalytic Cracking

15 Years

A. J. Brady Engineerin	ng
C. M. Branson Engineerin	ng
E. R. Bumgarner Engineerin	
D. Gordon Experimental Laborato	
L. H. Hamilton Effluent Cont. & Ut	il.

10 Years

YY.	. C. Dittinger	 								Engineering
٧.	L. Conniff	 		Ex	pe	eri	m	en	tal	Laboratory
J.	Marrow	1	4							Engineering

14/ C P...

WOOD RIVER REFINERY

20 Years

E. M. Ahrens	Stores
G. K. Dycus	Control Laboratory
J. A. Hmurovich	Engineering
A. J. Losch	Dispatching
H. M. Lurton	Research Laboratory
C. A. Pickering	Lubricating Oils
R. V. Quackenbush	Alkylation
J. M. Sones	Thermal Cracking
E. L. Sooy	Thermal Cracking
G. J. Turnbeaugh	Alkylation

15 Years

10 Years

G. D. Chambliss	. Research Laboratory
V. H. Chandler	Engineering
R. A. Jones	Catalytic Cracking
E. J. Kapp	Engineering
W. I. Lengacher	Gas
E. H. Mohme	Technological
K. L. Paddock	
H. A. Poitz	Research Laboratory
D. T. Russell	Engineering
F. F. Weise	Engineering
P. W. Wood	

Marketing

MARKETING DIVISIONS

20 Years

L. H. Morin	Minneapolis, Administration
R. T. Sorensen	Portland, Mktg. Service
A. L. Cuneo	Sacramento, Sales
J. W. Cobb	Seattle, Sales
R. G. Eklow	Seattle, Operations
	Seattle, Operations
A. M. Reagan	Seattle, Treasury
R. G. Smith	Seattle, Sales

15 Years

M. C. Jones Atlanta, Sales
H. H. WaterhouseBoston, Sales
P. J. Koepp Chicago, Operations
R. J. Thirion Chicago, Operations
J. J. Reck Indianapolis, Operations
J. E. Malley Los Angeles, Operations
P. R. Studer Los Angeles, Operations
M. B. Wilson Los Angeles, Operations
W. M. Espenson Minneapolis, Mktg. Service
C. V. Olson Minneapolis, Mktg. Service

D.	Bernardo	New York, Treasury
A	Hausen	Comments Organitions

- A. Hauser......Sacramento, Operations J. R. Dickie.....San Francisco, Operations O. G. Schneider.....San Francisco, Sales R. C. Hadlock.....Seattle, Operations B. L. Hill.....Seattle, Operations

10 Years

B. A. Corpening	Atlanta, Operations
M. T. Hansen	
H. A. Hatcher	Baltimore, Operations
H. N. Overstreet	
G. M. Sublett	Baltimore, Operations
R. C. Allen	
K. R. Bulfinch	
R. J. Kirby	Chicago, Sales
M. M. LeDonne	Chicago, Treasury
D. C. McHenry	
M. W. Bolster	
P. W. Daulton	Cleveland, Operations
K. B. Pethtel	Cleveland, Operations
R. H. Leach	Detroit, Operations
R. A. Marshall	Detroit, Operations
R. L. HookIn	dianapolis, Operations
J. L. Ising In	dianapolis, Operations
Nancy G. Klingensmith.	Los Angeles, Treasury
K. D. CarpenterM	
P. T. Calamari	
L. E. YeagerNew	
M. M. Dolinsky	Portland, Treasury
P. W. Shearer	. Portland, Operations
K. W. Koht	San Francisco, Sales
E. R. Williams	Seattle, Treasury

SEWAREN PLANT

20 Years

J.	Kovacs										Compound
R.	T. Leisen.										. Compound
N.	Markow.										Compound
G.	Radich									.1	Eng. & Maint.

15 Years

D.	A.	Cosgrove	ί.											Depot
S.	J.	Lomonico.					Ļ			2				Depot
S.	R.	Mitzak												Depot
F.	D.	Waitt						,		,				Terminal

10 Years

R. J. Jardot.....Compound

Pipe Line Department

15 Years

J. O. Awalt	Zionsville, Ind.
C. L. Cooper	Holliston, Mass.
W. J. Kacsock	Holliston, Mass.
H. B. Lemaire	Ventura, Calit.
V. E. Nicholas	
V. C. Scarano	Holliston, Mass.
G. F. Spangler	Lima, Ohio
H. Van Sheets	Los Banos, Calif.
L. P. Whitson	Detroit, Mich.

10 Years

J. D.	Hall	Tracy, Calif.
M. J.	Mancos	 . East Chicago, Ind.

SHELL CHEMICAL CORPORATION

20 Years

R.	M. Pierce						Dominguez
E.	F. Eckman	 . ,	÷				Head Office
	J. Rushton						
A.	N. Holcombe	 					.San Francisco
Κ.	C. Luberg	 		÷			Torrance

15	Years

E. H. Waugh	Dominguez
A. W. Fleer	lead Office
W. L. Jungers	Houston
R. E. Jackson	Norco
J. F. Sanchez	Shell Point
L. R. Parker	Torrance

10 Years

W. H. PaulmanD	enver
C. M. ReiderD	enver
P. A. Johnson	Office
W. E. KeeganHead (Office
R. W. Nelson Head (Office
J. K. Robbins, Jr Head (Office
E. P. RiesMa	rtinez
A. R. Cassani	icisco
P. C. Smith	Point

SHELL DEVELOPMENT COMPANY

20 Years

20 rears	
H. Diamond	Emervville
G. A. Nelson	
A Hormant	Laustan
A. J. Hermont	Houston
15 Years	
Elizabeth M. Cathcart	Emanuella
Elizabeth M. Cathcart	. Emeryville
R. M. Estep	. Emeryville
10 Years	
C. H. Bailey	Emervville
V. B. Brown	Emonwille
F T CIT	Emeryville
E. T. Chiles	. cmeryville
H. W. Clark	. Emeryville
L. G. Coykendall	. Emeryville
G. C. Davies	. Emeryville
J. Edvalson	
J. R. Engberg	
B. B. Gould	
F. S. Hathaway	
Zona M. Hodges	Emeryville
Vera O. Lodetti	. Emeryville
Vera U. Lodern	. Emeryville
Margot C. Marsden	. Emeryville
C. A. May	Emeryville
Jean E. Merrill	. Emeryville
M Milano	Emperatille
Helen L. Robbins.	Emeruville
Corinne W. Sabsay	Emoryville
F. G. Stockton	Emonwillo
J. W. Tinay	Emeryville
P. A. Wadsworth, Jr.	Emeryville
G W Slade Is	. Emeryville
G. W. Slade, Jr.	Houston

SHELL PIPE LINE CORPORATION

20 Years

F. F. Allgaier	a
IE Vana	-

15 Years

F.	W	. Bell.	Mid-Continent Area
F.	H.	Cummins	Mid-Continent Area
Β.	A,	Funk	Mid-Continent Area
A.	L.	Langley	Mid-Continent Area
J.	٢.	Miller.	Mid-Continent Area
A.	L.	Smith	Texas Gulf Area

10 Years

J. F. Allen	Aid-Continent Area
G. Barclay	Aid-Continent Area
C. E. Bay	Aid-Continent Area
W. L. Knipe	Texas Gulf Area
G. W. Lewis	Aid-Continent Area
G. B. Stark	Aid-Continent Area
B. D. Vannostran	Aid-Continent Area

matters

STRENGTH IN NUMBERS

Shell employees increased by almost two thousand in 1955 — to more than 38,000 — because of the expansion in Shell's activities and installations. Ours is a growing company which, as it grows, provides greater security and opportunity for more employees. SHELL OIL COMPANY 50 West 50th Street NEW YORK, N. Y. RETURN POSTAGE GUARANTEED E. J. Hittinger 4710 Bell Houston, Texas

SCC

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Top performance *plus continued improvement* are the reasons why Shell Premium Gasoline is the most powerful gasoline your car can use! Shell research pioneered the use of TCP*, "the greatest gasoline development in 31 years." In recent tests conducted by Shell at the proving ground of an independent research organization, Shell Premium outperformed the best of competitive premium gasolines.

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