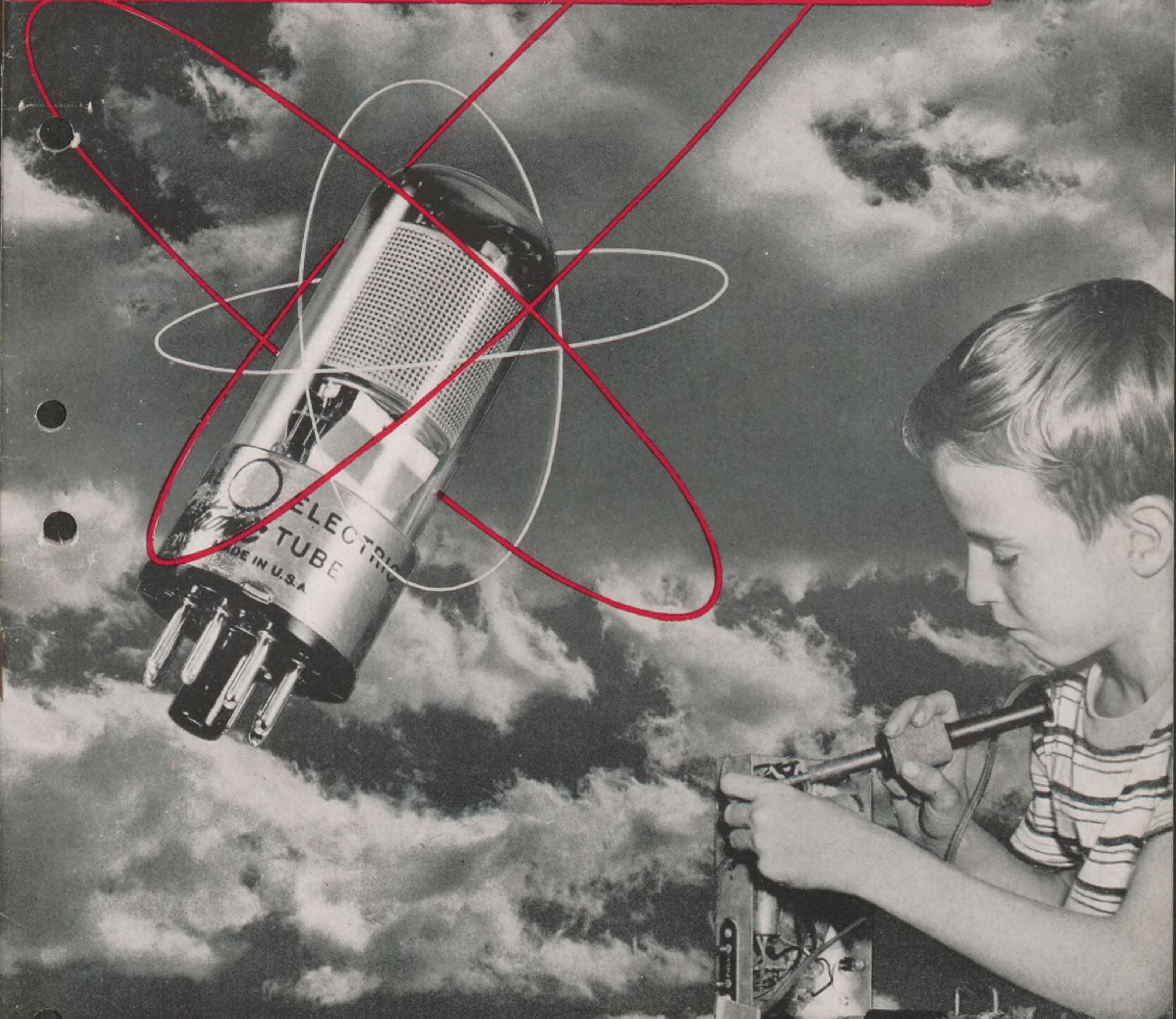
SHELL NEWS



OCTOBER · 1947

What You Can Do About The Fuel Oil Situation This Winter

THERE is not going to be as much fuel oil this winter as people would like to have. The petroleum industry has known this for months and has done everything practical to make available every gallon of fuel possible.

The reasons for this tight position are easy to find. Approximately 400,000 new oil furnaces were installed in homes during the first seven months of the year, and that figure is still increasing. In addition, the demand for fuel oils for industrial application has increased substantially. As a result of these factors, the total increase in distillate fuel demand for heating and all other uses this season is forecast at about 20 percent.

To meet this demand the petroleum industry is processing crude at record rates and organizing and increasing its facilities for the transportation and distribution of fuel oil products in order to provide a maximum supply in places where it is most needed. Whether or not this supply will be sufficient depends, in large measure, on the consumer. He has it in his power to save millions of gallons of fuel oil a year, through the efficient operation of his heating unit and the careful conservation of the heat it produces.

Industry, which spends millions of dollars every year on fuel for its heating and power plants, is naturally careful about the size of its fuel bills; the difference between economical and wasteful operation may well mean the difference between profit and loss. But the average householder is not always so careful, and often he is unaware of the simple steps he can take to conserve his fuel supply. Actually there are dozens of things he can do—many of them at no expense—and all of them saving him money. They are described in detail on the following pages.

As a Shell employee, and a representative of the petroleum industry, you will probably find that your friends will look to you for information and advice in this regard, even though your own particular job may not be closely related to the fuel oil situation. You can perform a public service by acquainting yourself with what the average person can do about conserving the fuel supply, and by passing this information along.

You may also want to tell them what Shell itself is doing to meet its fuel oil demand.

Shell is devoting its every effort to the problem of supplying the individual householder with distillate fuel for his home furnace. To do this, all Shell refineries have set records for processing crude.

Normal transportation methods—both for crude and products have been augmented by the use of tank cars and barges, even though this is more expensive. Products pipe lines out of Wood River are now being expanded to accommodate an additional 8,000 barrels a day.

In short, every step possible has been taken to assure an adequate supply of fuel to the householder when winter comes. But he, too, has a responsibility to utilize his oil supply so as to get maximum use from it.

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

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How to Save Money on Oil Heating

DON'T PRODUCE EXCESS HEAT THAT DOES YOU NO GOOD

YOU can't control the weather this winter, but you *can* control the amount of fuel you use—simply by applying well-proved information from this article. Many suggested methods require no construction . . . and, even where construction is needed, you'll save in the end through lower fuel bills.

Where figures tell the percentages of fuel you may save by following any one suggestion, the percentage applies when you follow that suggestion *only*. If you use *several* suggested methods of fuel saving, of course your savings will increase . . . but they won't equal the total of all the separate savings, for many methods overlap.

Don't heat a garage to house temperatures

It isn't necessary to keep a garage at more than 40°F. Your car won't freeze.

Keep doors of a heated garage closed

Of course it's easier to drive away and leave them open, but it wastes fuel.

Close house doors promptly

A great deal of heat escapes whenever outside doors are open.

Don't let rooms get so hot you have to open the windows

Most of us let the room temperature go up and up until somebody says, "Whew! Open the window!" And away goes a lot of wasted fuel.

Close fireplace damper

A fireplace with an open damper takes heat out of a room at least as fast as an open door or window.

HOW YOU OR YOUR SERVICE MAN CAN STOP WASTE IN YOUR HEATING UNIT

As much as 50 percent of the fuel burned in homes is wasted because of imperfect combustion and faulty circulation of the heat. Ask a service man to check every part of your heating system.

Soot is a heavy waster of fuel

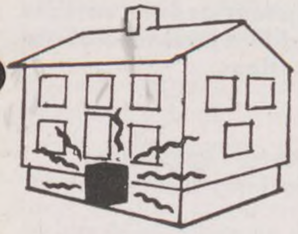
A mere ⅛ inch soot deposit increases oil consumption as much as 10 percent. You can clean it out with stiff brushes.

Insulation should insulate

Asbestos, rock-wool or magnesia should be kept in good condition and should have a full 1½ inch thickness.

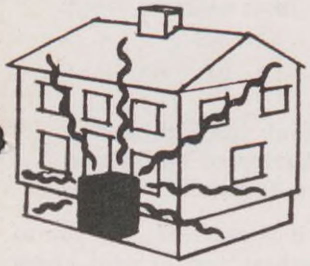
Stop all air leaks

around the fire door, ash door, base, the burner opening, or between the sections. They cool off the fire, or let the heat escape.



Is your heating unit large enough?

If not, it has to work overtime trying to heat your house. This is very wasteful of fuel.

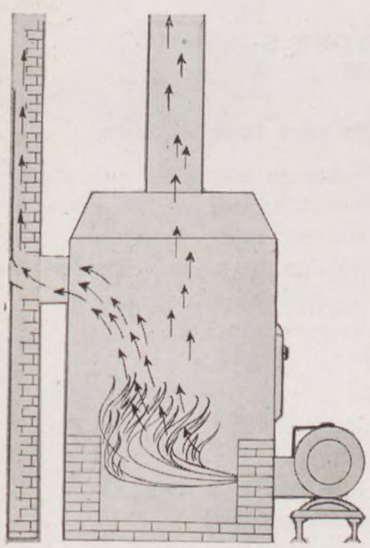


A blower or a circulating pump may help

If heat, doesn't get upstairs, a booster fan, in the case of a warm-air furnace, or a circulating pump, in a hot water system, will undoubtedly help to give better heat distribution on less fuel.

GET YOUR HEATING UNIT TO CONTRIBUTE ITS SHARE OF FUEL SAVINGS

To save fuel expense, your heating unit must be adjusted to get maximum heat from every drop of oil . . . and to *use* that heat to warm your *house,* not your chimney!



Combustion efficiency

Heating engineers express combustion efficiency in terms of the temperature of the chimney gases (stack temperature) and the percentage of carbon dioxide (CO^2) contained in these gases. The lower the stack temperature, the lower the oil consumption, while the higher the CO^2 content the less excess air there is to carry off heat through the chimney. In other words, the object is to find the burner adjustment that will bring the least "stack loss." Your heating service man has scientific instruments available to determine just the correct setting of your burner. You may be surprised at the savings this will bring you.

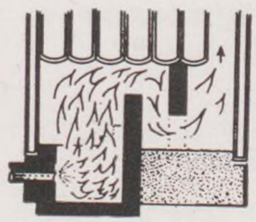
Water must be clean—water passages clear

Cleaning compounds are available for removing scale and an occasional treatment will save oil. Your heating service man should be consulted.

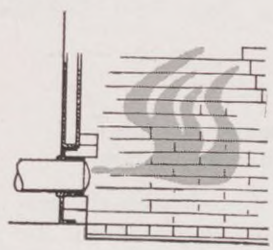
When a warm air furnace overheats

additional return pipe may be needed. Otherwise heat may be wasted in the furnace and cellar.

Baffles may be the answer

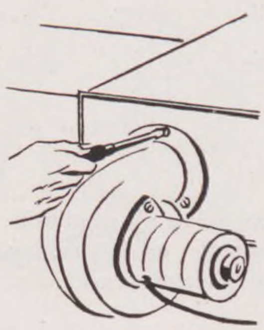


Baffles are relatively inexpensive, easily installed devices to slow down and direct the flow of gases so that more heat can be absorbed by the heating plant. This is very important in a plant originally designed for coal. Savings up to 20 percent have resulted.



Does the combustion chamber (fire box) need rebuilding?

If it's "old style," it may save you as much as 10 percent to have your heating man reconstruct it according to modern practice.



How's the blower timed?

In a forced-warm-air system, the blower should not shut off when the burner does, but should keep operating as long as the air in the furnace is comfortably warm. Otherwise, all the air that has been heated doesn't get upstairs and fuel is wasted.

Big savings in small things

Even and correct draft, proper nozzle size and angle, quick-starting ignition, and clean oil lines and filters are all important to efficient combustion.

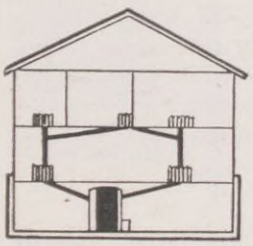
Is your thermostat in the right place?

Your thermostat should be moved if it is located near a door leading to the outside, at the foot of a stairway, or on an outside wall. Location in any of these places causes it to turn on the oil burner frequently when there is no need for more heat in the house.

CATCH FUEL THIEVES IN YOUR HEAT DISTRIBUTION SYSTEM

See that insulation is complete

on steam and hot water lines. This means covering corners and fittings, as well as the long runs.



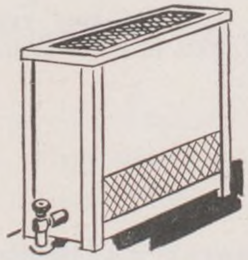
"Balance" the heat distribution system

In a forced-warm-air system, the dampers in the ducts leading to some rooms must be opened to allow the passage of more warm air to them than to others.

Filters

in warm air or air conditioning systems need cleaning or replacement occasionally.

Registers and air returns should be kept free of obstructions



Radiator enclosures sometimes waste fuel

Such an enclosure should be discarded or redesigned if it keeps the cold air on the floor from getting to the radiator or prevents the warm air from escaping freely.

Check the size and location of radiators and registers

If it is necessary for you to overheat part of your house to get comfortable temperatures in certain rooms, have a competent heating man check over your radiators and registers.

Radiator valves are vital to fuel saving

Radiator valves in hot water systems should be opened occasionally to let out any air that may be present.

FUEL SAVINGS IN YOUR DOMESTIC HOT WATER SYSTEM

Be sure tank is clean

Sediment interferes with efficient heating of the water and may cause corrosion and leakage. It should be flushed by draining a bucket of water once a month.

Insulate hot water storage tank

An uncovered tank normally means a loss of 30 to 40 percent of the heat required to heat the water.

ECONOMIES RESULTING FROM LOWER ROOM TEMPERATURES

A great American extravagance is the warmth we think we require indoors. Actually the medical profession recommends a temperature of about 70°—while 68° is also healthful. Slightly more heat may be needed if there are small children or elderly people in the household.

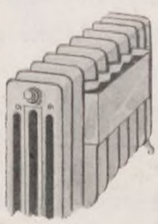
And, by all means, reduce night temperatures. There's no point spending money on fuel to heat all outdoors.

Turn off heat when ventilating rooms

This is particularly important if you have a hot-water system, as the open window cools the water in the radiator.

Reduce temperatures when away from home

There's no sense spending money to keep an empty house as warm as if you were in it.



Use water pans

Dry air at a relatively high temperature may feel cooler than moist air at a lower temperature. It is a simple matter to improve humidity conditions by the use of water pans—store-bought or home-made.

CONSTRUCTION IMPROVEMENTS THAT BRING BIG SAVINGS

A single crack

around one window may seem trifling. But add all the cracks around all doors and windows and the result may well be a hole large enough to crawl through, Weatherstripping and caulking may save 10 to 15 percent of your fuel.

Storm vestibules . . . a real fuel saver in cold climates

Even when a door fits tightly and is well weather-stripped and caulked, it still causes a lot of heat loss. Icy blasts blow in when the door is open and, when it is shut, heat escapes through the wooden panels much faster than through the wall. Much of this can be corrected by installing a storm vestibule. You can accomplish part of the same results with a storm door. While less effective than a storm vestibule, it is also less expensive.

Adding an adequate layer of insulation

to a house which previously had none may save 30 to 40 percent of the fuel. If you can't swing the whole job now, at least do the roof or the attic floor. Unfinished attics may be responsible for as much as 30 percent of all the heat that escapes from the house. The wall of the house adjoining an unheated garage should also be insulated, as should the floor above unexcavated portions of the foundation.

Storm windows save 60 percent of heat loss through glass

An average size, single glazed window (30 x 52) loses the heat equivalent of about 27 gallons of oil during a heating season in cold climates. A storm sash reduces this loss to about 11 gallons, *a saving of 16 gallons per window.*

Speaking of windows, don't forget to keep all of them locked when closed, as only when locked do they fit snugly.

The Shell Group in 1946

Reprinted from "The Shell Magazine"

THE Annual Reports for 1946 of the Royal Dutch, The "Shell" Transport and Trading Company, Ltd., and various associated companies have recently been issued and they provide, as usual, an excellent survey of the Group's activities during the year under review.

Lack of space prevents us from publishing a fully comprehensive summary of these reports; in particular, we make no reference to important announcements regarding chemical developments, research activities and the tanker fleet. This article merely attempts a brief review, arranged geographically by continents for easy reference, of some of the major activities carried on by the Group throughout the world during the past year.

AFRICA

British Somaliland. A geological survey of the country is now being made.

Egypt. Production from the Ras Gharib field of Anglo-Egyptian Oilfields Ltd., as well as from the old Hurghada field, was somewhat reduced, owing to natural decline. Total production of crude oil (including natural gasoline) for 1946 was 8,910,000 barrels as against 9,370,000 barrels for 1945. Suez refinery throughput was similarly somewhat less, at 8,240,000 barrels compared with 8,680,000 for 1945. Six wells—all successful producers—were drilled in the Ras Gharib field.

At Sudr, in the Sinai Peninsula, a second well was drilled 400 metres from the first successful well, and also gave promising results. Elsewhere, exploration wells were drilled at Myos Hormos, north of Hurghada, and at Ayun Musa and Asl in the Sinai Peninsula, but results in these cases were negative. At the end of the year, drilling was in progress at Alaska, a few miles south-west of Suez, and at Nebui, some 20 miles south of Sudr.

Nigeria and the Gold Coast. A start was made with a geological survey of these regions.

ASIA

British Borneo. Energetic rehabilitation measures continued throughout the year at the Seria oilfield and at Lutong Refinery. Sixteen new wells were drilled at Seria and all proved successful. At Lutong a new light distillation unit with a capacity of 10,000 barrels daily was constructed and, by the end of the year, the restoration of one of the old units, with a daily capacity of 14,000 barrels, was well advanced. A new 12-inch submarine loading line, three miles long, was successfully launched.

GROUP PRODUCTION AT A GLANCE

Production for the year from the Seria and Miri fields was 2,050,000 barrels and, by the end of December, daily crude production was averaging 12,000 barrels and daily refinery throughput 8,500 barrels. Crude oil production and refinery throughput are both steadily increasing and the figures at present are 34,000 barrels and 18,000 barrels per day respectively.

China. The year was marked by a considerable volume of sales, but the outlook causes some anxiety, since the trading prospects are overshadowed by the collapse of the currency and by import restrictions.

		1946 Barrels	1945 Barrels
1 VENEZUELA	Caribbean	16,825,000	14,281,000
	V.O.C.	77,031,000	61,740,000
	Colon	5,705,000	5,807,000
	N.O.M.	16,521,000	14,148,000
2 TRINIDAD		5,121,000	5,134,000
3 ARGENTINA		3,841,000	4,215,000
4 COLOMBIA		3,209,000	1,635,000
5 UNITED STATES		70,473,000	73,439,000
6 NETHERLANDS EAST INDIES		2,100,000	110,000
7 BRITISH BORNEO		2,100,000	74,000
8 EGYPT		9,000,000	9,400,000
9 IRAQ		7,625,000	8,540,000
10 ROUMANIA		9,223,000	10,415,000
11 NETHERLANDS		436,000	41,000
12 AUSTRIA		618,000	415,000
13 GERMANY		250,000	105,000
Total		230,078,000	209,499,000

Iraq. The Iraq Petroleum Company, in which the Group has a 23¾ percent interest, drilled four wells in the Kirkuk field, all of which came into production.

A new 16-inch pipeline is being constructed from Kirkuk to the existing pipeline terminal at Haifa; this will increase the capacity of The Iraq Petroleum Company's pipeline system to some 65,000,000 barrels a year. As soon as it is completed a further 16-inch line will be laid from Kirkuk to Tripoli, increasing the total capacity of the whole pipeline system to approximately 100,000,000 barrels a year. It is expected that the first of these new lines will be ready by the beginning of 1949 and the second during 1950.

Malaya. Trade has already reached its pre-war level and the reconstruction of the Group's main installation in Singapore proceeds.

Netherlands East Indies.—Political difficulties again interfered with plans for reconstruction, and in

areas where production was restored work was hampered by shortage of materials, labor and food. Despite these difficulties, production at Tarakan had reached 127,000 barrels per month—about one-third of the pre-war production—by December. In Balik Papan two installation units are now working at the refinery and drilling has been resumed in the neighbouring oilfields. Rehabilitation was begun at Pladjoe Refinery, which was less damaged than had been expected. Oilfields near Pladjoe remain inaccessible.

Total Group production in the N.E.I. for 1946 was 2,010,000 barrels from Borneo and 90,000 barrels from Java.

New Guinea. Staff and material for exploration work were despatched to the former Allied war base at Morotai, which was selected as a provisional headquarters, pending the preparation of the new main settlement on the mainland at Sorong.

Philippine Islands. A satisfactory economic prospect has been opened now that the relations with the United States are stabilized for a considerable period ahead. Reconstruction in the Philippines is well advanced.

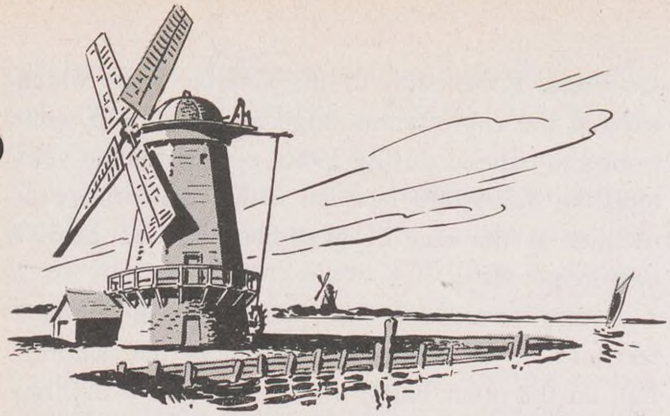
Portuguese Timor. The records of the geological survey carried out during 1940-41 were lost as a result of the war and preparations are being made to resume exploration.

Siam. As a result of long negotiations the Group has obtained a share in the tankage erected by the Government and, apart from exchange difficulties, the way is clear for the development of marketing.

EUROPE

France. Early in the year the refinery at Petit Couronne was put into partial operation for processing crude. Plans are in hand for the rehabilitation and extension of the French refining industry, which suffered so severely from the ravages of war.

Holland. Despite the shortage of drilling and other material, the quantity of crude oil from the Schoonebeek field amounted, during the year, to 436,000



barrels. Seventeen producing wells were completed and, in all, 28 wells have now been sunk in this field. The crude oil is treated at Pernis Refinery, where rehabilitation is now complete and the pre-war throughput capacity of about 14,000 barrels per day has been regained.

Italy. The Group's position is gradually being restored and it is expected that all its properties will shortly be back in service.

Roumania. Astra Romana again experienced a very difficult year and its production, like that of the rest of the industry, suffered a sharp decline from 10,415,000 barrels in 1945 to 9,223,000 in 1946. This was due to the inability of the Roumanian oil industry to re-establish itself and to the curtailment of drilling owing to the acute shortage of equipment. Astra's exports to Russia on reparations account and under other agreements were 4,700,000 barrels and to other countries in Eastern Europe 247,000 barrels. So long as this situation continues the oil industry will be unable to amass the foreign currency required for purchases of equipment they so badly need, and it is, therefore, likely that the decline in production will continue. Prospects for the export of petroleum products are also poor, since the balance available after meeting domestic requirements must be placed at the disposal of the Russians.

United Kingdom. A very large share of the responsibility for supplying the oil needed to alleviate the country's critical fuel situation by converting plant from coal to oil is being borne by the Group. In the supply of all major petroleum products, Shell was well represented; it is perhaps less well-known that in the production and supply of lubricating oils in the United Kingdom the Group holds an even more important place. During 1946 its production of lubricating oil in Great Britain amounted to 1,600,000 barrels, which, together with 750,000 barrels imported by the Group from sterling sources, was sold to the Petroleum Board Lubricating Oil Pool. These oils represented 47 percent of the year's deliveries to the Pool.

NORTH AMERICA

Bahamas. In addition to the Group's gravity survey, an aerial magnetometer survey is being conducted jointly with others in this area.

Canada. The third well at Jumping Pound, Alberta, was completed as a gas well and has apparently

disproved the presence of oil in this structure. A fourth well is being drilled to evaluate the gas reserves.

The demand for petroleum products in Canada has kept pace with that in the United States and plans for major refinery extensions are under consideration.

Cuba. In the early months of 1946 preparations were made for deep drilling to investigate the oil possibilities of concessions on the north coast of the island in the provinces of Santa Clara and Camaguy. By the end of the year, a depth of 5,700 feet had been reached without encountering oil in quantities of any importance.

United States. The Shell Oil Company's net crude oil production, excluding natural gasoline, averaged 178,700 barrels daily; this is a decrease of 6 percent compared with 1945 and is due mainly to the company's curtailments in California, which are designed to ensure maximum ultimate recovery. While no outstanding discoveries were made during the year, development of several areas in Western Texas (particularly the TXL field, in which Shell Oil has a substantial holding) and in Louisiana has been encouraging. In California, new gas production was discovered near the Shell Oil Company's chemical plant at Pittsburg, California.

SOUTH AMERICA

Argentina. The field at Comodoro, Rivadavia, has now passed its peak; production for 1946 was 3,841,000 barrels compared with 4,215,000 barrels for 1945. As a result of careful handling, and working the field at a more economic level than was possible during the war years, production is still being maintained at the rate of about 3,884,000 barrels yearly. Nevertheless, the underground reserve situation is unsatisfactory, since it has not been possible to obtain new areas for exploration. To supplement the diminishing production, crude oil was imported from Venezuela for processing in the Diadema Refinery.

Aruba. The refinery worked at full capacity, the total crude oil treated amounted to some 9,000,000 barrels. Storage capacity was reduced by some 2,000,000 barrels and the tanks thus released have been made available for new projects elsewhere.

Colombia. Production in the Casabe field, which entered the exploitation stage in June 1945, continued to expand during 1946, output for the year totalling 3,209,000 barrels, with a potential production at the end of December last of 12,500 barrels per day.

A new concession was secured in the Llanos territory in the south-east portion of the country, but, on the other hand, owing to negative drilling results, one concession in the Llanos and one area in the lower reaches of the Magdalena River were surrendered. An extensive exploration program, including work in the Dificil field and in the Llanos territory, was completed, but successful results have yet to be obtained from the latter area.

The total concession area held at the end of 1946 was about 511,000 hectares and applications had been made for further areas.

Curaçao. Once again, heavy demand for petroleum products provided intensive work for the refinery. Towards the end of the year a third alkylation plant was put into service. A sulphuric acid plant was completed, rendering the refinery no longer dependent upon imports of this essential product, and the building of an acid tar decomposition plant now makes it possible partly to regenerate the spent sulphuric acid, which will reduce the imports of sulphur.

The fleet of tankers stationed at Curaçao worked at full capacity throughout the year and four new vessels were put into commission.

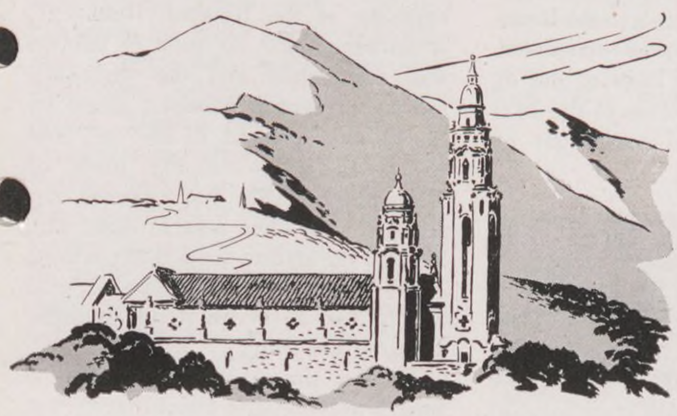
Ecuador. A geological and geophysical survey in the Oriente area, east of the Andes, was energeti-

cally pursued, airfields were constructed and roads and camps built in extremely difficult territory and at very high cost.

Towards the end of 1946 a well was started on the Macuma structure in the Rio Pastaza area and preparations are being made to drill on two other structures in the western part of our concession.

Trinidad. By intensive drilling the Group's share, amounting to about 25 per cent (or 14,000 barrels daily), of the island's production of crude oil, was maintained throughout the year, while, in order to extend our knowledge of the available oil reserves, the geological and geophysical survey was carried on.

A number of concessions, in which the Group holds a one-third interest, in territorial waters and in the Gulf of Paria beyond them, which were to have been granted as from July 1, 1946, have not yet been issued by the Government of Trinidad, but it is anticipated that this will take place during 1947.



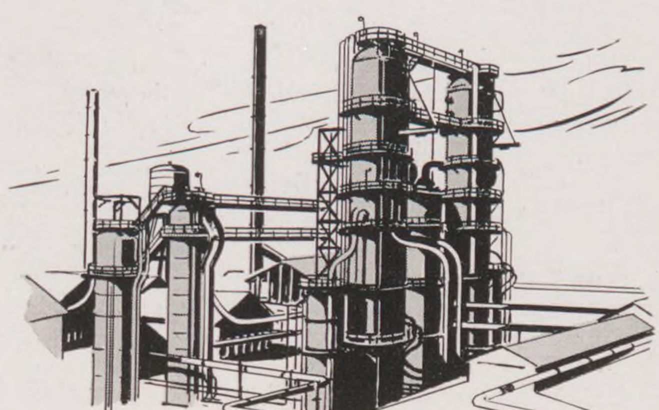
Venezuela. The year proved one of considerable expansion in Venezuela, production by Group companies reaching the high figure of 357,450 barrels per day, a material increase over the daily average for 1945.

Throughout the year a program of exploratory drilling was continued in an endeavor to locate additional reserves. These operations, which are meeting with considerable success, were conducted in the majority of the oilfields under the control of the Group, and in the Curaçao area included the drilling of the deepest well in the world outside the United States, work having stopped when a depth of 15,106 feet had been reached. Drilling also commenced, for the first time in the history of the Group's operations in Venezuela, on a well in the waters of Lake Maracaibo itself, and by the end of the year a depth of 10,824 feet had been reached.

Work on the first well to be drilled in the new concessions in Eastern Venezuela was also commenced during the year and, while it proved possible to maintain the drilling program for this area, difficulties in the supply of materials have retarded the rate of development of operations as a whole in Eastern Venezuela.

Scarcity of materials has also made itself felt at Cardón, yet, despite this obstacle, good progress was made with the construction of the refinery and the housing area adjoining it, and it is anticipated that the first units of the refinery, which—when built—will be one of the largest in the world, will come on stream during 1948.

Very pleasant relations have been established with the Government, which, among other things, is endeavoring to strengthen the economic position of the country by opening up fresh sources of wealth and, in so doing, relieve, to some extent at any rate, Venezuela's present dependence on the petroleum industry as the main revenue producer. To support these efforts, the oil industry has responded to a request of the Venezuelan Government to co-operate and contribute financially to the projects for the agrarian development of the country.



CALLING ALL SHELL AMATEURS

THE sergeant was desperate. More than four thousand miles away, near Houston, Texas, his wife was having a baby—and complications were expected. For two days he had tried to make contact by transoceanic telephone from Tokyo. Now his short leave was almost over. In two hours his train was due to pull out of Tokyo station, returning him to his camp 400 miles away—400 miles from a telephone connection to America.

"Why not try a 'ham'?" a fellow GI suggested. "There's a fellow not far from here who has an amateur radio transmitter. Maybe he can get you through."

The sergeant looked at his watch. It was almost five o'clock in the morning, Houston time. What amateur radio fan would be sitting by his set at this hour, ready to pick up an unexpected message from an obscure and nervous Army sergeant four thousand miles away?

"Oh, well," he said, "might as well do that as just sit around and chew nails."

Within a few minutes the two had found the Tokyo amateur, roused him, and the signal was on the air "... calling all Houston amateurs ... calling all Houston amateurs ... calling all Houston amateurs ..."

W5KAC, Houston, was sleepy. Like all DX fans (radio amateurs who specialize in contacting foreign countries) he was accustomed to sending and receiving messages at odd hours—to suit overseas time schedules. This morning he had crawled out of bed early, set his receiver to the 14.0 megacycle band, and put a pot of coffee on the stove. The coffee was still dripping when he heard the call.

This month's cover features Lou Sullivan, the young son of L. B. Sullivan, St. Louis Division Fuel Oil Manager, against a background symbolic of short wave radio. Photograph of tube courtesy of General Electric.

Hams are friendly people, and W5KAC (John Mizenko, instrument engineer at the Houston Refinery), is no exception. As soon as contact was established and the sergeant's message received, Mizenko threw on his clothes, hopped in his car, and drove 15 miles to the town of Highlands. There he wakened the sergeant's brother and brought him back to the station for a thirty-minute conversation with the Tokyo GI, who finally had to break it off in order to catch his train.

By this time the sergeant was no longer nervous. He knew that he was the father of a baby girl—and her mother was doing fine.

It is this sort of experience that has made "hams," as radio amateurs are known, one of the most enthusiastic hobby groups in the nation. Altogether there are close to 100,000 "hams" in the nation and that number is being swelled daily by new recruits from the more than 250,000 veterans who received radio training in the army. Recently the FCC has been granting more than 1,000 amateur radio licenses a month.

While beginners often buy small sets to get a start, the more seasoned hams scoff at this practice and build their own sets with everything from 25-watt "junkodynes" made out of scrap-pile parts to large, professional-looking 1,000 watt transmitters with directional antennae, capable of reaching almost any spot on the globe.

There are a number of Shell employees who are radio hams, including one who owes his present position directly to the hobby he began as a boy.

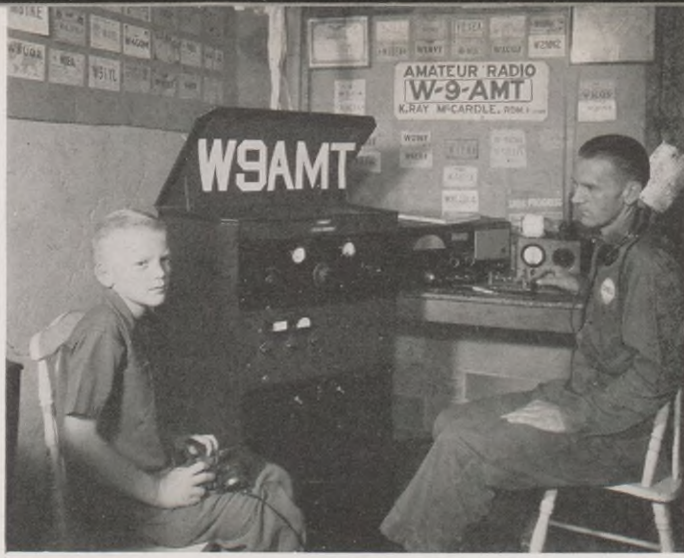
When Walter C. Putnam was 13 years old he worked after school hours in a Houston radio store, invested his pay and part of the allowance he received from his parents in radio parts, built himself a half-kilowatt rotary spark transmitter costing $200. In 1928, Putnam went to work for Shell Pipe Line as a Warehouse Clerk at McCamey, Texas. His knowledge of radio soon came to the attention of his supervisors and he was made a telegrapher later that same year. Today, he is Telephone and Telegraph Supervisor for Shell Pipe's West Texas Area. He still continues his radio hobby and operates a home-made transmitter with 150 watts output on all amateur bands. During the war, when all amateur radio activity was curtailed, Putnam served as chief observer of the Government's air raid warning system for Upton County, ready to throw the emergency network of amateurs into operation on a moment's notice, should normal communications be paralyzed.

According to Bob Morrison, of Shell Chemical in Houston, who has been a SWL (short-wave-listener) for three years, hams classify themselves into three basic types: "rag-chewers," who may even bring neighbors and members of the family to the microphone for chatty conversations with distant friends; "fat-chewers," who talk only about radio and how to improve their sets; and "DX hounds," those interested in making as many foreign contacts as possible. He classifies himself in the last group, and is now expanding his set to the full allowable limit of 1,000 watts in order to get as much range as possible. Though he now has equipment

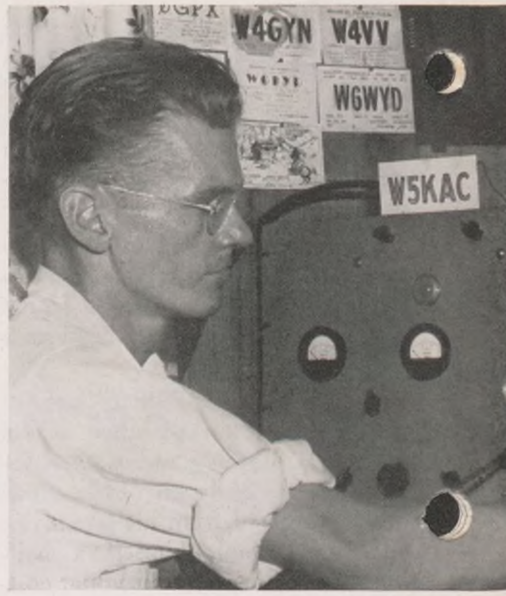
Walter Putnam counts among his "ham" experiences, listening to one of the first voice transmissions in the South, back in 1920. Putnam, Shell Pipe Line West Texas Area T & T Supervisor, is shown before apparatus used to find trouble on the pipe line.

Bob Walters—W5DAW (standing), and Bob Morrison, both of Shell Chemical, Houston, tune in Morrison's set. Walters is reassembling his equipment after a long wartime silence. Morrison is a "DX" hound.

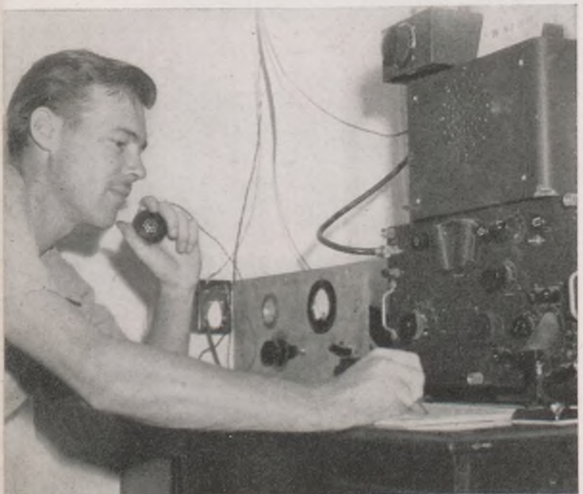
12-year-old Lou Sullivan, son of a St. Louis Shell man, built his own receiving set. Shown here receiving messages, Lou is interested in all things electrical and chemical, has his bedroom wired for everything under the sun.



K. Raymond McCardle, Depot Foreman, Aurora, Indiana, and his eleven-year-old son, Jerold, are both enthusiastic radio amateurs.



John Mizenko, an Instrument Engineer at the Houston Refinery, operates a transmitter which he built in his spare time.



Bill Bryan—W5LBH—began his radio hobby in 1944 with the War Emergency Radio Service. Bryan is a Technologist in the Lube Department at the Houston Refinery.

Although he's only had his amateur license two years, Jack Parker, Chief Instrument Engineer at the Houston Refinery, has pursued the hobby since he was 12.

to send and receive—both phone and code—he has not yet obtained his license but intends to do so as soon as time permits.

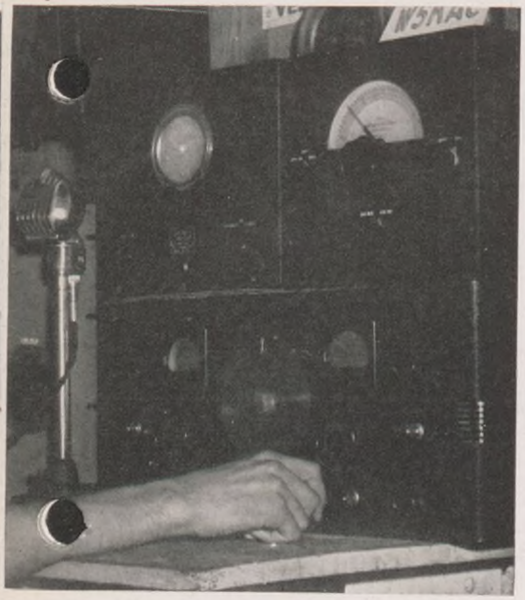
Jack A. Parker (W5LGE), Chief Instrument Engineer at the Houston Refinery, is the "rag-chewing" type of ham. Although he says his enthusiasm has "never hit the 24-hour-per-day, eat-it-and-sleep-it peak that characterizes the typical ham," Parker not only has two-way phone equipment in his home, but maintains a similar set in his car for radio "rag-chews" while driving.

While many hams acquire their first interest in radio at an early age, few get off to a good start as early as Lou Sullivan, Jr., 12-year-old son of L. B. Sullivan, St. Louis Division Fuel Oil Manager. Before Lou was 7 years old he was making minor electrical repairs around the house, such as fixing iron cords. And last December, after having built several standard wave length radios, he completed his first short-wave receiver. While not a ham in the true sense of the word (he listens to the amateurs, but has neither the equipment nor the license to send), Lou has the same driving passion for improving the quality of his equipment. Although he has already picked up signals from such far away places as Japan and Mexico, he is now developing a new and more powerful set which will give him wider range and better reception. To finance his hobby, Lou augments his weekly allowance by mowing lawns and doing other odd jobs for the neighbors.

All hams — though they operate their sets mainly for the sheer fun of it—are highly aware of their potential importance in the event of disasters. Telephone and telegraph lines may be destroyed, but the air waves remain. More than one Shell ham has been "tested under fire."

One of these is Walter P. Raarup (W5IGS), Senior Technologist at Houston Refinery. Raarup has been pursuing his radio hobby since 1924, and served three terms as president of Houston Amateur Radio Club.

When disaster struck at Texas City early this summer, hams of STEN (South Texas Emergency Network) were given a red alert to help relay messages from the stricken city. Raarup's large, low frequency transmitter was used to provide one of



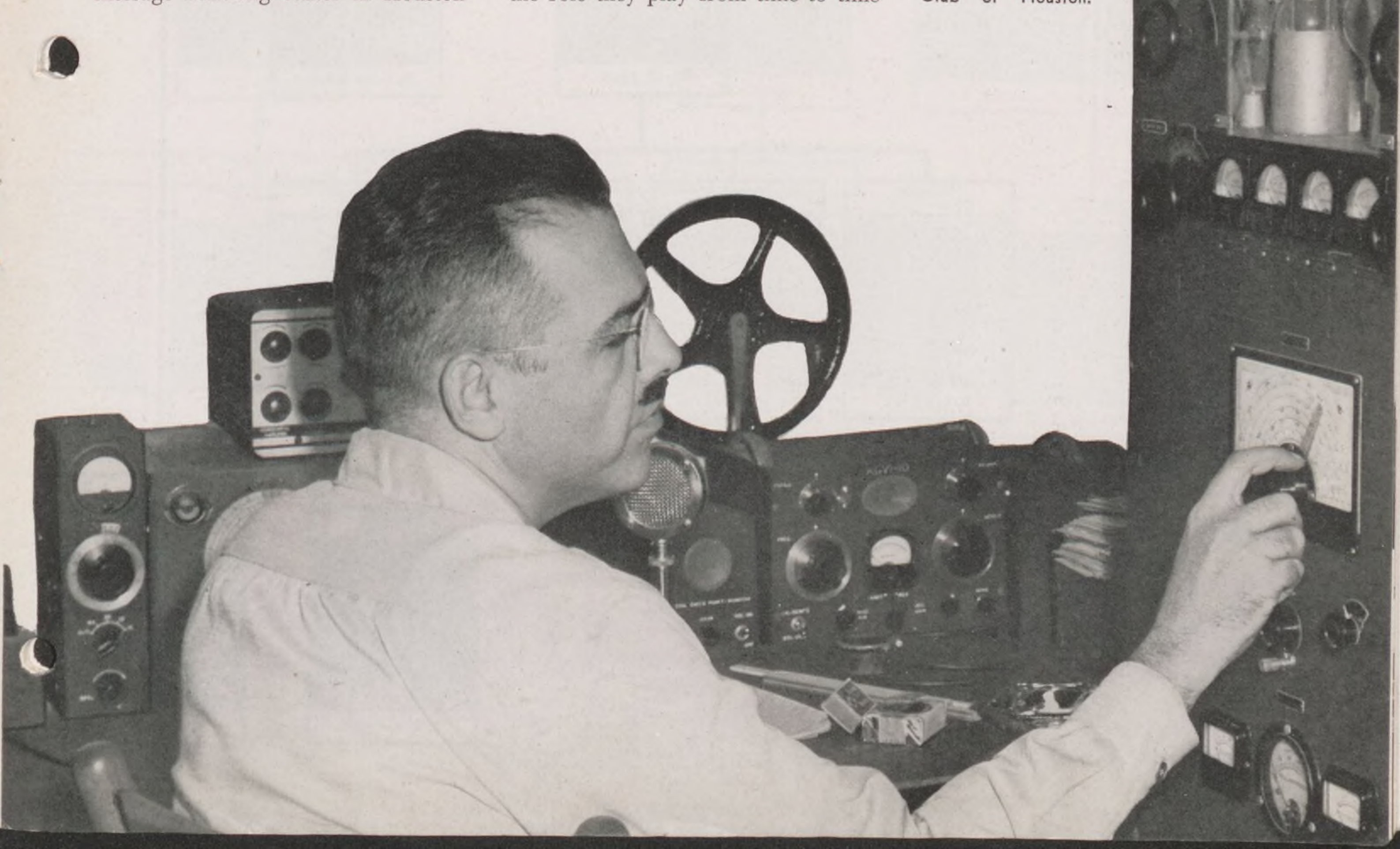
the two major amateur communications links between Texas City and the outside world, using a clear channel frequency assigned especially for the emergency by the Federal Communications Commission. Requests for plasma, morphine, stretchers and other medical equipment were received at Raarup's W5IGS and immediately relayed over his high frequency transmitter to the amateur message handling center in Houston for dispatch to the proper authorities. Scores of high priority messages—to and from the beleaguered city—were handled over this link. And as normal communications were restored and emergency traffic decreased, Raarup handled hundreds of personal welfare inquiries that had funneled into the emergency message center via amateur radio from all parts of the United States, and even abroad.

When the great hurricane of 1938 hit New England, Gordon Wendell (W2FDI), District Salesman in the Albany Division, spent long hours on the air in contact with other hams at the stricken districts. During the Ohio Valley flood of 1937 he likewise assisted with emergency communications.

Another Shell ham who aided relief work during the Ohio Valley Flood was K. Raymond McCardle (W9AMT) Depot Foreman in Aurora, Indiana. During the deluge, McCardle was the only contact with the outside world for the towns of Aurora and Lawrenceburg.

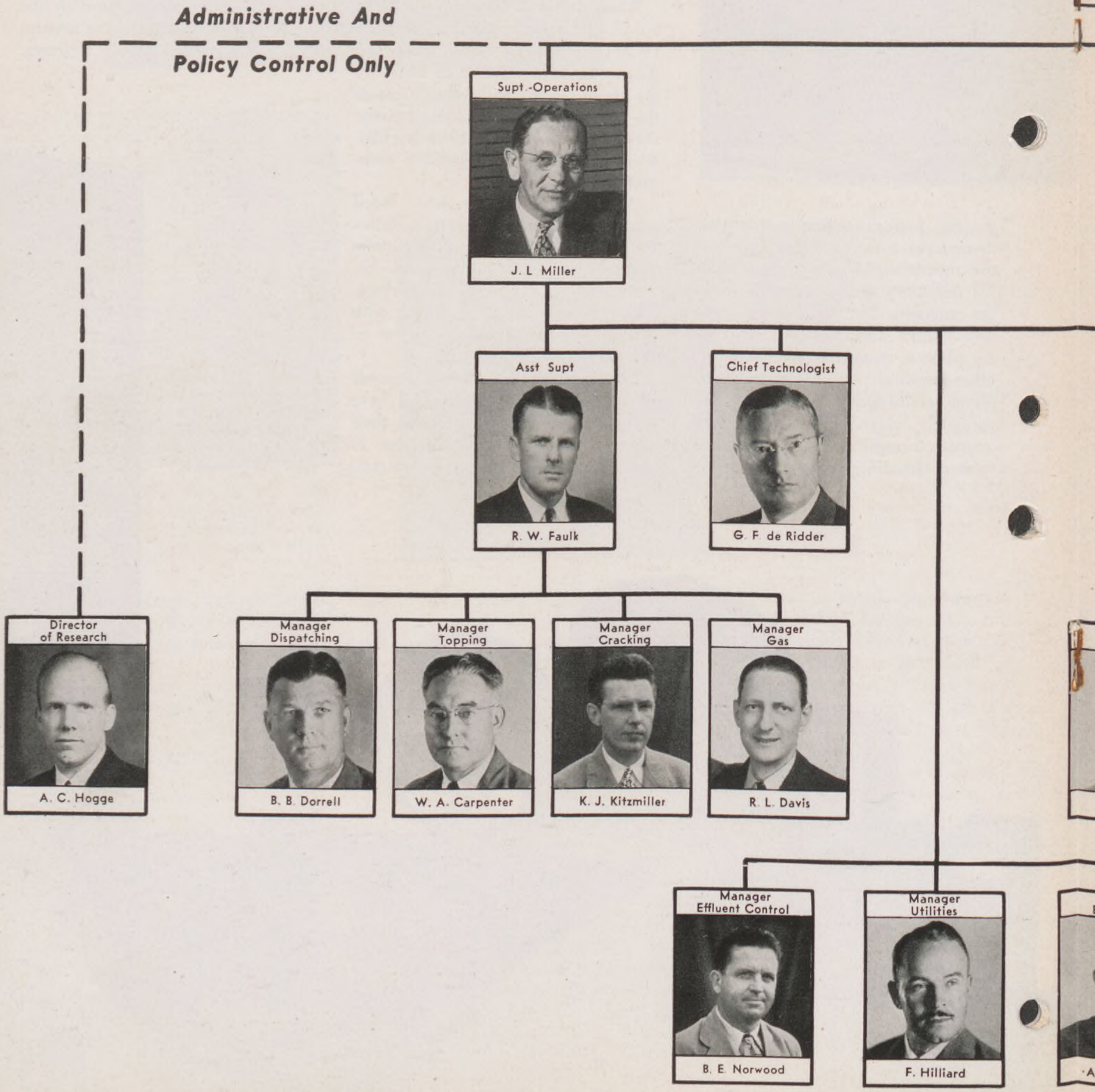
Shell's hams, and their thousands of fellows all over the world, have picked a useful way to spend their leisure time—not only because of the role they play from time to time in helping to relieve human suffering, but also because of their importance as agents of international good will. Recognition of their diplomatic value came to all hams last April when the United Nations invited them to form a global network to broadcast UN information to 37 countries.

But just as important as the good they do, is the fact that hams have a great deal of fun in the pursuit of their hobby . . . as evidenced by the lost sleep they ignore and the amount of time they devote to the airwaves.



Walter A. Raarup, Senior Technologist, Houston Refinery, is a leading member of the Amateur Radio Club of Houston.

HOUSTON REFINERY



The tenth in a series of Organization Charts

Shell Oil Company, Incorporated (East of Rockies Territory)

October—1947

Manager

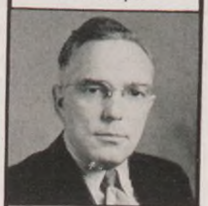
P. E. Foster

Financial Control

Supt.-Administrative

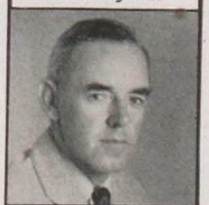
P. E. Keegan

Asst. Supt.



M. A. Rogers

Chief Engineer



R. Haldane

Office Manager

R. L. Lucas

Manager Industrial Relations

M. S. Hale

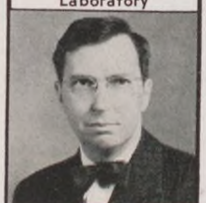
Manager Lubricating

H. J. Lewis

Manager Treating

T. T. McClellan

Manager Laboratory

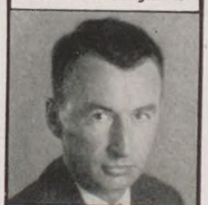


J. B. Harkness

Asst Chief Engineer

R. G. Stillinger

Asst. Chief Engineer



J. W. Nixon

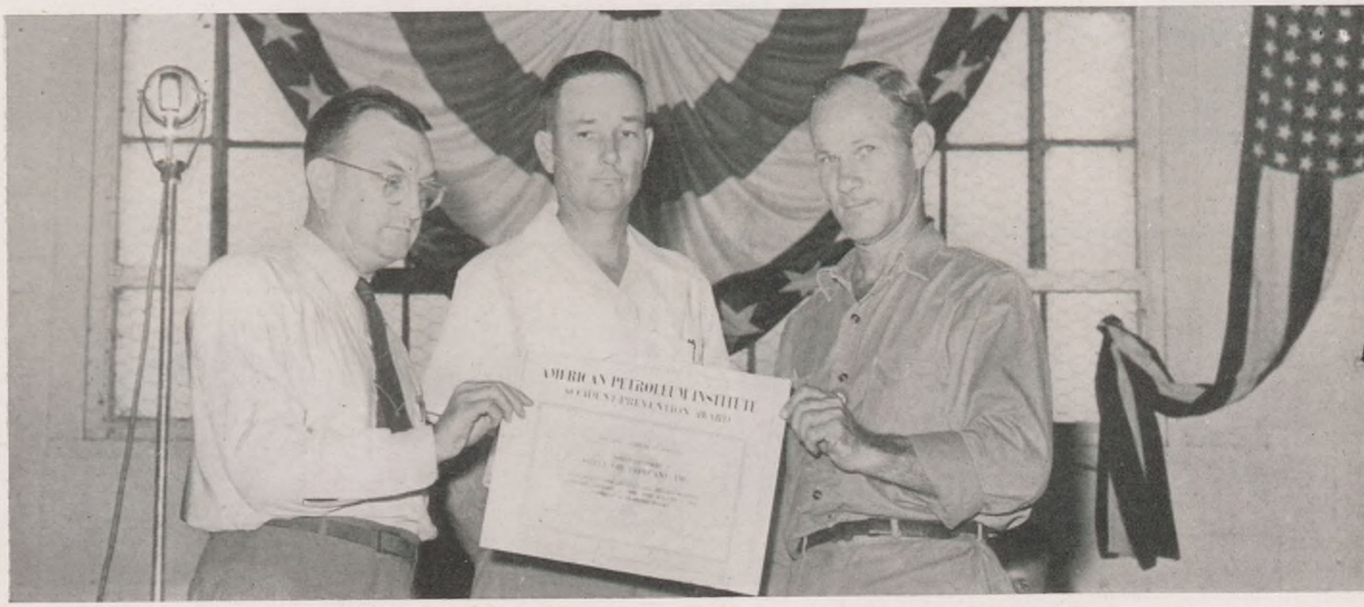
Manager Stores

C. E. Wightman

Industrial Engineering

A. R. Cochran

THE SAFETY



(Above) P. E. Hurley, left, Manager of Norco Refinery, holds the A.P.I. safety award with A. L. Cameron, Assistant Chief Engineer, and W. J. Bodin, Labor Council President, during special ceremonies of acceptance. (Below) Hurley is shown with the National Safety Council award also given the refinery. He is being congratulated by C. E. Davis, Vice President, Manufacturing, while H. D. Dale, Manager of Wood River Refinery (left) and P. E. Foster, Manager of Houston Refinery, look on. Norco's achievement was a record within the Company.

HIGH production, record refining operations and sales are all current points of pride with Shell. An especially gratifying accomplishment, however, came to light recently when it was announced that ten widely separated Shell installations had won eleven safety awards.

Leading this safety parade was Shell's Norco Refinery, which received two awards, one from the National Safety Council, and one from the American Petroleum Institute. These awards were the result of a total of 2,012,600 man-hours worked without a lost-time accident during a period of 19 months ending last July 31, an all-time safety record for a Shell refinery.

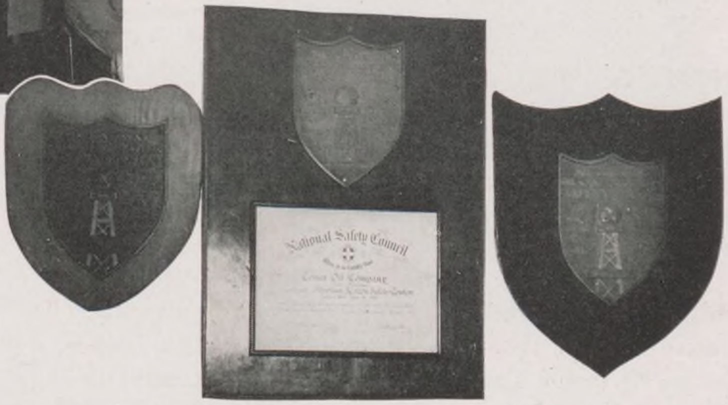
Eight other Shell operating units have just received Certificates of Honor from the Joseph A. Holmes Safety Association of the U. S. Bureau of Mines. This represents one-fourth of the total of 32 awards made by the Association to the American petroleum industry for safety in 1946.

Products Pipe Line won second place in the National Safety Contest for the year ending July 31, 1947.

Units winning the Holmes Safety Association awards include four in

•PARADE

The Tonkawa (Oklahoma) Gasoline Plant won a Joseph A. Holmes Safety Association award for its more than 906,051 man-hours of operation without a lost-time accident. (Above) R. J. Lauder, left, and Linzy Lamar, Plant Superintendent, stand by the plant gate safety bulletin board. (Left) Lamar receives the Holmes award from Robert Bradford, United States Bureau of Mines. (Below) Previous safety awards won by the Tonkawa Plant.



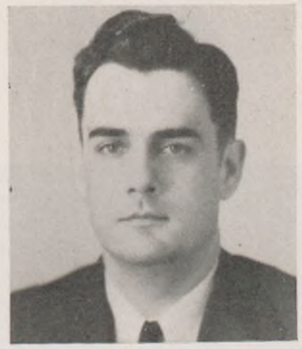
Shell Oil Company: the Production Department of the East Texas Division, Kilgore, Texas; the Houston Refinery; the Tonkawa (Oklahoma) Gasoline Plant; and the Wilmington-Dominguez Refinery in California. Four also were awarded in Shell Pipe Line Corporation: the Shell Pipe Line Corporation as a whole, and the Wasson-Hobbs, Austin, and Healdton Divisions. All achieved outstanding totals of hours worked without a lost-time accident. The award to the Tonkawa Plant was for a 17-year period, from January 1, 1930 to February 1, 1947.

That these safety records didn't "just happen" was confirmed by T. C. Bonner, a Tonkawa employee, who said, "The major factors contributing to our safety record are good supervision, careful training and placement of men, proper care and maintenance of equipment, company policies that permit us to live without burdens that tend to distract our minds from their duties, and the splendid spirit of cooperation that exists between supervisors and men."

A. A. Munsch, left, of the Bureau of Mines presents a Holmes Award to the Production Department of the East Texas Division, Kilgore, Texas, for their record of 745,599 man-hours without a lost-time accident. Receiving the award are (left to right): T. P. Dowdy, Drilling Supt. Kilgore District; George Burpee, Houston Area Production Manager; Porter Bristol, Division Manager; O. L. O'Dale, Kilgore District Supt.; Joe T. Dickerson, Houston Area Manager; Ken Boure, Quitman Production Superindendent; and J. C. Tucker, Division Safety Engineer.

NOYES D. SMITH JR.

CHARLES D. WINKLEMAN



CLAUDE E. DOLHONDE

H. H. LIST

SHELL PEOPLE IN THE NEWS

NOYES D. SMITH, JR. has been appointed to the newly created position of Laboratory Manager in Shell Oil Company's Exploration and Production Research Division at Houston. In this capacity he will have managerial responsibility for the Physical, Chemical and Geologic Departments.

Smith, who graduated from the University of Texas and gained his PhD. in Physics from Harvard University, joined Shell in 1935 as a Seismologist in Tulsa, Oklahoma. He took a Leave of Absence in 1942 to serve in the U. S. Naval Ordnance Department, returning to Shell in 1945 as Manager of the Physical Department in Exploration and Production Research at Houston. He served in that position until his present appointment in September of this year.

* * *

CHARLES D. WINKLEMAN has been appointed Superintendent of Shell Pipe Line Corporation's Mid-Continent Area, replacing L. F. Young who is retiring after 27 years of service. A native of Arkansas, he attended the University of Arkansas and began his career with Shell in 1928 as a Tank Farm Gauger in the Hendricks (Oklahoma) Field. In 1930 he was transferred to Shell Pipe Line Corporation as District Gauger Foreman, and served there in various positions until he moved to McCamey, Texas, in 1938, as Division Superintendent. In 1941 he went to Houston as Assistant to the General Superintendent where, the following year he was made Assistant to the Vice President. A series of promotions brought him to the position of Superintendent of the Texas-Gulf Area in 1944, which position he held until his present appointment.

* * *

CLAUDE E. DOLHONDE has been named Superintendent of Shell Pipe Line Corporation's Texas-Gulf Area. Graduated from Tulane University with a Bachelor of Mechanical and Electrical Engineering degree, Dolhonde joined Shell in 1932 as a Cooling Water Pumper at the Norco Refinery. He worked as Junior Draftsman, Draftsman, and Designing Draftsman respectively, at Houston, Norco and Wood River Refineries. In 1939, Dolhonde was made Assistant Construction Engineer at Wood River and, in 1940, Drafting Room Supervisor. Later that same year he moved to Houston as Chief Draftsman for Shell Pipe Line Corporation and, in 1942, was made Project Engineer on the Bayou Pipe Line System. In 1944, he was transferred to the Mid-Continent Area as Area Engineer, remaining in this capacity until he was promoted to his present position.

* * *

H. H. LIST has been appointed Area Engineer in Shell Pipe Line Corporation's Mid-Continent Area, to replace Claude E. Dolhonde. List began his career with Shell in 1939 as a Designing Draftsman at the Houston Refinery. In May, 1944, he was transferred to Shell Pipe Line Corporation as Senior Engineer in Houston and remained there until his present appointment in July, 1947. A native Pennsylvanian, List graduated from Carnegie Institute of Technology with a Bachelor of Science degree in Engineering.

NEW ORLEANS

INTO the city of the fantastic carnival of Mardi Gras, of exotic Creole cooking, of stately homes and jazz as hot as red pepper, moved a group of Shell employees last July to establish the New Orleans Area Office of Exploration and Production.

To those among them who were seeing New Orleans for the first time, it must have seemed a fabulous place, a wonderful, unbelievable patchwork of Old World dignity and restraint, and bustling, hustling New World Commerce—with a party every day. But last month, when hurricane winds swept flood waters over the city, those who knew New Orleans better shook their heads with understanding. They needed no reminder that, to achieve its reputation for gracious, joyous living, and its place as the nation's 15th largest city, New Orleans has had to contend with—and overcome —a lion's share of calamity.

Behind all the fun-making that New Orleans loves, its citizens have never been able to lose sight for long of the rough road they have had to travel to build their city. Nor can they forget that sometimes they didn't even have a rough road to travel . . . it was under water.

The drainage area of saucer-shaped New Orleans lies below sea level, below Mississippi River level, and below the level of big Lake Pontchartrain, which forms its northern boundary. Brimming alluvial swamps fringe its outskirts. Its flower-planted streets conceal enormous drainage ditches—once open canals—under beds of azaleas, oleanders and camelias. And to top it off, New Orleans—which never does things by halves—has an annual rainfall averaging 56 inches.

The city's aquatic troubles began in 1719—the year after it was founded—when the lusty Mississippi overpoured its banks and completely engulfed the tiny settlement of 100 houses and 500 inhabitants. Since then, New Orleans has been washed, dunked and severely battered by a whole parade of water-borne catastrophies. The Mississippi is no less lusty today. The difference is: New Orleans is better prepared for it.

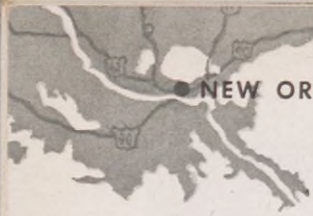
A city with fewer natural advantages might have given up the struggle as a bad job, and moved somewhere else. Not New Orleans. Situated near the mouth of America's

Above. Hot jazz had its origin in New Orleans cafes and night clubs.

Left. Almost in the shadow of St. Louis Cathedral, the statue of Andrew Jackson serves to remind visitors of New Orleans' history.

Below. Freshly caught sea food is always a specialty at the open air markets of the French Quarter.

(Photos on this page courtesy of Look Magazine)

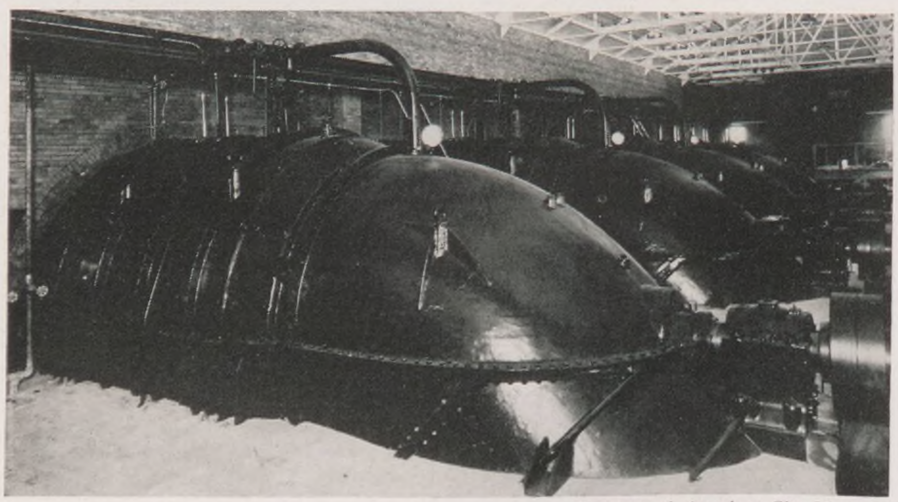


greatest river, and built on soft rich earth coughed up by the river itself, New Orleans is the gateway to the richest agricultural region in the world. With the sea at its front door and the Mississippi at its back, its possibilities for development are limited only by the capacities of the inland area it serves. And the capacities of that area—the basin of the whole Mississippi River system, one-third of the U. S.—are almost limitless.

Small wonder, then, that New Orleans has always fought back against the river.

That fight often has been uphill. During the early years of the city, the only recourse of its citizens was to pray that floods would not come, hold their heads above the water when they did, and rebuild their city when the water subsided. Then, early in the 19th century, levees were built to check and divert the flood waters. The irrepressible Mississippi, however, wasn't to be defeated so easily. The levees offered only partial protection, and each spring the city continued to be threatened by Old Man River and flood waters on occasion poured into New Orleans' streets. In the spring of 1927, New Orleans escaped a potentially dangerous flood by blasting a levee about 15 miles below the city. But this was borrowing from Peter to pay Paul. It involved the sacrifice of two nearby parishes, and a loss of nearly five million dollars. To avoid the need for such desperate measures in the future, a spillway was constructed about 35 miles above the city, capable of diverting 250,000 cubic feet of water per second from the river into Lake Pontchartrain. Huge pumps were installed in the city itself—the greatest aggregation of drainage pumps to be found anywhere in the world, large enough to remove the water from a lake 10 square miles in area and eight and a half feet deep in less than 24 hours.

As if the river weren't enough, New Orleans has had to weather a whole series of other disasters besides. Fires raked it in 1788 and 1794. Thousands died when yellow fever swept the city in 1854-55. Cholera and typhoid took their toll. Even though New Orleans has always had more water than it has known what to do with, it is only since the turn of the century that much of it has been very clean or very pure. Here again the city met the challenge—with a tremendous water purification system—the most advanced of its kind at the time it was built, and since enlarged until it can now treat 115,000,000 gallons a day. Today, with adequate drainage and pure, clean water, New Orleans is a healthy city.



Courtesy of American City Magazine

As part of its defenses against flood, New Orleans has the greatest aggregation of drainage pumps to be found in the world.

Shipping Center

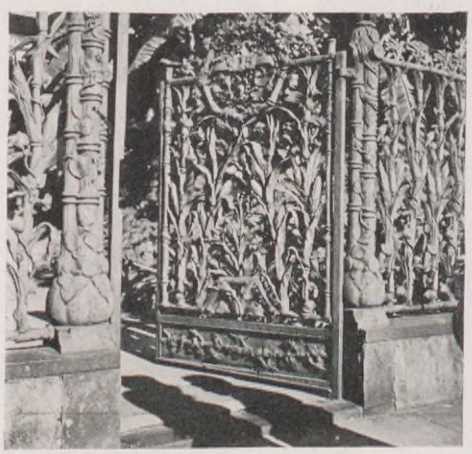
The commercial importance of New Orleans has kept pace with the city's improvements in health and security from flood. Each has stimulated the other. Today it is the third largest port in the U. S. and has more foreign trade than any other city of America save New York. Its seven miles of river front swarm with wharves, steel sheds, cotton warehouses, grain elevators and coal tipples. Its docks can accommodate nearly 100 ships at a time. And despite its important shipping industry, New Orleans has no qualms about the development of commercial aviation. It is one of the main hubs for air transportation between the U. S. and Latin America.

International News Photo

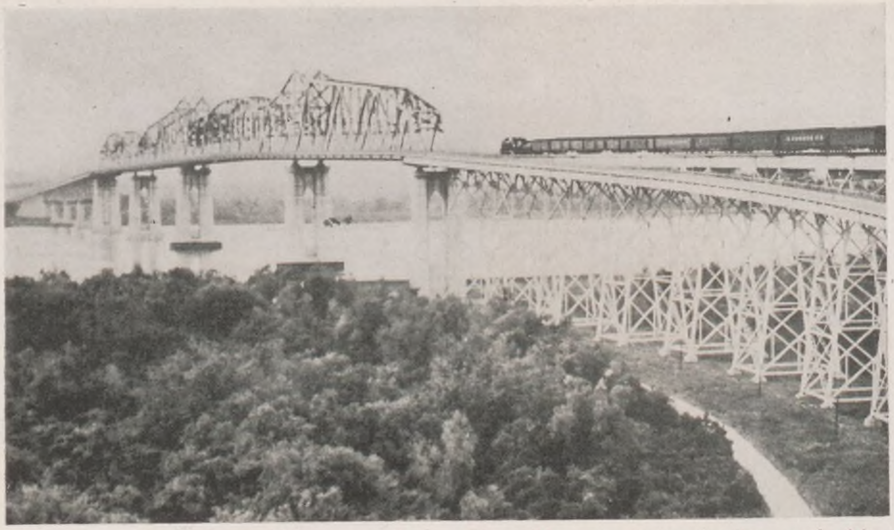
This airview of the Moisant International Airport at New Orleans graphically illustrates the damage caused by the recent hurricane and flood, one of the many in the city's history.

The French Quarter of New Orleans is noted for its interesting eating places. This is the Patie Royal.

Each New Year's Day the stadium of Tulane University is the scene of the Sugar Bowl game, a football classic of the South. The stands accommodate 73,000 persons.



The intricate iron work that decorates these New Orleans homes is typical of the striking architecture for which the French Quarter of the city is famous.



New Orleans' Huey P. Long Bridge across the Mississippi is nearly five miles long and cost $13,000,000 to build.

The golden age of steamboating on the Mississippi has passed, but a few of the craft remain and tie up at New Orleans' docks. ▶

New Orleans is famous for its holidays. Chief among these is the Mardi Gras (Fat Tuesday) which every year, just before the beginning of Lent, attracts the attention of the nation. It is the climax of a whole season of carnivals which extend from Twelfth Night (January 6) to the eve of Ash Wednesday. The final week of festivities, with colorful parades, grotesque balloons, fanciful costumes and masked dancing in the streets, is climaxed when the King of the Mardi Gras—the "Lord of Misrule"—is carried through the streets with his chosen Queen to the acclaim of their subjects-for-a-day.

Rivalling the Mardi Gras for the attention of the thousands of tourists who flock to New Orleans every year is the section of the city known as the French Quarter—the Vieux Carre. Its old houses—almost every one of which has a fascinating history of its own—are models of a quaint and enthusiastic architecture reflecting the influence of the French and Spanish whose flags flew over the city in an earlier day. Wrought iron—favored because of its durability in the humid climate — was transformed in the hands of master craftsmen into balconies, balustrades and wickets of unbelievable intricacy, daintiness, and beauty. Many of these, having bested time and climate, may still be seen today. The culinary traditions of the French quarters have also remained, and generations of excellent cooks have improved on them, blending the delicate sauces of the French with the fiery seasonings of the Spanish to produce such unusual dishes as gumbo, court bouillon and crawfish

Shell's new Area Offices in New Orleans occupy the second, third, fourth and fifth floors of the Richards Building.

bisque. And no visit to New Orleans can be called complete without a taste of oysters Rockefeller at century-old Antoine's or *pompano en papillotte* (fish baked in a paper sack) at Arnaud's.

Although casual visitors are apt to be a bit overwhelmed by the holiday side of New Orleans, its 500,000 citizens take it pretty much in stride, for they know that the secret of their successes has been in hard work and bulldog determination. And despite a generation of improvements behind them, the Crescent City's inhabitants don't lie back and rest. Only recently they approved a 23 and a half million dollar bond issue for further city improvements, to which will be added another 17 and a half million from federal, state and railroad funds. A great part of this will be used to build up parts of the city left behind in the rapid development of the remainder.

Important as a port and as a mecca for tourists New Orleans has gained importance in still another direction, parallel with the advancement of the region around it. In recent years, Louisiana has risen to the third most important oil-producing state in the country, and even the ever troublesome waters have proved to be a hiding place for oil-bearing formations; the swampy bayous have become a prolific source of oil, and oilmen now are seeking petroleum under the sea itself.

Apace with the development of Louisiana as an oil state, Shell's own activities in the region have expanded, making necessary the establishment of an area office for Exploration and Production in New Orleans. During the latter half of July, the move began from Houston, with the Production Department, Personnel and Industrial Relations, Purchasing-Stores, Automotive, and the Cashier's Division leading the way. They were followed later by the Administrative, Legal, Exploration, and Land Departments, and the Accounting Division. Shell's new offices in New Orleans occupy four floors of the 14-story Richards Building in the heart of the city's business district.

The 125 Shell employees and their families who made the move have hardly had time really to know the city. But should they react to New Orleans as do most people who spend any time there, it won't be long before they have fallen in love with the Crescent City and have begun fully to appreciate the great traditions, gaity and perseverance that helped to mature it.

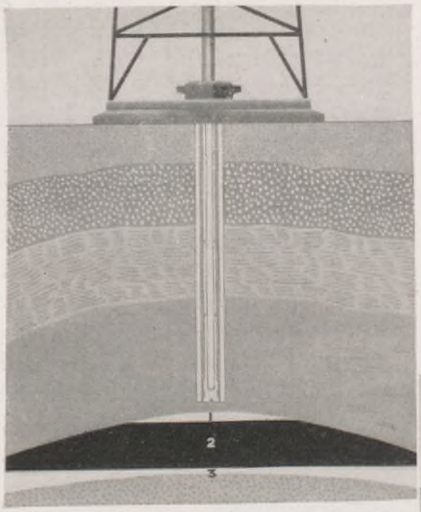
The picturesque architecture of earlier days can still be found in New Orleans' French Quarter—oldest part of the colorful city.

(Photos on this page courtesy of Look Magazine)

Cafe Lafitte, in the French Quarter, was once the rendezvous of pirate Jean Lafitte.

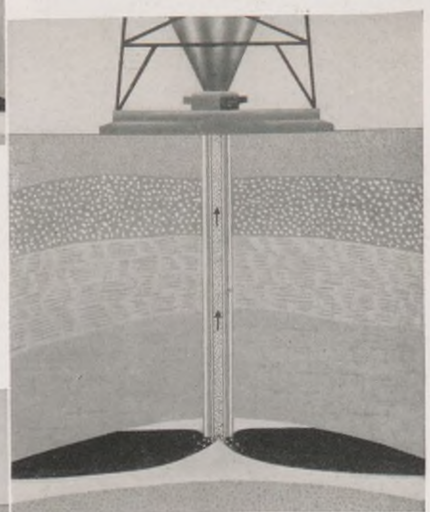
The Christmas Tree

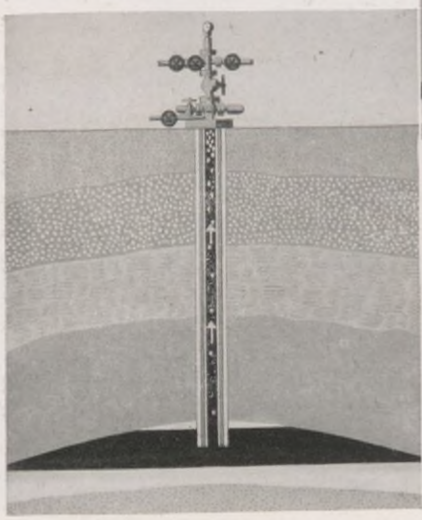
Modern well-head connections control production and enable man to get more from oil deposits



In the oil reservoir, any one or all of three types of driving force may be available to push or carry the oil to the bore-hole once the pool is tapped: (1) the pressure of the gas cap (undissolved gas at the top of the reservoir) which expands and pushes the oil to the bore-hole; (2) the energy of gas in solution in the oil, which carries oil with it as it escapes out of solution and moves toward the opening; (3) the expansive force of compressed water underlying the oil, which pushes from below. This last kind of force is best.

If the oil flow at the surface is uncontrolled, these energy-drives may waste themselves. The gas may escape too quickly and the water may encroach unevenly, leaving much of the oil behind with no force available to drive it to the bore-hole. This may lower the total amount of oil that can be recovered from the well.





The Christmas tree controls the flow of oil, and thus helps to conserve the energy of the gas or water. The gas escapes gradually from solution, carrying oil with it at the most efficient rate; the water flushes the oil out evenly and insures the greatest possible yield.

IN the early days of oil well drilling, pressure was looked upon as a necessary evil. Oilmen depended on it to force petroleum from its underground hideaways to the surface. The only trouble was: they hadn't yet learned to control it. Well blowouts and runaway gushers were common, and much oil was lost on the surface through inadequate control of the flow rate.

Today's efficient producing fields, however, are a far cry from those of Pennsylvania, Texas and California at the turn of the century. In the place of gushers spewing their oil hundreds of feet into the air or wells pouring their unrestricted flow into crude open storage tanks or dammed-up ravines and gullies, one finds over each flowing well a compact assemblage of pipes and valves; the Christmas tree.

Named in 1905 by an obscure Texas oil worker, the Christmas tree is a well-head connection, the control center of the flowing well. It might well be called the seat of oil conservation for it is here that the amount of oil which a well is allowed to produce is controlled. Through such control, the natural pressure of the formation is prevented from declining too rapidly. This is essential if the maximum amount of oil is to be recovered.

A barrel of underground oil can have as much as 1,000 cubic feet of gas dissolved into it. Such gas concentration means strong pent-up energy which is released when the pool is tapped. Some of the gas is then released from solution, expands rapidly, and escapes toward the bore hole, carrying and pushing oil along with it. If there is no surface mechanism to control pressure the gas will not escape gradually but will jump out of solution and rush to the bore-hole and out of the well, leaving much of its cargo behind in the reservoir. Under such conditions of uncontrolled flow, as much as 5,000 cubic feet of gas may come up with each barrel of oil. Those extra 4,000 cubic feet will leave behind in the formation four barrels of oil which often are lost unless other sources of energy are available.

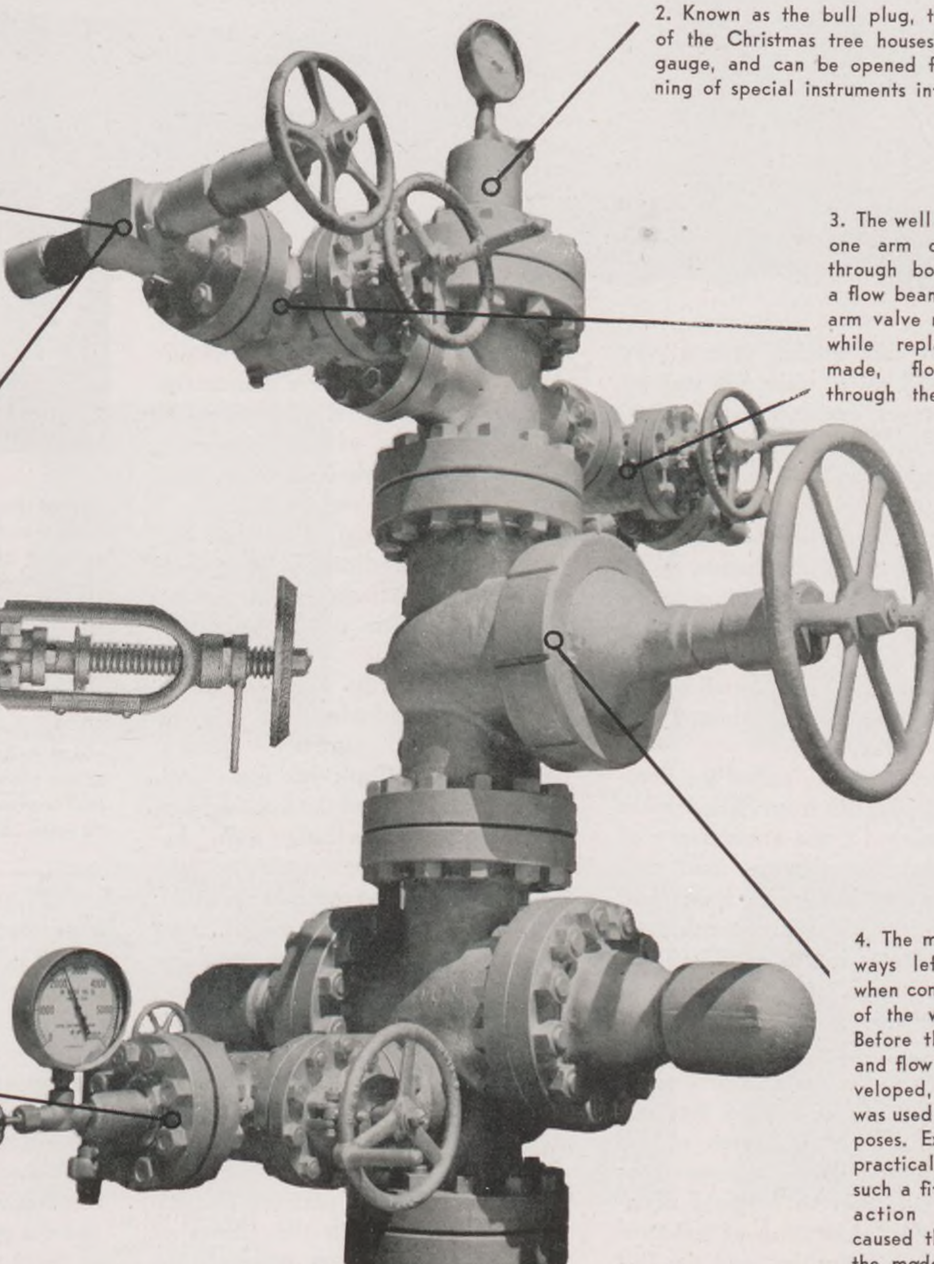
In any wells, it is not gas that is the moving force behind the oil, but water, and often a combination of both. Water, being heavier than oil, underlies many of our oil pools, and when oil is withdrawn from the well the water moves in to take its place. When the oil flow at the surface is too rapid, the water cannot replace it quickly enough, pressure takes a nose-dive, and the amount of oil economically recoverable from the pool is appreciably lowered.

To prevent such loss the modern Christmas tree has been developed. An unimpressive grouping of equipment under certain low pressure conditions, it can also be a highly complex assortment of braces, pipe, and valves. Oil engineers assemble the finished device according to the pressure and volume requirements of the individual well. Having established the characteristics of the wells in a reservoir they adjust the tree to a rate of flow which will permit the fullest utilization of the energy within the reservoir, and, by so doing, bring up the maximum amount of oil recoverable.

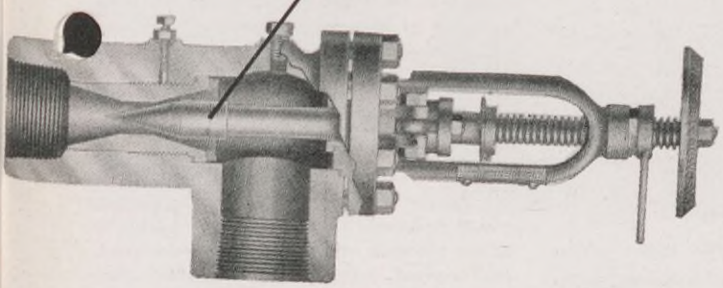
Today, with efficient production the keyword of the oil industry, the importance of modern well-head connections is readily apparent. As the pressure guardian of the oil fields, the Christmas tree is prolonging the life of one of our most vital resources.

1. The rate at which oil is permitted to flow is controlled by the choke or flow bean. Made of special alloy steel, the conical bean tip is screwed into the flow line (diagram below) thus reducing the space through which oil can pass. Due to high pressures and wearing action of sand, beans must be frequently replaced.

2. Known as the bull plug, the top arm of the Christmas tree houses a pressure gauge, and can be opened for the running of special instruments into the well.



3. The well is produced through one arm of the tree, rarely through both at once. When a flow bean becomes worn, the arm valve near it is shut, and, while replacement is being made, flow can continue through the other arm.



4. The main valve is always left open except when complete shutdown of the well is desired. Before the dual fittings and flow beans were developed, the main valve was used for control purposes. Expense and impracticality of replacing such a fitting when sand action damaged it, caused the evolution of the modern "tree."

5. The casinghead valve is the control mechanism for the well casing; that space between the tubing and the casing of the well hole. Through it gas can be produced, or if it is a dual completion well, additional oil. The gauge registers the pressure within the casing.

Freedom Train

One of the major problems that faced designers of the Freedom Train was the safeguarding of its priceless cargo against such varied threats as fire, water, sunlight, shock of collision, and the touch of human hands. Nor could any safeguard be allowed to interfere with the prime purpose of the travelling exhibit: the easy visibility of all the documents. Here Mrs. Elizabeth Hamer of the Library of Congress Archives uses white gloves to handle the United Nations Charter as she places it within its specially designed, shatter-proof, water and fire-resistant plastic case. All exhibits received similar care.

ONE day this coming year a very special kind of train will stop by your town, or one nearby, carrying a very special, very precious cargo. That cargo will be books and papers, many of them stained with age, their edges wrinkled and torn by the touch of many hands. Even the Library of Congress, the greatest library in the world, would consider it amazing good fortune to have under its roof at one time all of the documents that will be aboard this travelling library.

This special train—called the Freedom Train—set out from Philadelphia on September 17, the anniversary of the Federal Constitution, and will visit about 300 American towns and cities. During its twelve-month tour of the 48 states it will exhibit 97 of America's most priceless historic documents—from the first printed letter by Columbus on his discovery of America to the State Department's official copy of the United Nation's charter, with the signatures of the participating countries' representatives. In addition to original documents of the Declaration of Independence, the Constitution, and the Bill of Rights, the collection contains George Washington's own manuscript of his Farewell Address, and the same handwritten copy of the Gettysburg Address that Lincoln held in his hand when he made his classic talk.

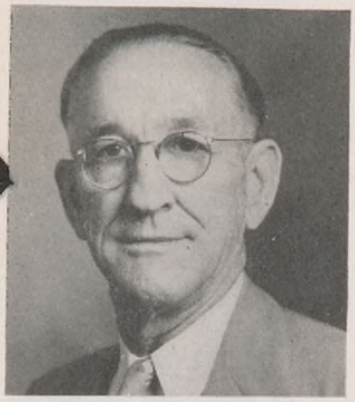
Local educational activities and community Rededication Weeks in each of the communities visited by the Freedom Train will highlight the tour.

The plan for the Freedom Train was conceived during the summer of 1946 by Attorney General Thomas Clark. Clark felt that—with war over and most of the fighting men home—some Americans were beginning to lean back again, to take their democracy too much for granted, to be lackadaisical, neglectful, even at times cynical about the responsibilities of the individual citizen. And meanwhile the areas of democratic government were perceptibly shrinking on the global map. Something was needed forcefully and dramatically to remind Americans of the importance of their heritage, and to bring about a more personal participation by citizens in the affairs of their government. Clark expressed the hope that the message of the Freedom Train would "arouse people to greater effort in preserving this heritage and . . . inspire them to heroic measures for the promotion of an even more effective democracy."

To help accomplish this purpose, Shell has joined with thousands of civic and religious groups, and representatives, of American industry and the public in the financial support of the Freedom Train.

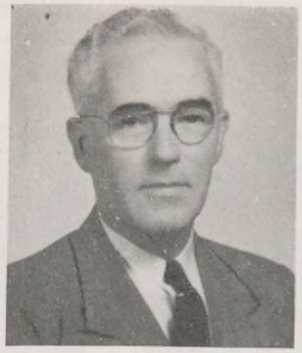
SERVICE BIRTHDAYS

30 YEARS



F. E. ISAMINGER
Wood River Refinery
Car

TWENTY-FIVE YEARS



P. J. BONE
Head Office
Personnel

W. CLAYTON
Wood River Refinery
Engineering Field

J. W. CLINKSCALES
Tulsa Area
Production

O. D. DEES
Tulsa Area
Production

T. L. GROPPEL
Wood River Refinery
Dispatching

E. C. LAWRY
Houston Area
Production

O. E. PHILLIPS
Wood River Refinery
Engineering Field

A. E. ROSE
Wood River Refinery
Main Office-Yield

H. O. RUARK
Tulsa Area
Production

E. A. STOBBE
St. Louis Division
Operations

TWENTY YEARS

C. R. BICKEL
Midland Area
Production

E. C. BONNER
Tulsa Area
Gas-Gasoline

W. N. BROWN
Houston Area
Gas-Gasoline

R. A. BURKE
Tulsa Area
Production

J. W. BUTTREY
Wood River Refinery
Topping

C. E. CAMPBELL
St. Louis Division
Sales

R. E. DRAPER
Wood River Refinery
Alkylation

V. B. DYER
Products Pipe Line
Barnett, Ill., Station

D. E. ERVIN
Products Pipe Line
East Chicago Terminal

W. H. GOODSON
Products Pipe Line
East Chicago Meter Station

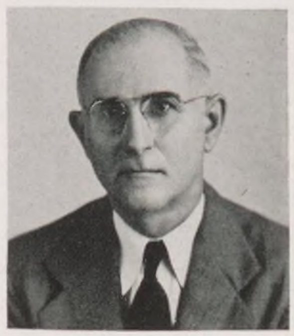
F. HAHN
St. Louis Division
Operations

O. A. KLEINERT
Wood River Refinery
Industrial Relations

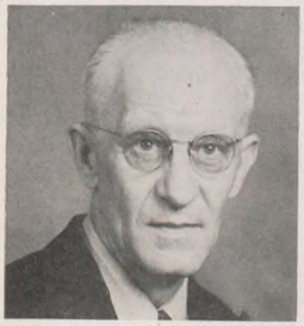
C. L. KLUCK
Baltimore Division
Sales

J. F. MAYBERRY
Shell Pipe Line Corp.
Mid-Continent Area

E. L. McGRAW
Wood River Refinery
Cracking

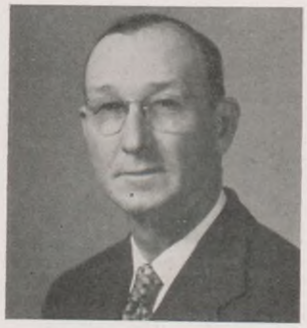


E. M. MAXWELL
Shell Pipe Line Corp.
Bayou System



C. P. McREVEY
Wood River Refinery
Engineering Field

R. J. MICKELBERRY
Shell Pipe Line Corp.
Texas-Gulf Area



O. O. MORGAN
Shell Pipe Line Corp.
Texas-Gulf Area

G. C. MUSGROVE
Tulsa Area
Production

J. W. NEWELL
Shell Pipe Line Corp.
Texas-Gulf Area

C. W. PHILLIPS
Houston Area
Treasury

C. K. PIGG
Wood River Refinery
Topping

W. J. RAMAGOS
New Orleans Area
Production

J. T. REEVES
Midland Area
Production

W. L. SANGER
Products Pipe Line
East Chicago Terminal

I. O. SCHAUB
St. Louis Division
Operations

R. V. VOGT
Tulsa Area
Gas-Gasoline

J. VOLSEN
Products Pipe Line
Barnett, Ill., Station

B. P. WALSH
Midland Area
Production

E. E. WISE
Cleveland Division
Sales

D. G. WOEHRMAN
St. Louis Division
Operations

S. U. YOUNG
Tulsa Area
Gas-Gasoline

Head Office

15 Years

G. H. Dempster . . . . *Personnel*

10 Years

A. Howard . . . . *Treasury*
W. F. Kenney . . . . *Legal*
E. J. Rembert . . . . *Treasury*
A. J. Wilson . . . . *Treasury*

Products Pipe Line

15 Years

F. V. Miller . . . . *DeWitt, Ill.*

10 Years

R. W. Dawes . . . . *Fall River, Mass.*
W. E. Laswell . . . . *Lima, Ohio*
A. E. Perkins . . . . *Harristown, Ill.*
J. L. White . . . . *Noblesville, Ind.*

Shell Chemical Corporation

15 Years

W. W. Stokes . . . . *Houston*

10 Years

W. S. Thornhill . . . . *New York*

Shell Pipe Line Corporation

15 Years

W. L. Overbey . . . . *Mid-Continent Area*
T. J. Patterson . . . . *Texas-Gulf Area*
L. L. Vest, ... *Mid-Continent Area*

10 Years

P. L. Clopton . . . . *Mid-Continent Area*
G. F. Franklin . . . . *Mid-Continent Area*
R. E. Garman . . . . *Mid-Continent Area*
A. M. Kimbro . . . . *Texas-Gulf Area*
J. L. Tippin . . . . *Mid-Continent Area*

Sewaren Plant

15 Years

A. Pochek . . . . *Compounding*
G. Skreptack . . . . *Terminal*

10 Years

C. Donovan . . . . *Laboratory*
A. Katona . . . . *Terminal*

Houston Refinery

15 Years

L. M. Evans . . . . *Engineering Field*
M. C. McElmury . . . . *Cracking*

10 Years

J. B. Carter . . . . *Control Laboratory*
J. M. Downey . . . . *Engineering Field*
V. A. Reichardt . . . . *Control Laboratory*
T. N. Rodden . . . . *Engineering Field*
C. D. Young, Jr. . . . . *Control Laboratory*

Norco Refinery

15 Years

G. Bertram . . . . *Cracking*
F. E. Cochran . . . . *Engineering*
S. J. Duhe . . . . *Engineering*
A. J. Jeanfreau . . . . *Cracking*

Wood River Refinery

15 Years

C. A. Davidson . . . . *Industrial Relations*
L. Estes . . . . *Engineering Field*
R. D. Harrington . . . . *Cracking*
L. J. Wood . . . . *Cracking*

10 Years

R. E. Bretzman . . . . *Engineering Field*
B. K. Chapman . . . . *Engineering Field*
J. D. Farmer . . . . *Engineering Field*
W. W. Horstman . . . . . *Research Laboratories*
R. C. Reed . . . . *Automotive*
C. E. Reichert . . . . *Main Office-Payroll*

Exploration and Production Departments

Houston Area

10 Years

A. F. Gaines . . . . *Production*
C. Jensen . . . . *Exploration*
V. Jones . . . . *Exploration*
S. McCloud . . . . *Production*
D. E. Reynolds . . . . *Production*
J. L. Wilson . . . . *Production*

Midland Area

10 Years

G. H. Creighton . . . . *Personnel Ind. Rel.*
O. B. Jackson . . . . *Exploration*
H. K. McKinnon . . . . *Production*
J. D. Moren . . . . *Production*

New Orleans Area

15 Years

E. Baxter . . . . *Production*

10 Years

S. Anastasio . . . . *Production*
D. J. Delaune . . . . *Production*
E. A. Gaspard . . . . *Production*
G. W. Harris, Jr. . . . . *Land*
F. S. Rills . . . . *Production*
W. G. Schilhab . . . . *Production*

Tulsa Area

15 Years

M. R. Upson . . . . *Automotive*

10 Years

E. L. Hobbs . . . . *Production*
K. A. Holeman . . . . *Production*
J. E. James . . . . *Production*
C. P. Mercer . . . . *Gas-Gasoline*
H. L. Rickard . . . . *Exploration*
E. Wilkins . . . . *Production*

Exploration and Production Research Division

10 Years

K. R. Weatherburn . . . . *Physical*

Marketing Divisions

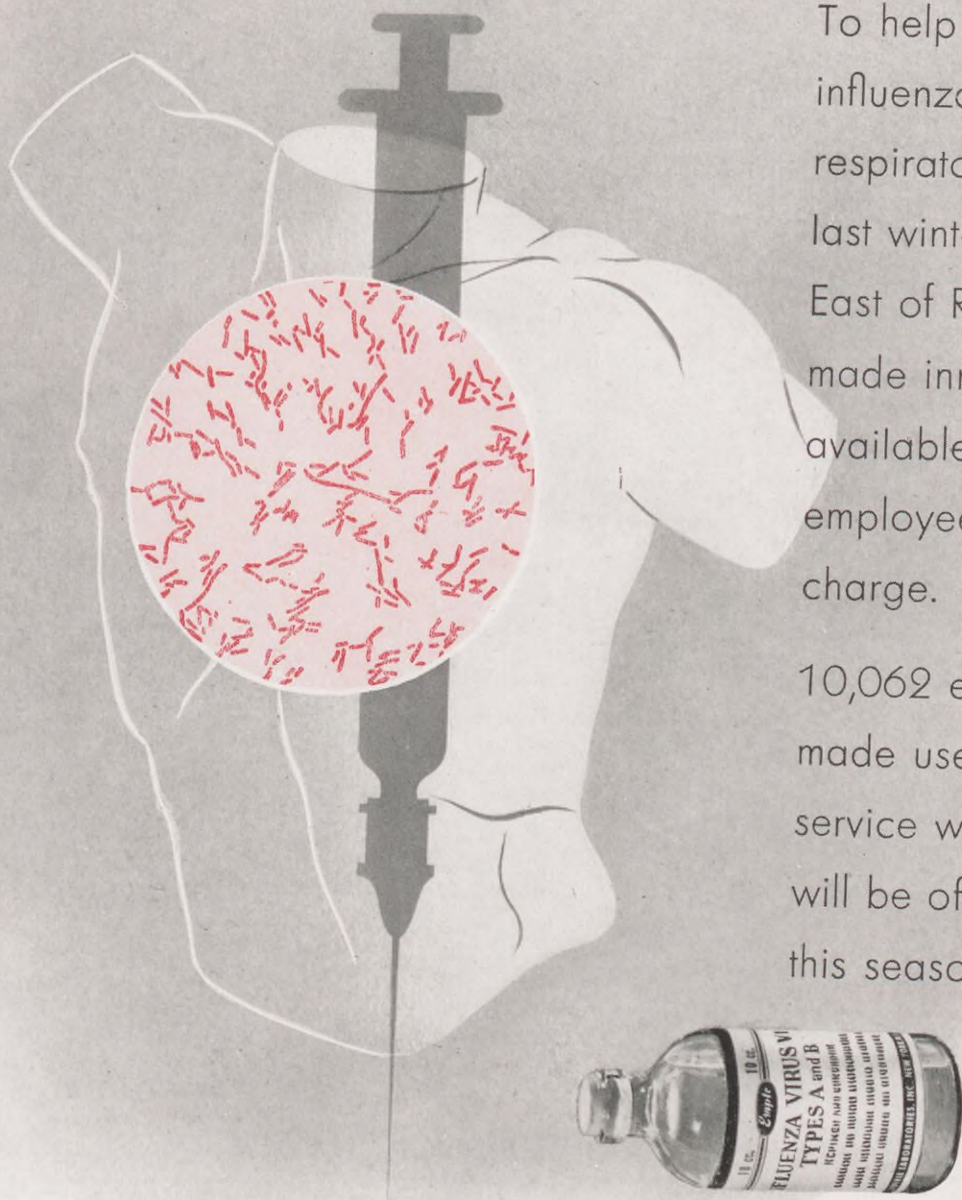
15 Years

E. A. Cameron . . . . *Albany, Sales*
J. E. Tosh . . . . *Albany, Operations*
J. C. Hunter . . . . *Baltimore, Sales*
P. H. Conroy, Jr. . . . . *Boston, Sales*
R. R. Fifield . . . . *Boston, Operations*
D. D. King . . . . *Indianapolis, Sales*
W. P. Byrne . . . . *Minneapolis, Sales*
A. W. Henry . . . . *St. Louis, Sales*

10 Years

C. A. Leland . . . . *Albany, Sales*
R. M. Simon . . . . *Atlanta, Operations*
A. E. Baker . . . . *Baltimore, Sales*
W. G. Ewing . . . . *Baltimore, Operations*
W. J. Carroll . . . . *Boston, Operations*
A. H. Halberstadt . . . . *Boston, Sales*
W. T. Koglin . . . . *Chicago, Marketing Service*
B. M. Seman . . . . *Chicago, Operations*
H. G. Bowman . . . . *Cleveland, Treasury*
H. W. Cooper . . . . *Cleveland, Operations*
W. H. Day . . . . *Cleveland, Sales*
J. J. Sparks . . . . *New York, Operations*
R. J. Meyer . . . . *St. Louis, Operations*

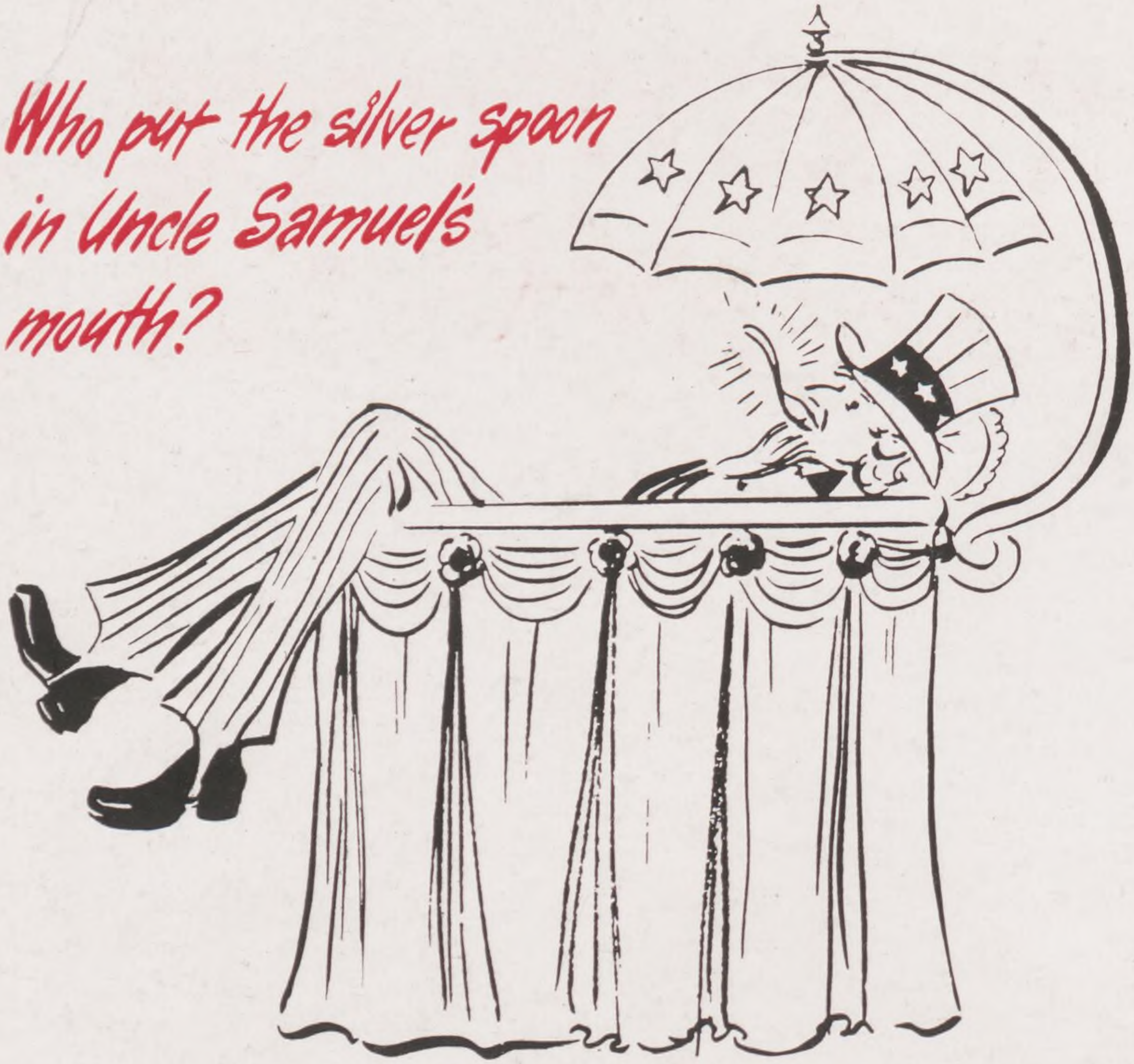
matters of *Fact*



To help combat influenza and respiratory ailments last winter, Shell, East of Rockies, made innoculations available to all employees without charge.

10,062 employees made use of this service which will be offered again this season.

Who put the silver spoon in Uncle Samuel's mouth?



• Uncle Sam wasn't born rich—only with opportunities. America has lots of natural wealth—but it takes doing, digging, *competing* to make the most of it. And Americans are good at competition. That's one reason we produce 64% of the world's petroleum. In the Petroleum Industry, more than 34,000 individual companies and 1,250,000 people compete with rivals in drilling, research, refining, transportation or sales. That rivalry means a richer life for *you.*

Understand rivalry and you understand America. Rivalry in the Petroleum Industry results in new oil developments . . . advancement in industry, chemistry, medicine, farming . . . progress in countless fields from anesthetics to better products for your car and your home.

It's not just America's natural wealth the world envies. It's our ability to work under a system that rewards an individual's incentive and an industry's progressiveness.

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