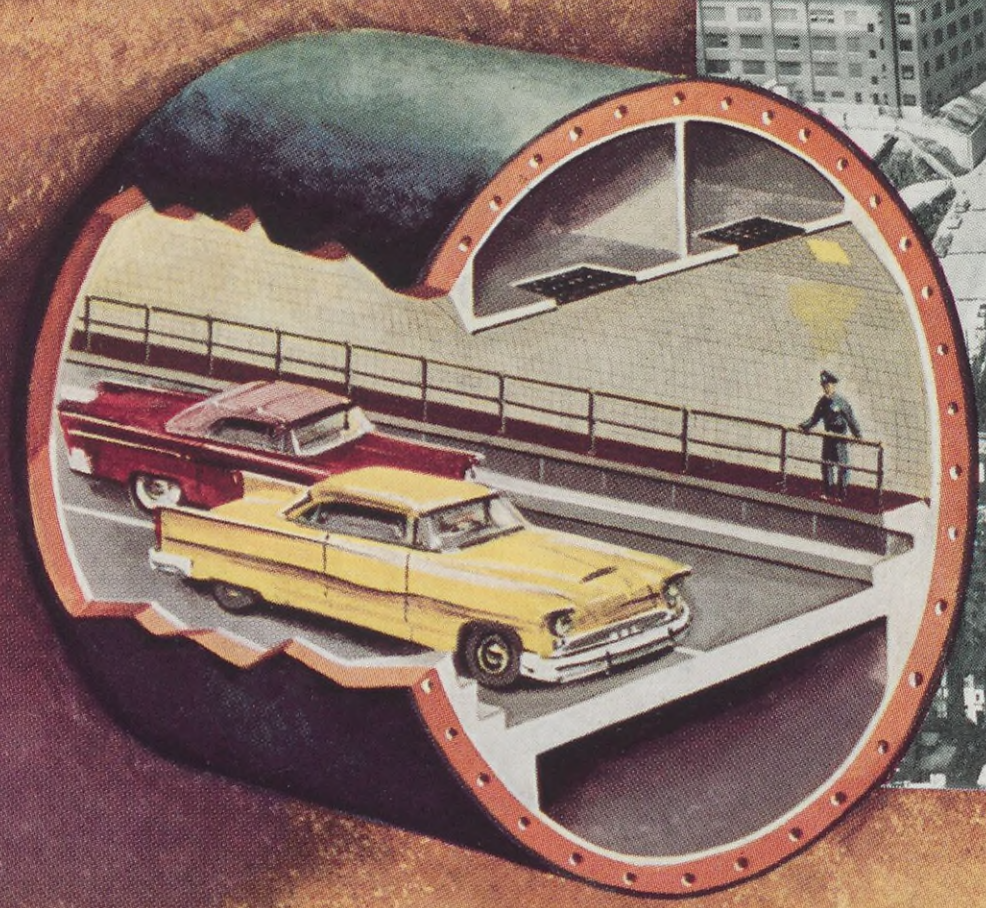
SHELL NEWS

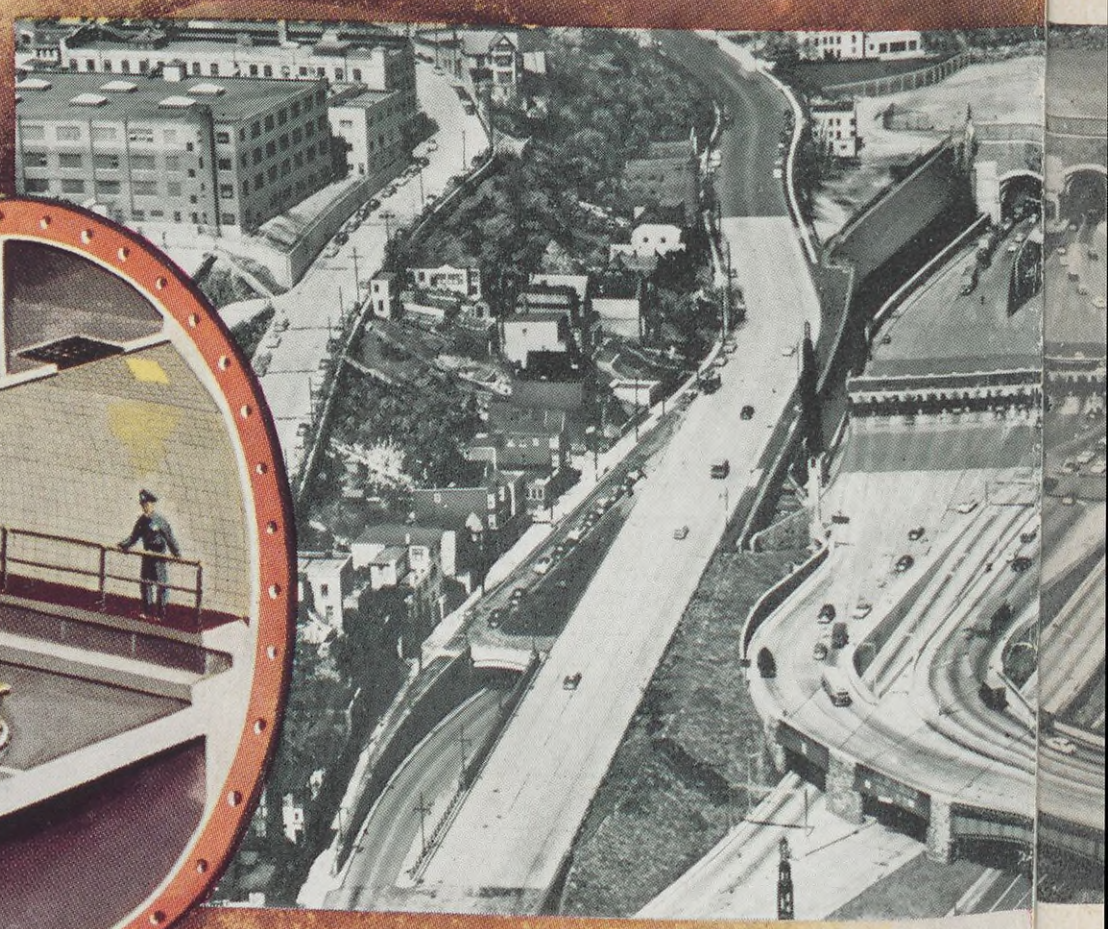
AUGUST 1957

MAYFLOWER MARINER

ROADWAY UNDER A RIVER

The Lincoln Tunnel's new third tube, paved with Shell asphalt, eases traffic flow into New York





A new underwater artery channeling cars under the Hudson River from New Jersey to New York is increasing Manhattan's traffic circulation and decreasing drivers' blood pressure.

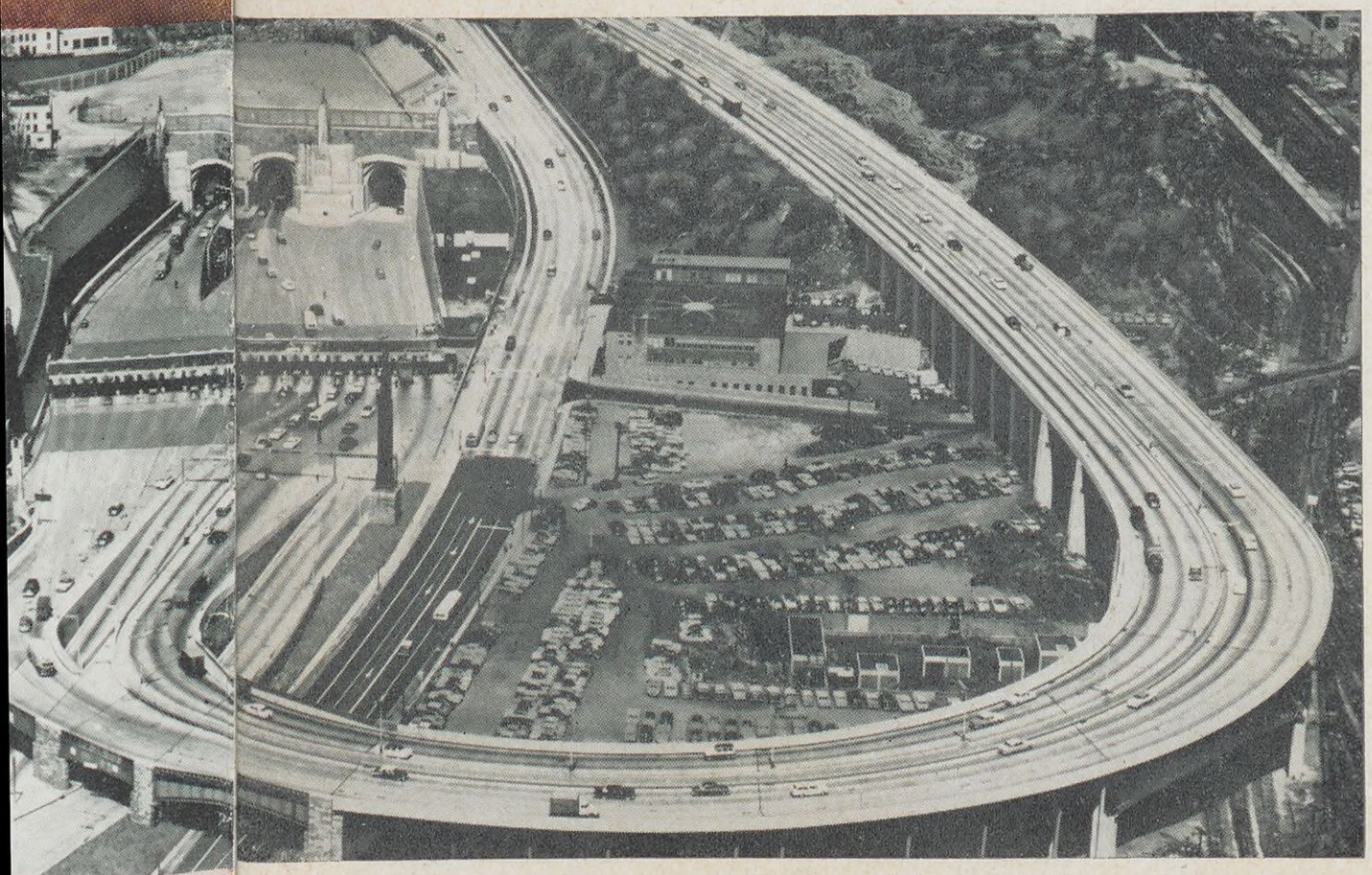
The underwater roadway is the third tube of the Lincoln Tunnel, a $100 million engineering job that is expected to handle more than 11 million vehicles each year moving from New Jersey to New York.

Drivers moving both ways between New York and New Jersey—and there were 77 million of them last year—may use the George Washington Bridge, the Holland Tunnel or the Lincoln Tunnel. But with traffic increasing each year, the under-river tubes and the bridge occasionally became so jammed, particularly on holiday weekends, that a man could walk from New Jersey to mid-Manhattan on the roofs of automobiles—probably faster than he could drive it.

To ease the congestion, the Port of New York Authority—an agency of the states of New Jersey and New York handling transportation and terminal facilities—decided to add a third tube to the Lincoln Tunnel, making it the world's first triple-tube underwater roadway.

Construction of the 1½-mile third tube started September 25, 1952, and was completed in May of this year—four years and eight months later. The 5,486-foot under-river section of the tube lies in the mud and silt of the river bottom. The tunnel approaches were blasted out of solid rock on both the New York and New Jersey sides.

The tube was driven through the ooze of the river bed by the shield method, also used in constructing the Holland Tunnel and the first



Traffic coming into the Lincoln Tunnel from New Jersey, above, now goes through a new asphalt-paved tube 100 feet below the Hudson River.

SHELL NEWS

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

Employee Communications Department
New York, N. Y.

contents

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MAYFLOWER MARINER

On this month's front cover, Michael J. Ford, Solvents Technical Representative in the London Sales Office of Shell Chemical Company, Limited, stands at the wheel of the *Mayflower II*—a duty he performed frequently as one of the crewmen during the voyage. He wore the costume of a 17th century sailor for the ceremonies celebrating the *Mayflower II's* arrival at Plymouth, Massachusetts.

A story about Ford's experiences during the 54-day Atlantic crossing begins on page 10.

two tubes of the Lincoln Tunnel. The 240-ton shield was a horizontal cylinder about 18 feet long and 31 feet in diameter. On the forward end of its outer circumference were steel cutting edges. Inside and to the rear of the shield were 28 giant hydraulic jacks, each with 200 tons of thrust (see diagram on this page). The jacks drove the shield forward in 32-inch shoves on the long trip under the Hudson from New Jersey to New York. Behind the huge shield, a construction crew of 200 "sand hogs" worked in shifts around the clock for 21 months to complete the trip.

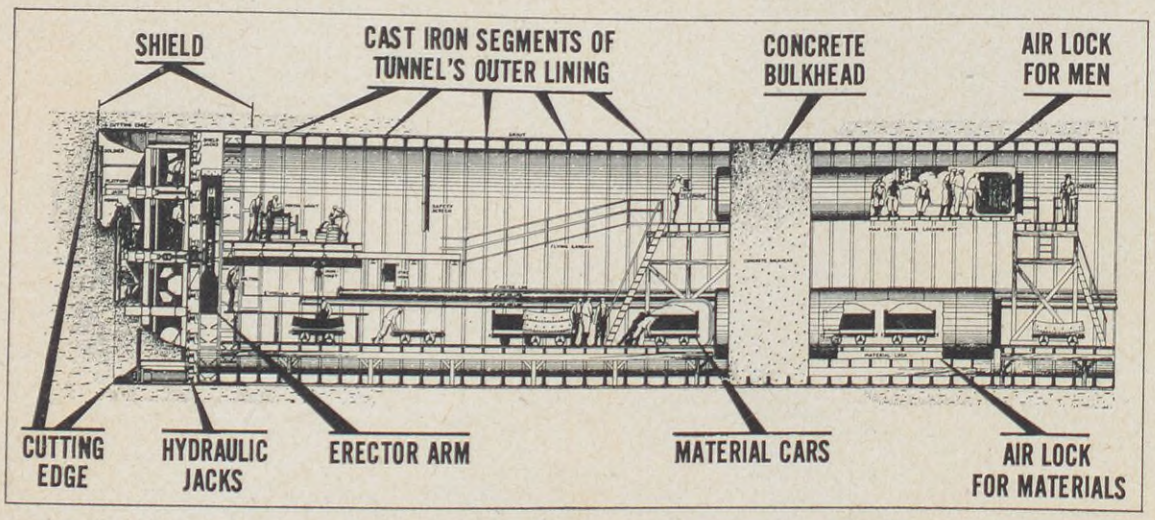
As the shield moved along, the sand hogs erected cast iron ring sections behind it to form the permanent outer sheathing of the tunnel. The soft, silty material which underlies the Hudson is semi-fluid and would leak into the tunnel if not offset by compressed air. Thus the sand hogs worked under an average pressure of 30 pounds per square inch — double normal atmospheric pressure. This pressure was maintained by a 10-foot-thick concrete bulkhead erected behind the shield and within the cast iron lining. Three air chambers through the bulkhead allowed men and materials to enter or leave the pressurized working area in safety.

One of the two rollers used by the Standard Bitulithic Company in paving the new Lincoln Tunnel tube packs down the first of two layers of asphalt.

As the shield moved slowly beneath the river, about 80 per cent of the silt displaced by the tube was pushed aside. The remaining 20 per cent was taken into the tube through trap doors in the front of the shield and deposited on the bottom of the tube as ballast to offset the tendency of the incompleted tunnel to float upwards.

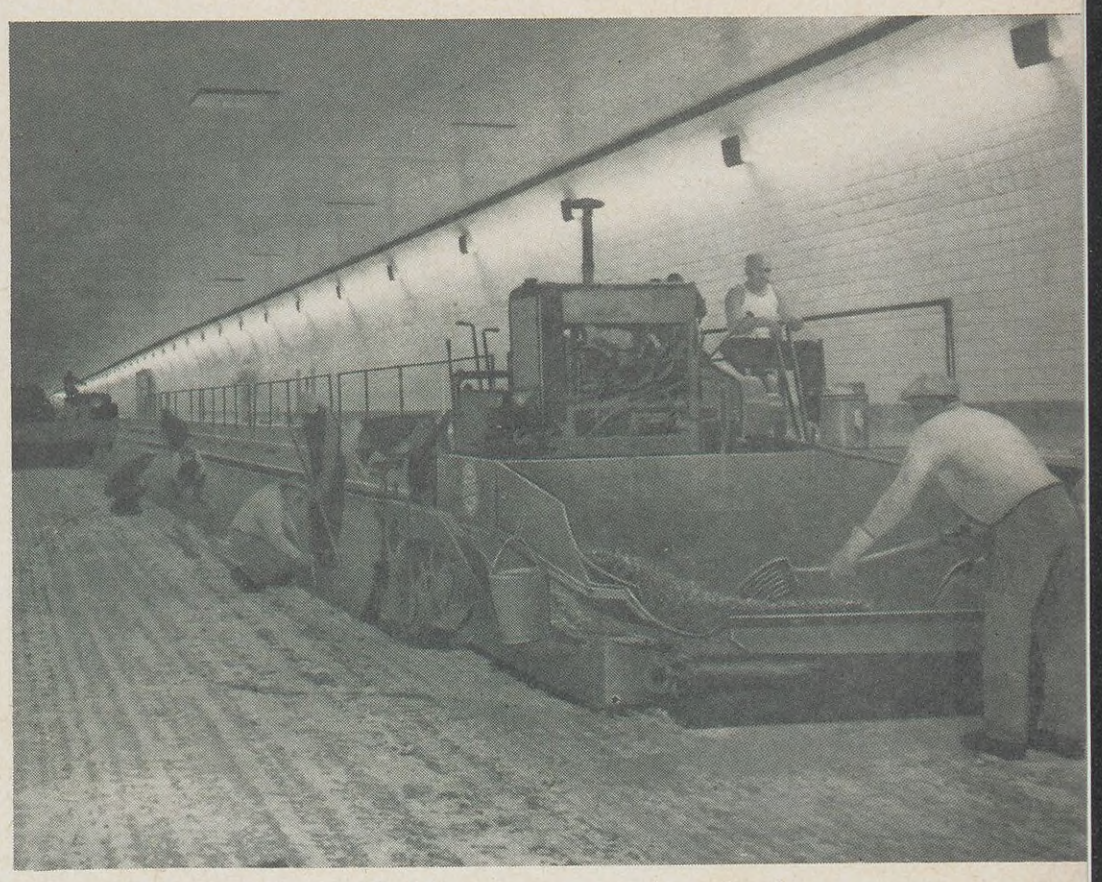
Both on the New York and New Jersey shores, the shield had to penetrate solid rock. The rock in front of the shield was blasted and drawn into the tunnel through the trap doors for removal by narrow-gauge electric railroad cars. The path of the new tube was curved at each end to avoid blasting through the basements of buildings in the area, but the tube goes straight across under the river.

After the crossing had been completed, the air pressure was shut off and the muck and silt removed from the bottom of the tube. Then an inner lining of 14 inches of concrete, together with a 14-inch-thick roadway slab and a five-inch roadway ceiling, were poured throughout the entire length of the tube. The roadway is the roof of an air duct, through which fresh air is pumped into the tunnel. The ceiling is the bottom of another duct used to suck out exhaust gases. Twenty-four huge fans in two seven-story ventilation buildings at each end of the tube provide a change of air in the tunnel every 90 seconds.



This drawing shows how the new tube was driven under the Hudson River by using the shield method. A shield 18 feet long with cutting edges was pushed through the silt by hydraulic jacks. An erector arm put cast iron segments into the tube's outer lining, and the segments were bolted together. The concrete wall held compressed air in the tunnel working area to keep water from leaking in. Electric cars took wastes out and equipment in.

These electric rail cars were used to haul construction materials through an air lock to the tube working area.



Workmen spread hot asphaltic concrete on the tube floor as an inspector, kneeling, measures it for proper thickness.

Shell's New York Marketing Division played an important role in the final phase of construction. It supplied Shell asphalt from the Sewaren Plant to the Standard Bitulithic Company of Newark for the asphaltic concrete used to pave the tube.

Standard Bitulithic put down two layers of asphaltic concrete—the first one a binder course 2½ inches thick, and the second a 2-inch top layer. The top two inches of the paving mixture was especially prepared to carry the heavily concentrated traffic load in the tunnel—a load more severe than any highway must withstand.

Standard Bitulithic did the paving between 6 p.m. and 7 a.m. so its trucks could avoid heavy daytime traffic between its plant and the tube. The trucks carried the hot asphaltic concrete mixture to spreaders in the tube, which deposited it along the roadbed. Then power rollers took over and compacted the mixture until it was smooth and firm. By careful planning, Standard Bitulithic was able to pave the entire tube in 100 hours, and it was ready for traffic immediately.

This was not the first time Shell asphalt has been used in a tunnel under the Hudson. Beginning in 1947, Shell asphalt was tested by the Port Authority along with other paving materials for replacement of the roadway in the Holland Tunnel, which was originally paved with granite blocks. That tunnel handles a large number of vehicles every day, and could not be closed down for an extended period. In 1952, Authority engineers decided to replace the granite blocks with asphalt because it could be installed during hours when traffic was relatively light, and could be used immediately after it was installed. Now, after five years of extremely heavy use, the asphalt paving still is in good condition.

Authority engineers also decided to pave the new Lincoln Tunnel tube with asphalt primarily because it can be repaired or replaced with a minimum slowdown of traffic. Additional factors which influenced the decision were asphalt's good riding qualities, good traction, economy of installation and because it reduces traffic noise.

Engineers estimate the paving in the new third tube will last a minimum of 16 years without major maintenance. During the first 10 years, no maintenance is expected. After that, slight ruts or grooves caused by the concentrated traffic probably will have to be corrected.

The two-lane third tube is known as the South Tube of the Lincoln Tunnel. It is operated in an eastbound direction (to New York) and the North Tube is operated westbound (to New Jersey). The Center Tube can be operated in any of three ways to speed traffic—both lanes eastbound, both lanes westbound or one lane in each direction. New traffic signals in all three tubes permit flexible operation and quick change-over from one pattern to another whenever traffic conditions require it.

Motorists pay 50 cents to take the four-minute ride through any one of the Lincoln Tunnel tubes. But most of them make the trip without realizing that they are enjoying the benefits of one of the world's great engineering achievements ■

ON THE SPOT

A Shell Motor Oil Survey — the Most Extensive of its Kind Ever Undertaken—Helps Dealers Help Their Customers to Save Their Engines

A Shell survey that used a unique motor oil test now helps Shell service station dealers sell more oil—and save their customers' engines.

The year-long survey was the most comprehensive ever undertaken on motor oil. Information was gathered from 15,000 motorists and from the crankcases of their cars when they stopped at Shell stations. Specially-trained Shell teams took from each car a sample of motor oil and from each driver the details about his use of motor oil.

Each oil sample was tested by the Shell ADC* Oilprint Analysis and the findings were sent to Shell's Head Office Marketing—Industrial Products Department. There the information was transferred to punched cards, put through an electronic computer, tabulated and analyzed.

Highlights of the survey findings were these:

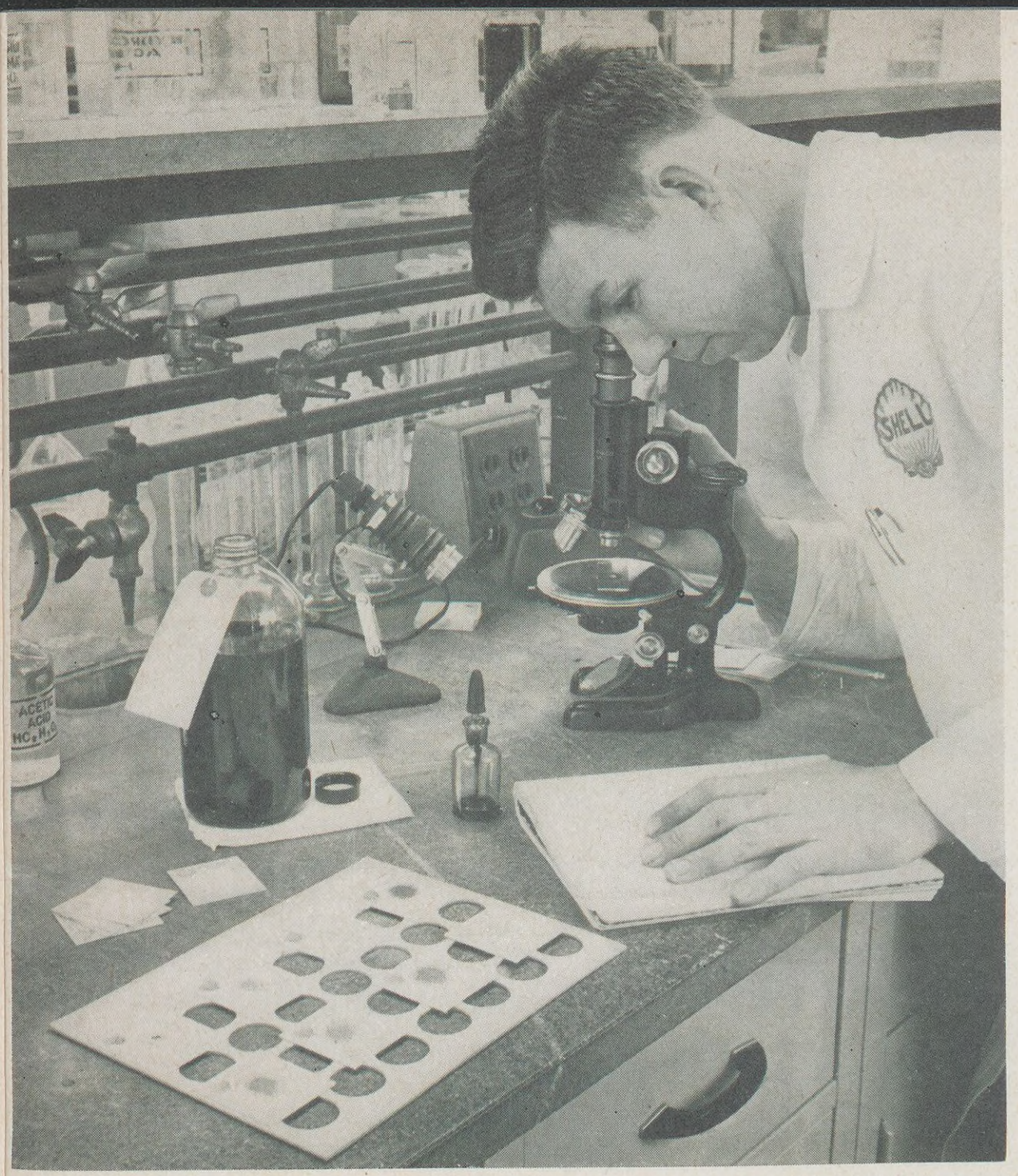
- More than half of the cars checked needed oil changes.
- The average interval between oil changes was 1,843 miles.
- More than 45 per cent of the oils tested were no longer serviceable after 500 miles of driving.
- Another 15 per cent were unserviceable after 1,000 miles of driving.
- By 2,000 miles, another 20 per cent of the oils tested had become unfit for use, bringing the percentage of unfit oils to 80 per cent.

How does this information help sell motor oil and save engines?

The Shell dealer now knows that one out of every two cars that pulls into his station needs an oil change. This makes him even more aware of the need to check the level of the customer's oil and to find out when it was last changed.

The dealer also knows from the survey that to be safe, the motorist should change his oil at some point between 500 and 2,000 miles, depending on the type of driving. Shell follows the American Petroleum Institute's recommendations that oil be

*Trademark Shell Oil Company



F. R. Cummings, Chemist, studies Shell ADC Oilprint in the Control Laboratory of the Sewaren (New Jersey) Plant where part of the motor oil survey work was carried out. Samples from 15,000 automobiles were analyzed in the most comprehensive motor oil survey ever undertaken in the U. S.

An ADC Oilprint sample is taken by J. R. Schneider, Automotive Engineer, New York Division, right, at a Shell service station as part of the survey.

More than half of all cars pulling into service stations need oil changes, according to findings of the Shell survey.

changed every 500 miles when the driving is on dusty roads or in very cold weather; every 1,000 miles for stop-and-go driving under normal conditions; and every 2,000 miles for straight highway driving. After the dealer learns when the oil was changed and the type of driving the motorist does, he can tell what the odds are on the fitness of the oil. Then, citing the findings of the Shell survey, he can warn the motorist if the engine's life is being gambled against an oil change.

At present, the Shell dealer is not able to test a customer's motor oil with the ADC Oilprint Analysis. The test still needs the services of a care-

Loretta Engel and J. W. Polick help prepare for tabulation of the motor oil survey findings at the Industrial Products Department, Head Office. Polick now is Assistant Manager, Industrial Products, in the Detroit Marketing Division.

fully-trained technician to tell the condition of used motor oil. But Shell researchers are trying to simplify the test so that it can be used more widely.

Development of the test was the result of almost 10 years of work by the research staffs of Shell Oil Company's Manufacturing Organization. Before the Shell method was developed, oil testing was a lengthy process involving sending samples to a laboratory.

Then, two years ago, Shell introduced the ADC Oilprint Analysis to serve commercial customers such as truck and taxicab fleets. The Shell Analysis gave these customers the opportunity to have on-the-spot tests made of used motor oil by Shell technicians. Since the test was introduced, more than 800 fleet operators have used it to reveal potential engine troubles and thus save costly repair bills.

Making the test is simple although interpreting the results is not. The Shell experts use a glass or steel rod, a piece of filter paper and a special chemical solution. They place a drop of the oil on the filter paper. From the way the oil reacts and how it spreads on the filter paper they can tell:

- How dirty the oil is.
- Whether anti-freeze or water has leaked into the crankcase.
- Whether the oil filter has worked.
- Whether the oil has met abnormally high temperatures.

Then, with a drop of the chemical solution on top of the oil spot, the expert can tell how acid the oil is.

Here is what the technicians looked for when they studied the oil spots in the motor oil survey and when they analyzed a commercial customer's oil:

1. Is the oil no longer alkaline? Additives used in motor oil neutralize acids that cause engine wear. As a car is driven, the additives are used up and the oil loses its alkalinity. Knowing when the alkalinity is dangerously low gives the opportunity to change oil before the engine is damaged.

2. Is the oil able to carry along dirt particles as it flows? As oil is used it also loses its powers of detergency and dispersancy — its cleansing and dirt-suspension powers. When this happens, dirt is deposited on the engine.

3. Is there too much dirt in the oil? Even though dirt particles in the oil may be fairly well dispersed, there may be so much dirt that it is acting as an abrasive on the engine.

Truck and fleet operators have found that the Shell test helps in their regular engine-maintenance programs. The oil from each motor is analyzed at regular intervals and running results are kept on a chart with spaces for many "oil spots" and for mileage records and other data. A fixed interval between oil changes is maintained as long as the "spots" keep a steady pattern. But when the Shell oilprint expert sees that the spots have deviated from the pattern, he can warn the customer that the engine needs special maintenance.

The results of the work with fleet operators and of the 15,000 automobile survey have helped Shell experts advise Shell dealers—and, in turn, individual motorists — on how to save wear and tear on their engines ■

news and views

SULPHUR FROM OKOTOKS

One of the largest sulphur plants in North America is to be built at Okotoks, Alberta, under a recent agreement among Shell Oil Company, Devon-Palmer Oils, Limited, and Texas-Gulf Sulphur Company.

Shell will furnish the necessary gas reserves for the plant from the Okotoks Gas Field where Shell has already drilled wells. Devon-Palmer and Texas-Gulf Suphur will operate the field and install and operate the gathering facilities and plant, which will cost an estimated $6 million. It is expected to go on stream during the third quarter of 1958.

The plant will process 30 million cubic feet of gas a day and from it will produce per day 300 long tons of sulphur, 15 million cubic feet of dry, sweet residue gas and about 85 barrels of distillate.

SOURCE OF STRENGTH

"Our progress, our strength and our security will depend on a constantly advancing technology which will make possible a steadily increasing productivity—that is, goods per man hour, not dollars made per man hour. This is the source of our high standard of living and our hope for a still more abundant future. Our struggle for survival in a divided world could be won or lost according to our success or failure in extending and strengthening the technological basis of our progress."—J. H. Doolittle, Vice President, Shell Oil Company, at the Shell Management Course.

HUBBERT HONORED

DR. M. K. HUBBERT

Dr. M. King Hubbert of Shell Development Company recently was named a Fellow of the American Academy of Arts and Sciences, one of the oldest scientific societies in the United States, whose membership is limited to 1,350 persons. Dr. Hubbert is Chief Consultant in General Geology at Shell Development's Exploration and Production Research Division in Houston.

Others among those honored as new Fellows at the society's 177th annual meeting recently were Chief Justice Earl Warren of the U. S. Supreme Court, William Faulkner, recent Nobel Prize Winner in literature, and Helen Hayes, one of the country's foremost actresses. Among the foreign honorary members elected was Dag Hammarskjold, Secretary-General of the United Nations.

The society is divided into four classes: Mathematical and Physical Sciences (to which Dr. Hubbert was elected); Biological Sciences; Social Arts and Sciences; and Humanities. Dr. Hubbert also is a member of the National Academy of Sciences.

TAX POST

R. V. MILLER

The Mid-Continent Oil & Gas Association's recent 23rd Annual Federal Tax Forum in Fort Worth, Texas, named R. V. Miller, General Tax Manager, Head Office, as General Chairman of the Association's Standing Committee on Federal Taxation. Mr. Miller, a member of the Association since 1940, has taken a leading part in work on tax problems.

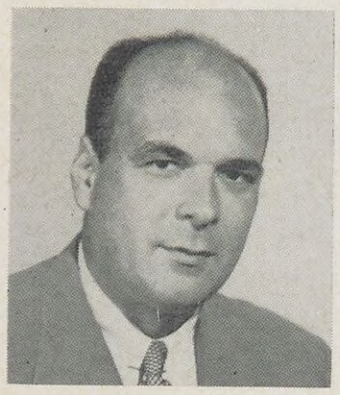
NEW DISCOVERY WELL

A new oil field in the Four Corners region is indicated by a wildcat discovery well completed recently by Shell Oil Company.

The well, Tohonadla No. 1, is in southeastern Utah, six miles from the nearest existing oil field, Shell's North Boundary Butte field. In initial tests, the discovery well flowed 1,450 barrels of oil a day from upper Hermosa-Pennsylvania strata at about 5,000 feet. A second well, Tohonadla No. 2, is being drilled by Shell southeast of the discovery site.

Tohonadla No. 1 is about three miles from the proposed route of the Four Corners Pipe Line now under construction to carry crude oil from the Four Corners region to Los Angeles refineries. The 750-mile pipe line is scheduled to be completed by next April 1.

SHELL PEOPLE



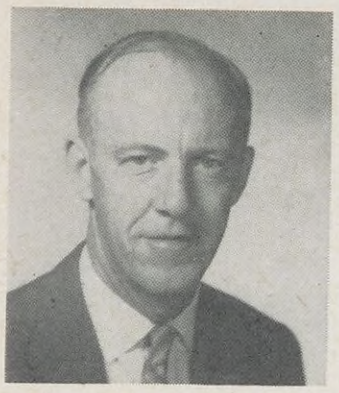
W. F. SCHOENTHALER

SHELL OIL COMPANY TRANSPORTATION AND SUPPLIES ORGANIZATION

W. F. SCHOENTHALER has been appointed Manager, Transportation, in the Head Office Transportation and Supplies Organization, succeeding K. W. Martin, who has been named Manager, Transport and Material Department, New Orleans Exploration and Production Area. Mr. Schoenthaler, who holds a B.S. degree from Washington University, St. Louis, joined Shell in 1934 as a Clerk in the Transportation and Supplies Organization at St. Louis. He was transferred to New York in 1940 in the same capacity and became a Section Supervisor in 1942. He was appointed an Assistant Manager in the Supplies Department in 1946. He was named Manager, Distribution, in Shell Chemical Corporation in 1948.

M. H. W. DENT

M. H. W. DENT has been appointed Manager, Distribution, of Shell Chemical Corporation, Head Office, succeeding Mr. Schoenthaler. Mr. Dent joined Shell in 1930 as a Clerk at St. Louis. He became Head Marine Clerk in the Transportation and Supplies Organization at St. Louis in 1938. In 1946, he was appointed Supervisor in the Marine Transportation Department at New York and in 1948 became Assistant Manager in the Supplies Department. He was named Manager of that department in 1952.



R. H. TUBMAN

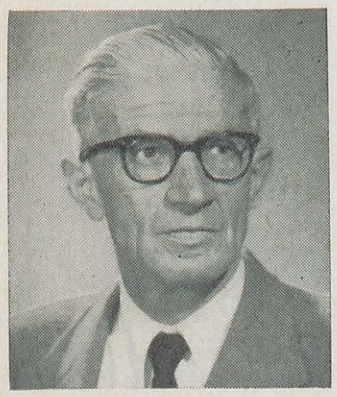
R. H. TUBMAN has been named Manager of the Products Department in the Head Office Transportation and Supplies Organization, succeeding Mr. Dent. Mr. Tubman, who holds a B.S. degree in gas engineering from Johns Hopkins University, joined Shell in 1937 at the Norco Refinery as an Analytical Chemist. Following technical assignments there, in St. Louis and at the Houston Refinery, he was appointed Assistant Manager in the Wilmington Refinery Alkylation Department in 1950. He was named Manager of that department the following year, and subsequently served as Manager of the Thermal Cracking and Catalytic Cracking Departments and as Assistant Superintendent. He was appointed Assistant Manger of the Operations Department in the Head Office Manufacturing Organzation in January, 1956.

S. A. KOLP

SHELL OIL COMPANY MARKETING ORGANIZATION

S. A. KOLP has been named Treasury Manager in Shell Oil Company's New Orleans Marketing Division succeeding G. M. Price who is retiring after 28 years' service with the Company. Mr. Kolp joined Shell at Indianapolis in 1928 as a Clerk. He was transferred to New York in 1941 as an Auditor and the following year became Chief Accountant in the Atlanta Marketing Division. He moved to New Orleans as Chief Accountant in August, 1956.

in the news



W. HEGWEIN

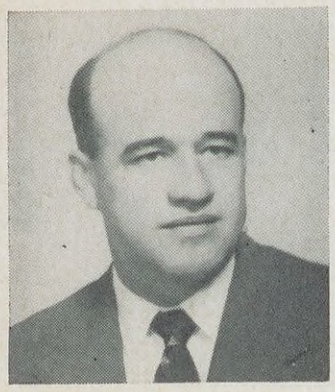
SHELL OIL COMPANY EXPLORATION AND PRODUCTION ORGANIZATION

WALTER HEGWEIN, formerly of the staff of N. V. De Bataafsche Petroleum Maatschappij in The Hague, has joined the staff of Shell Oil Company's Head Office Exploration Department. Mr. Hegwein, who holds a Ph.D. degree in natural sciences from the University of Berne, Switzerland, joined the Mexican "Eagle" Oil Company (a former associate of the Royal Dutch/Shell Group) in 1927 as a Geologist. He also served with other associated companies in Romania and Venezuela before he joined B.P.M. in 1953. In his new assignment with Shell Oil Company, Mr. Hegwein will assist Exploration and Production Areas on problems associated with field geological mapping. He will also work on the compilation of an atlas of geological structures throughout the world.

G. G. BILLINGS

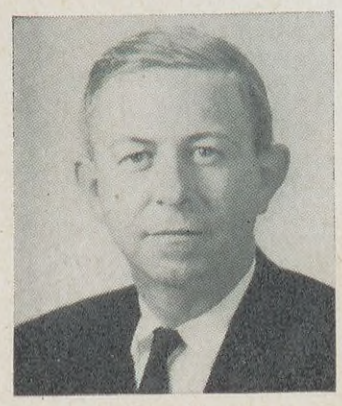
SHELL PIPE LINE CORPORATION

G. G. BILLINGS has been named Manager of Shell Pipe Line's Operating Services Department. Mr. Billings, who received an M. S. degree in Civil Engineering from Washington University in St. Louis, joined Shell Pipe Line in 1936 as an Engineer at Colorado City, Texas. He served as Division Engineer at Harristown, Illinois, and as Engineer at St. Louis before moving to Houston as Head Office Personnel Representative in 1940. Later, he was Area Engineer at Colorado City; Division Superintendent at Healdton, Oklahoma; and Assistant Mid-Continent Area Manager at Cushing. In 1950, he went to Venezuela on a special assignment and returned two years later to become Acting West Texas Area Manager. He became West Texas Area Manager in January, 1954.



H. E. WHITE

H. E. WHITE has been named West Texas Area Manager at Midland, suceeding Mr. Billings. Mr. White joined Shell Pipe Line in 1935 as a Field Gauger at Roberts, Texas. During the next 15 years he held various positions in the West Texas Area, at Head Office in Houston and in the Texas Gulf and Mid-Continent Areas. He moved to Colorado City in 1950 as Acting Assistant Area Manager and became Assistant Area Manager there in 1954. He retained that position when the West Texas Area Office was moved to Midland in 1955.



J. K. ALFRED

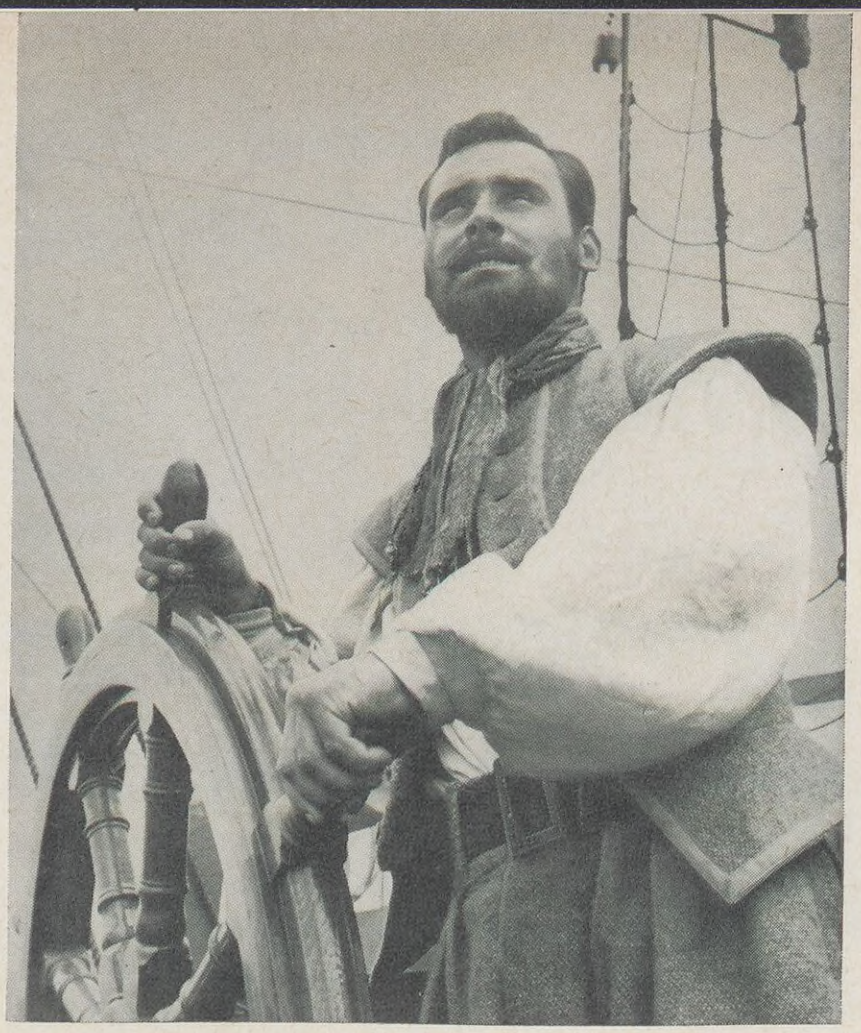
J. K. ALFRED has been appointed Field Manager of construction on the Four Corners Pipe Line which Shell Pipe Line Corporation is constructing as agent for the Four Corners Pipe Line Company. Now making his headquarters in Flagstaff, Arizona, Mr. Alfred will be in charge of Shell Pipe Line's new Four Corners Division to be established on completion of the line early next year. Mr. Alfred, who holds a B. S. degree in Civil Engineering from the University of Oklahoma, joined Shell Pipe Line in 1935 at Cushing, Oklahoma, and held various engineering positions at St. Louis and Houston before being named West Texas Area Engineer in 1941. He became Acting Assistant West Texas Area Manager in 1948 and two years later was transferred to Houston as Operations Engineer. He was appointed Assistant to the Vice President in 1952. In 1955, he was named General Superintendent of construction on the Butte Pipe Line. He was named Manager of the Operating Services Department in January, 1956.

A Shell Man Selected

as One of the Mariners Who

Sailed the Mayflower II

Across the Atlantic Spent



54 DAYS Before the Mast

When Michael J. Ford of Shell Chemical Company, Limited, of London, and the other crew members of the *Mayflower II* finished loading tons of iron ballast in the hold of the tiny ship before sailing, he thought the worst of the voyage was over before it started.

Fifty-four days later and 15 pounds lighter, when Ford walked ashore up the wooden ramp at Plymouth, Massachusetts, he had learned there were worse tasks involved in duplicating the Atlantic crossing of the Pilgrims—but none bad enough to take the edge off the "tremendous fun" of sailing the ship.

Ford has had fun sailing since his college days at Oxford University, where he was graduated last summer with a degree in chemistry. ("If I'd done less sailing my chemistry would have been better," he said.) While he was a member of the Oxford sailing team, he heard of the proposal to build a replica of the original *Mayflower* and sail it across the Atlantic. He thought he would like to be a crew member, and he approached Captain Alan Villiers, a sailor and professional writer who lives at Oxford, for his advice.

Villiers told him to try for the crew when the time came. Later Villiers himself was named captain of the *Mayflower II* and given the right to choose his own crew—and Ford was one of the 26 picked from more than 4,000 volunteers.

The crew went aboard the *Mayflower II* at Brixham, England, where the replica was built, and immediately started loading the iron ballast—a step probably not taken by the original *Mayflower* (which carried 102 passengers), but it was one required by British authorities. Then the crew began the tedious task of scraping the deck, using small files to clean dirt and tar off the wood and out of cracks.

Next came the loading of the ship's cargo and supplies. Included in the

cargo of "treasure chests" of various British products was a box of candles from The Shell Petroleum Company Limited to the Governor of Massachusetts, Foster Furcolo. And among the supplies were 150 gallons of TEEPOL® detergent, a Shell product sold throughout Europe, which was used for washing clothes, decks and men—so much so that only three gallons remained after the voyage.

Still at Brixham, the crew got its first taste of handling the vessel in a two-hour cruise around the harbor, literally to learn the ropes that controlled the sails.

"We had to learn more than 100 ropes," Ford said. "Captain Villiers and a nucleus of the crew were on hand to help rig the ship, so they could teach the rest of us. But it was quite complex—there was still some confusion even to the end."

Good winds that blew steadily from the day the ship set sail from Plymouth, England, also gave an easy introduction to handling the ship at sea. Eleven days of favorable winds also gave the crewmen a taste of how the sea could handle them.

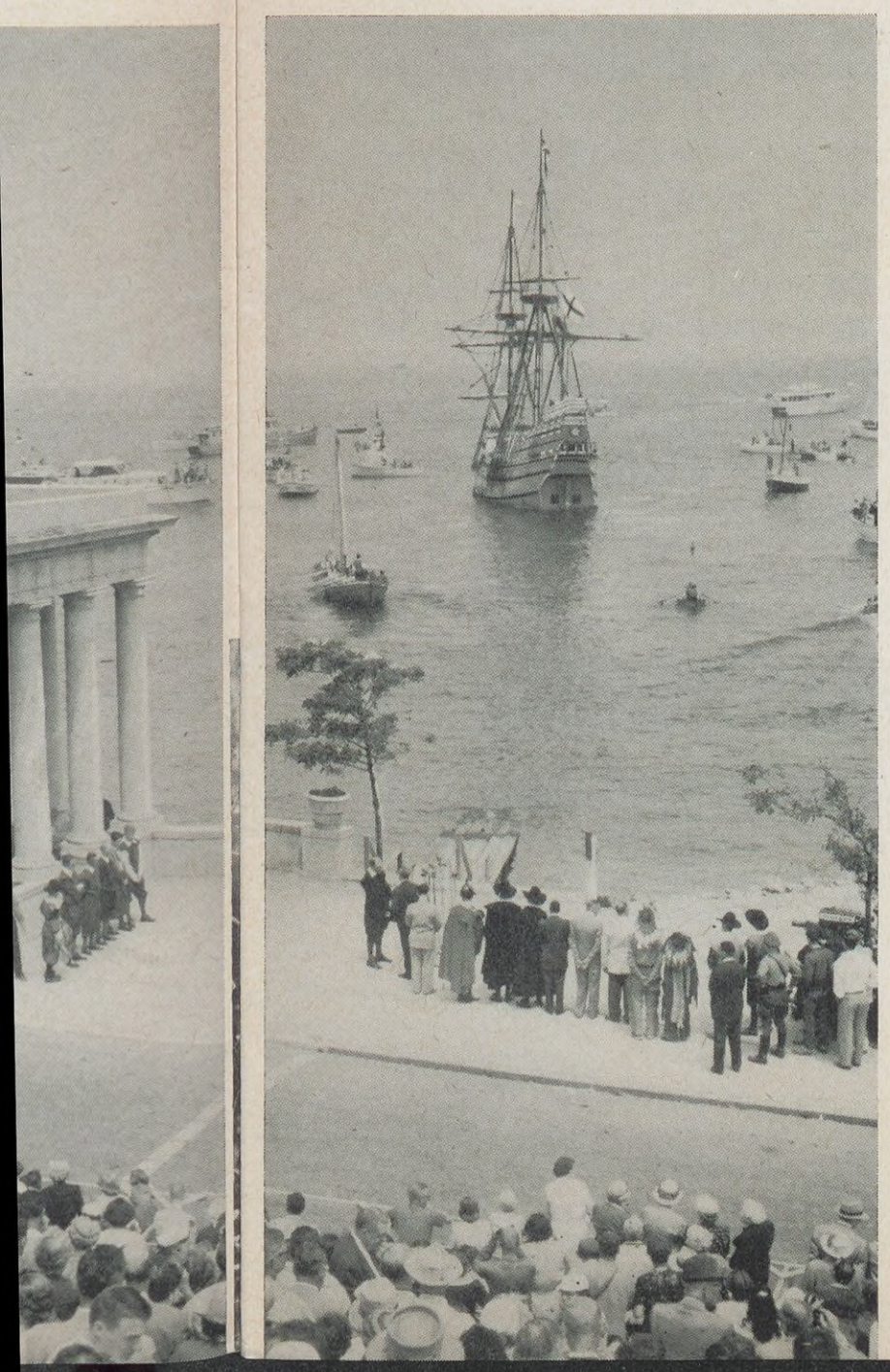
"The ship rolled through a 60-degree arc in about nine seconds," Ford said. "If you were on top of the 70-foot mast, you traveled quite a distance in quite a short time. When we walked about the ship, we gradually learned to shift our weight as the ship rolled—but at the end of every day we were tired from walking uphill all the time."

The constant rolling and pitching made even the veteran seamen seasick, but Ford took modern preventive measures and took pills to ward it off —"my willpower isn't strong enough."

Ford's willpower also was tested by the crew's work schedule for the first three days. At the start of the voyage each man worked four hours and was off four. With hardly three hours' sleep at a stretch, and jobs that included scraping and scrubbing the deck, handling sails and other chores, Ford recalls those days as among the hardest of the voyage. After the third day the crew was divided into three watches, and for the remainder of the trip each man was on four and off eight hours.

Once he was off watch, Ford usually headed for his bunk—not the hammock usually associated with square-riggers, but metal double-decker bunks with railings to help keep the sleeper from being debunked.

The bunks were in tiny two-man cubicles made of plywood walls that would be taken down easily when the ship went on exhibition. Each



Michael J. Ford, Solvents Technical Representative in the London Sales Office of Shell Chemical Company, Limited, climbs down the bowsprit to the *Mayflower II's* fo'c'sle. He was one of the 27 crewmen picked to sail it across the Atlantic.

A shallop rows the crew of the *Mayflower II* to the official reception committee waiting at Plymouth, Massachusetts. The structure at left is built over Plymouth Rock, where the Pilgrims landed.

Ford reads his first newspaper and eats his last meal aboard the *Mayflower* at Provincetown, Massachusetts.

Here Ford puts the brass top, which he polished, over the compass. The top has a built-in oil lantern, on right.

"cabin" had one small electric light, to be used only when the occupant was dressing to go on duty. No oil lamps were allowed below because of the fire hazard, and the electric lights had to be used sparingly because the ship's only generator was intended primarily to power the radio. There were no portholes or other ventilation, which meant the vessel had a distinctive atmosphere below decks after a few days at sea.

The only place below decks where an electric light burned constantly was in the crew's galley—a cramped space in which wooden benches surrounded one wooden table. On a beam above the table was a neatly lettered sign: "For 50-50 Club Members Only." Ford laughed when he was asked what the "50-50 Club" was, and said it originated in England after a journalist predicted in print that the ship had only a 50-50 chance of making the voyage.

"He came on board before we left, and we put a sack over his head and poured water over it, and talked of making him walk the plank," Ford said. "He took it good-naturedly—but then of course he had to."

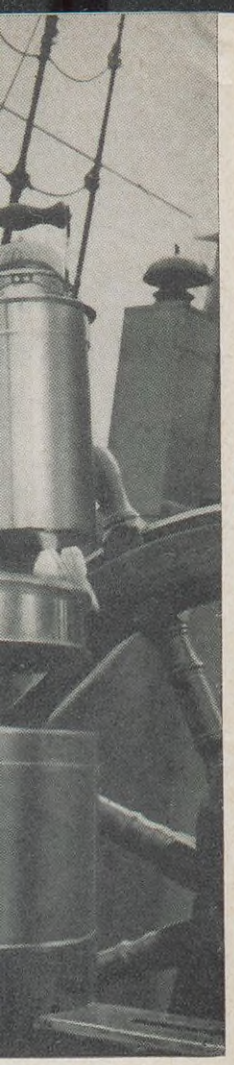
The Club membership was rather exclusive in one sense: only working members of the crew were admitted. That meant that three journalists, the ship's builder and the promoter of the venture were not made members.

The menu in the Club dining room was restricted by the lack of refrigeration aboard. No power could be spared for that, and the original Pilgrims also did without it, so the meals were built around canned goods and salt pork. However, the cook did have a stove — an improvement over the Pilgrims' fire in a bed of sand—and baked bread daily.

Food and sleep quickly became the main sources of pleasure and complaints for Ford and the rest of the crew; "Everything else became pretty unimportant," he said. He had little time for relaxing or reading. The ship did have a library aboard, supplied by a society in England, and Ford did read Herman Wouk's novel, "Marjorie Morningstar." But because the only reading light was daylight, few of the crew did much reading. In spare hours not spent sleeping, Ford and others usually kept up a diary or wrote letters.

Ford caught up on his writing on Sundays, a day when no work was done. Captain Villiers held a religious service each Sunday at 10 a.m., and followed it with a discussion of the original Pilgrims' crossing and read-

Ford, waving, and the rest of the crew walk a



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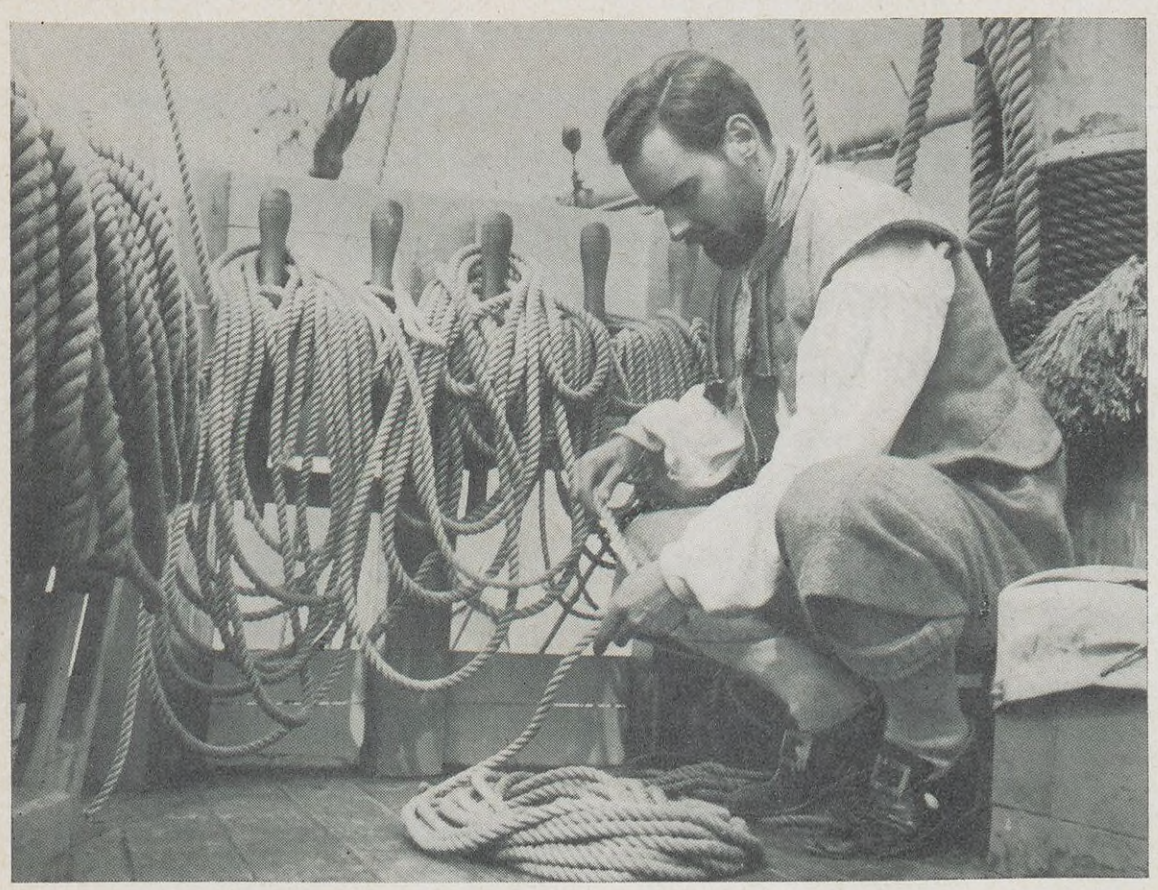


Ford coils one of the 100 or so ropes controlling the sails and spars. He and the other crewmen had to memorize the function of each in a matter of days.

ings from the journal of William Bradford, one of the Pilgrim Fathers.

"That gave us historical background to the journey we were making," Ford said, "and it also gave us information we might have needed to answer any questions when we finished the voyage."

Ford decided to write his letters in one batch on Sundays, using material from his daily diary.

"I found that the letters I wrote every day were full of complaints and petty troubles that I could laugh at when I looked back a few days later," he said. "So I waited until the end of the week to write them."

Time was no element in getting the letters written; the crew did not send or receive mail until the *Mayflower* ended its journey. But Ford worked daily on his diary, and often a day's entry would be built around any incident that distracted attention from the problems of life aboard the vessel.

"It's incredible how you are touched by the sight of a passing ship," Ford said. "It would make the whole day. The same with things we sometimes found in the sea. Once we picked up some gulf seaweed, and it still had some tiny crabs alive in it. The whole crew gathered around the bucket to look. We saw several whales, and I wrote a whole day's diary around that. It was the same with any evidence of life outside the ship to take your attention."

Each day at noon Captain Villiers shot the sun to fix the ship's position, and marked it on a progress map. And as the ship moved west, the time changed and all the ship clocks had to be adjusted. It made little difference to most that noon came 17 minutes later, but it gave the radio operator a problem: His sending schedule to London was fixed on British time, and he had to adjust his schedule daily to keep track of odd minutes.

As the days went by and the *Mayflower II* entered the trade winds, other ships were seldom seen. In sailing times, the trade winds route was a main artery of sea traffic, but now it is off the usual course of modern vessels. In the middle of the trade winds, where the sea was warm and the sun bright, the *Mayflower II* was becalmed for days. The crew went swimming and soaked up sun, but still fretted over the delay.

During the calm, Ford said, "we tried, oh how we tried, to catch some fish." They baited hooks with salt pork to catch dolphins, "but we found dolphins don't care for salt pork either." The only fish they got caught themselves; some flying fish flew on board, smacked their heads and were picked up flopping on the deck.

About 300 miles west of Bermuda in the Gulf Stream, the crew saw its first airplane overhead. "Everyone cheered, climbed the rigging and waved," Ford said. "But after it swooped over about the fifteenth time

ashore at Plymouth. The costumes are copies of 17th century sailor suits.

J. R. Dickerson, left, Manager of Shell Chemical Corporation's Boston Sales Division, welcomes Ford.

After their first hot shower in 54 days, Ford and the crew sat down to a steak dinner in a Plymouth high school cafeteria.

More welcome than steak or shower was the first mail Ford received.

we just glanced up and scowled."

Shortly after, two Italian Navy ships saluted the *Mayflower II* and sent gifts of fruit and wine. They were followed by three U. S. Navy destroyers, which lined up to salute the tiny ship.

"When the first two destroyers went by, we were waving from our deck and their crews were all in white lined up on their decks," Ford said. "But when the third one approached, a sudden squall came up. Now we had no fresh water aboard for bathing at all, so we took advantage of any rain to take a shower. So when this third destroyer came by, with its crew all huddled in raincoats and trying to duck out of the rain, there we were stripped and soaping up in the middle of the deck in the rain. I guess they thought we were a bunch of lunatics."

The *Mayflower II's* 5,435-mile voyage ended officially at Plymouth, Massachusetts, amid circling small boats, Coast Guard vessels and aircraft before a crowd of thousands. Ford came ashore wearing a copy of a 17th century sailor's costume, which he said was "quite uncomfortable," a full beard and two months' growth of hair.

"I never worried during the trip—though that may have been through ignorance," he said in retrospect. "I did something I'd always wanted to do, sail a boat of this sort, and I have had an experience I shall remember the whole of my life. I consider myself very lucky."

A few days after the ship docked, Ford got time off to visit Shell Chemical Corporation's Boston Sales Division Office, and later Head Office in New York and the Union, New Jersey, Laboratory.

He then returned to England by airplane, not ship—a journey which he feared would be harder to explain to his family than the voyage.

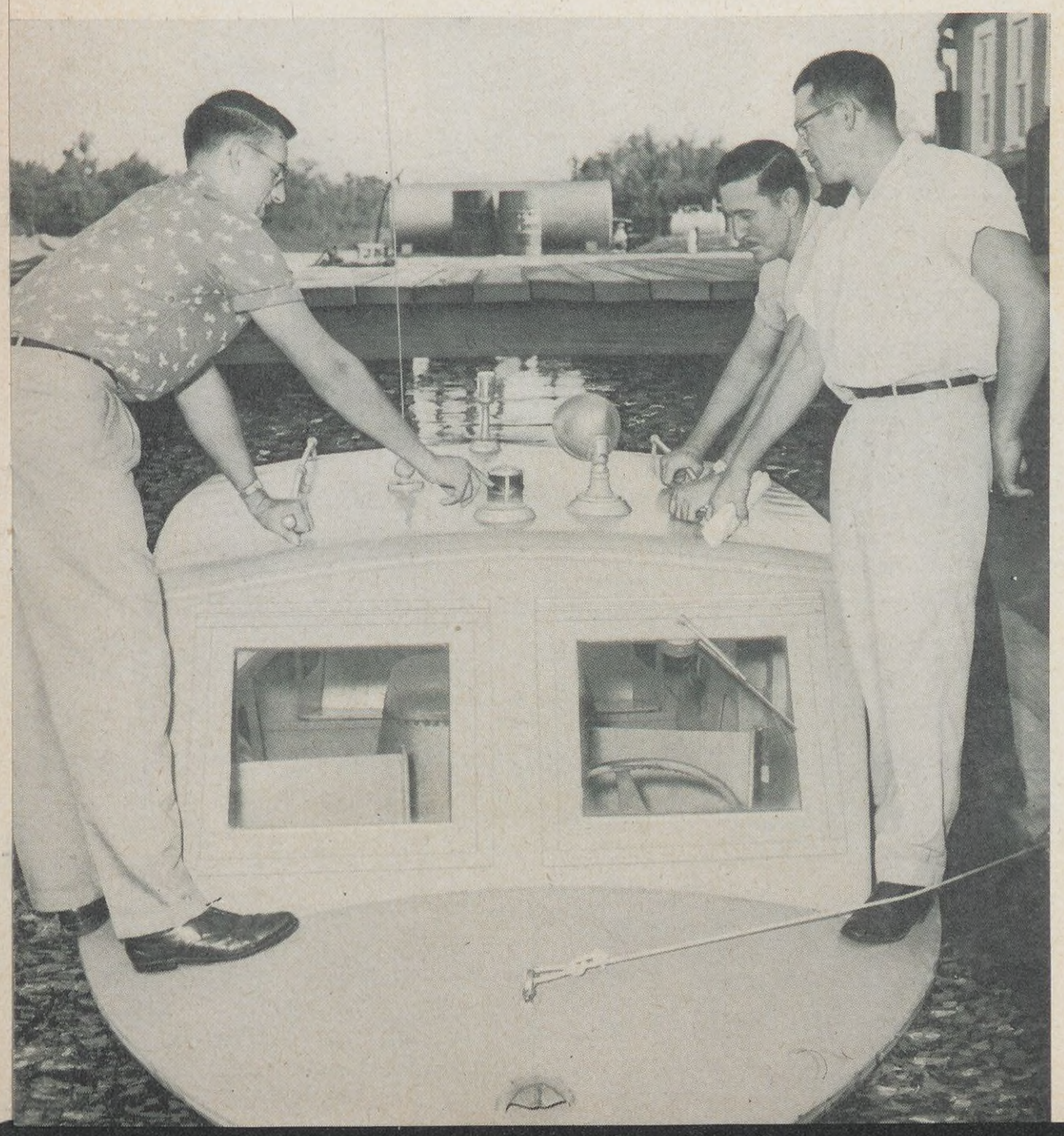
"My grandfather, who is 93, wasn't a bit worried when I told him I was going to sail on the *Mayflower*" he said. "But he was quite concerned that I might have to fly back across. I don't know how I'm going to tell him" ■

Safety Afloat

Water travel is important in the New Orleans Area, and the men who man the boats must know their job

What can you do when two motor boats meet each other head-on in a narrow channel? What steps should be taken when a small boat has to drop anchor in a heavy fog? When overtaking another boat is it permissible to pass on the right side?

These are just a few of the knotty problems that face Shell employees who must operate small boats offshore and in the tricky swamps and bayous of Louisiana. So that they will have the right answers to these safety questions, Shell is giving training to employees who spend a sizeable part of their work day afloat. The answers to the three questions above, incidentally, are as follows: in a narrow channel, each boat should keep to its starboard (right side when facing forward toward the bow); during a fog, an anchored vessel must ring its bell rapidly for five seconds every minute; a boat overtaking another craft may pass on the right provided it gives one short blast on its whistle.



Raymond L. Conlin, left, Training Representative, explains use of running lights to Guy Gauthreaux, Gauger Pumper, right rear, and Leonard Schibi, front, Roustabout.

The training program, which is under the direction of Raymond L. Conlin, Training Representative, New Orleans' Exploration and Production Area, includes a lecture, a group discussion session and a special study booklet prepared by E. R. Vorenkamp, Area Transport Department Manager. As part of their training, the men learn the proper fueling procedures, the types of fire extinguishers to use (and how to use them), the number of lifebelts to carry aboard, how to vent and clean bilges, and the fundamentals of first aid, including artificial respiration.

Boat operators also are taught the proper way to meet, pass and cross vessels underway in inland waters; which bells and whistles to use in a fog; how to cruise down a narrow channel; and what to do when approaching an obstructed bend in the river.

Since nautical lights are so vital to water safety, Shell operators must also pass a test for color blindness.

After their training is completed, Shell boat operators must take an oral examination given by United States Coast Guard officers. After they pass the oral exam, the Shell men are given Coast Guard licenses. The law doesn't require licenses for operators of vessels not carrying passengers or freight for hire, but Shell employees qualify for licenses in the interests of safety.

"If Shell operators qualify for licenses," says Conlin, "others may be inspired to do the same and the waterways will be safer for everyone."

Shell expects to have a total of 395 licensed boat operators by the time the safety program is completed ■

Marketing Organization Chart

Vice President Marketing

J. G. Jordan

Vice President West Coast Marketing Divs.

Selwyn Eddy

Vice President Midwest Marketing Divs.

P. C. Thomas

Sales Assistant to Vice President

C. S. Garvin

Sales Assistant to Vice President

C. B. MacGlashan

Sales Assistant to Vice President

F. H. Staub

Manager Real Estate & Development

B. C. Gibson

Manager Retail

B. M. Hynes

Manager Marketing Serv.

G. A. Munn

Operations Asst. to Vice President

J. S. Morse

Manager Asphalt

C. V. Kiefer

Manager Aviation

R. M. Adamson

Manager Sales Promotion-Advertising

E. R. Raphael

Representative National Sales

P. N. Fitzgerald

Manager Industrial Products

A. L. Wiest

WEST COAST DIVISIONS
Honolulu
Los Angeles
Portland
Sacramento
San Francisco
Seattle

MIDWEST DIVISIONS
Chicago
Cleveland
Detroit
Indianapolis
Minneapolis
St. Louis

The third in a series of organization charts

Shell Oil Company

August—1957


Vice President Marketing

J. G. Jordan


Vice President Midwest Marketing Divs.

P. C. Thomas


Vice President East Coast Marketing Divs.

J. L. Wadlow


General Manager Head Office Marketing Depts.

J. H. Hall


Assistant to General Manager

S. Goldin


Sales Assistant to Vice President

H. S. Eustis


Manager Administrative Office

R. L. Geraghty


Manager Asphalt

R. B. Lewis


Manager Aviation

J. S. Harris


Manager Employee Development

A. C. Jones


Manager Fuel Oil-LP Gas

J. L. Minner


Manager Operations

P. W. Engels


Manager Industrial Products

B. G. Symon


Manager National Sales

A. A. MacKrille


Manager Real Estate & Development

M. W. Dischert


Manager Retail

O. F. Minor


Manager Sales Promotion-Advertising

D. C. Marschner


Assistant Manager Operations

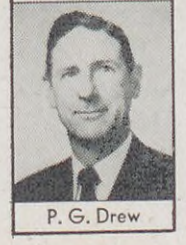
E. R. Page


Assistant Manager Indust. Products

T. F. Shaffer


Special Assistant to General Manager

N. M. Clarke


Special Assistant to General Manager

P. G. Drew


Representative Jobber Distribution

P. G. Caldwell


Manager Distribution

T. Beall


Manager Engineering

M. Bogstahl

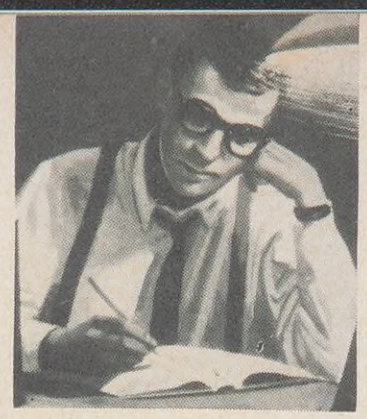
Sewaren Plant

MIDWEST DIVISIONS

Chicago
Cleveland
Detroit
Indianapolis
Minneapolis
St. Louis

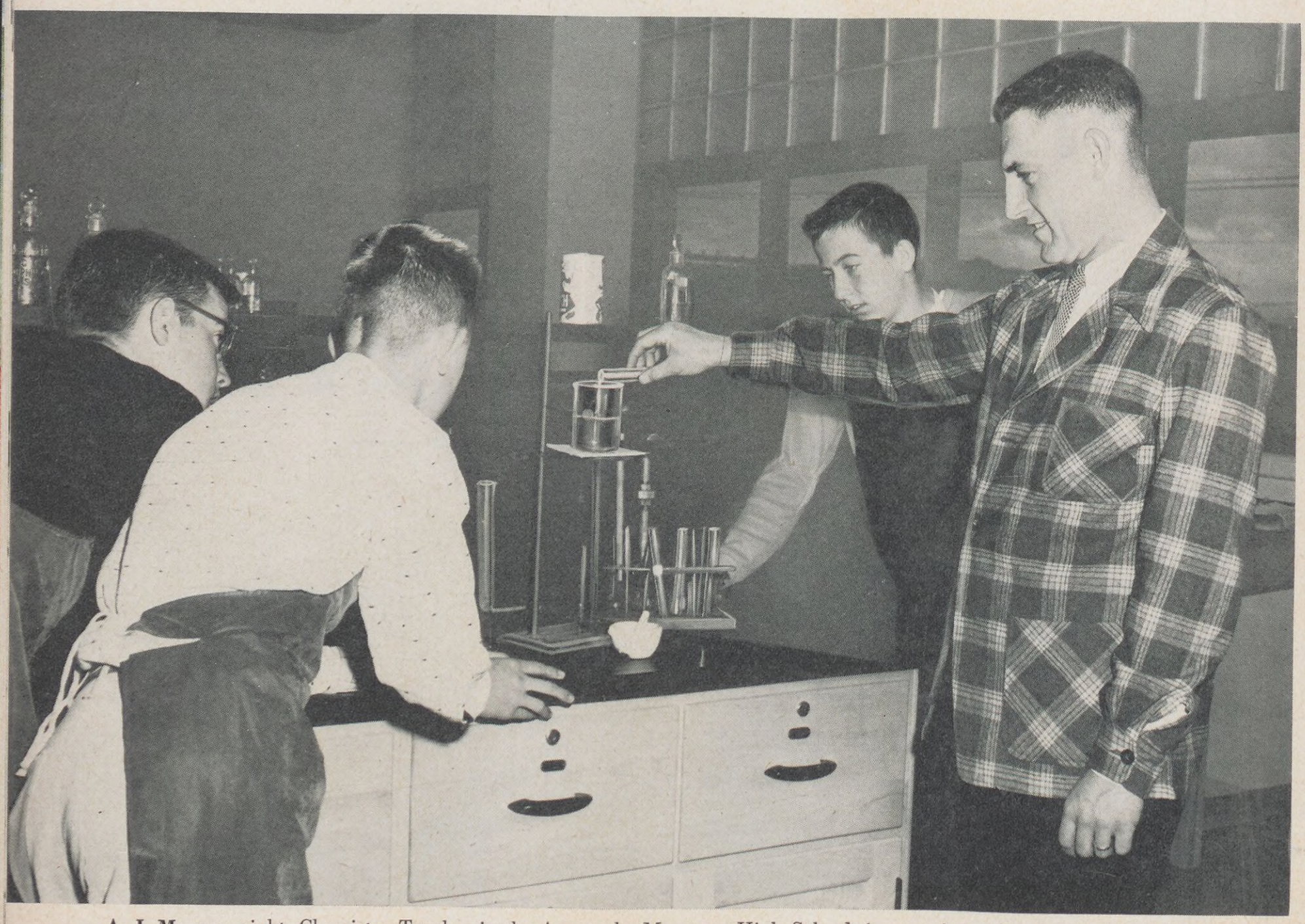
EAST COAST DIVISIONS

Albany
Atlanta
Baltimore
Boston
New Orleans
New York



Charting a Course for Fellowships

The Shell Merit Fellowship Programs at Cornell and Stanford Universities, Sponsored by the Shell Companies Foundation, Have Been Enlarged



A. J. Murray, right, Chemistry Teacher in the Anaconda, Montana, High School, is one of the 45 science and mathematics teachers from west of the Mississippi River named by Stanford University as Shell Merit Fellows. Cornell University picked 45 Merit Fellows from east of the Mississippi. The teachers take courses in physics, chemistry, mathematics and education.

Jacob Skilken is a Cincinnati chemistry teacher who believes he must offer his students up-to-date scientific knowledge through equally up-to-date teaching techniques. To add to his ability to do this, he was named one of the first Shell Merit Fellows last summer to spend six weeks at Cornell University studying chemistry, physics and education. Then he returned to his classes at Walnut High School to put into practice what he had learned.

At the end of the 1957 school year, Skilken's success in combining inspiration, knowledge and teaching skill won him national recognition; he was named "Science Teacher of the Year" by the Armed Forces Chemistry Association.

Skilken's work is an example of what the first group of Shell Merit Fellows accomplished, and why the Shell Companies Foundation, Incorporated, believes the program was even more successful than expected.

Because of the encouraging results, this year Shell increased the number of Merit Fellowships from 60 to 90 (six of which are sponsored by Shell Oil Company of Canada, Limited)—45 to attend Stanford and 45 to go to Cornell University. Only the number of Fellowships has been changed; the objectives and work programs remain the same.

The primary objective is to give fresh inspiration to high school science teachers who in turn may attract more students to choose careers in science or engineering. Another goal of the program is to stimulate recognition of high school science and mathematics teachers in their own communities. Shell, however, has no part in selecting the teachers who receive the Fellowships; that is done by the two universities.

Cornell and Stanford each selected 45 Fellows this year from more than 2,000 applicants. Some of the factors

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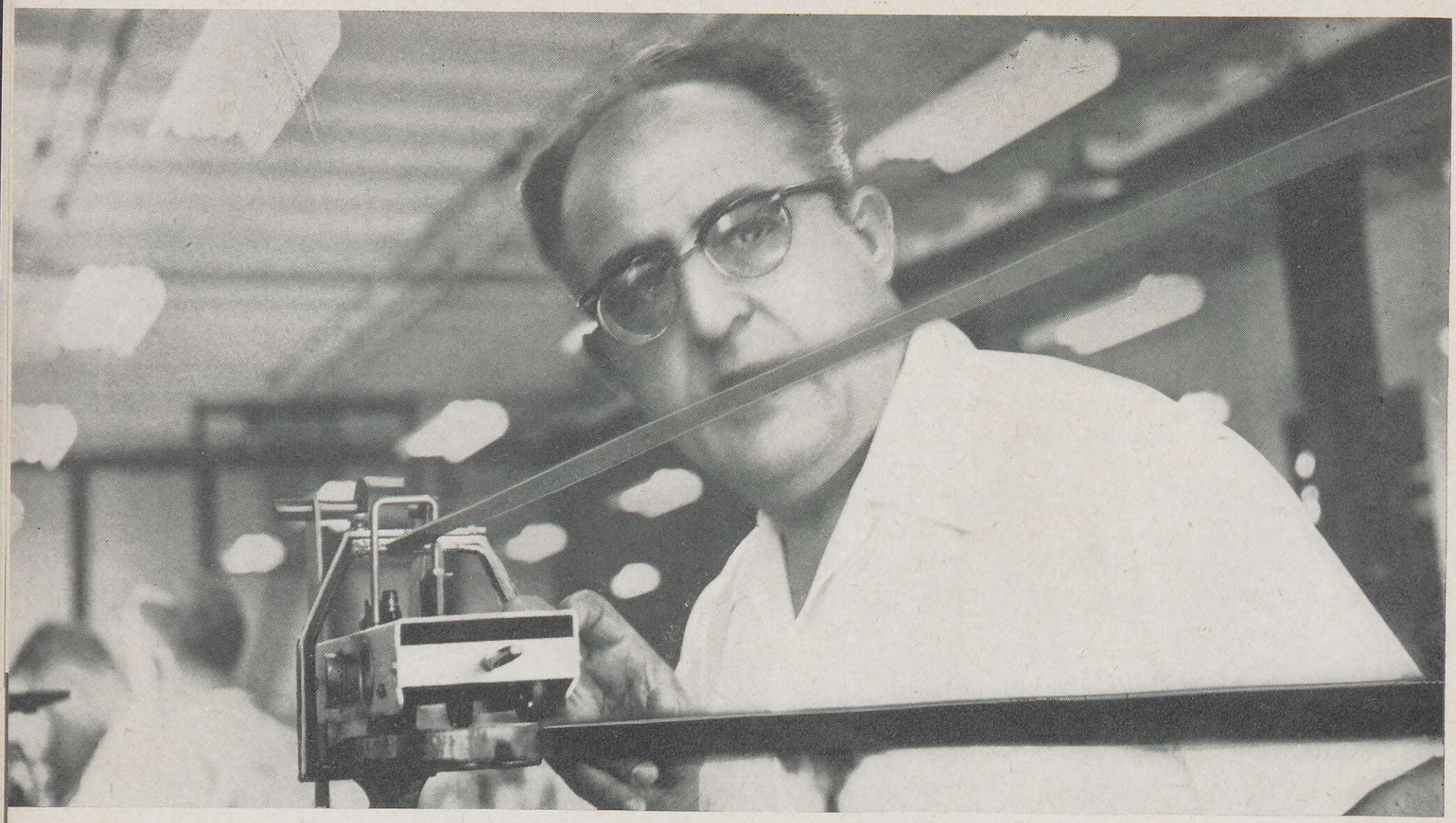
Kenneth Cook, Science Teacher at Grosse Pointe, Michigan, High School, attended Cornell as a Shell Merit Fellow—one of 90 picked from over 2,000 applicants.

D. J. Braun, left, Sales Supervisor of Shell's Rockford, Ill., Marketing District, gives Mathematics Teacher C. J. Hertenstein of Beloit, Wisconsin, his Merit Fellowship award.



J. M. Skilken, Chemistry Teacher in Cincinnati and a 1956 Shell Merit Fellow at Cornell, was named "Science Teacher of the Year" by the Armed Forces Chemistry Association. Here he conducts a physics experiment in the Cornell Laboratory.

the selection committees considered were academic and professional preparation, teaching experience (a minimum of five years), leadership activities, special project plans and geographical distribution. (This year, Merit Fellows came from 40 states, five Canadian provinces, Puerto Rico, Alaska and Hawaii.)

Fellows selected from east of the Mississippi River went to Cornell, and those from west of the river went to Stanford. But the program at each of the universities was about the same. All Fellows took a course in the newest educational techniques, and took two of the three other courses offered: physics, chemistry and mathematics. In addition, the Merit Fellows worked on individual and group projects, which might include planning a new approach to students' laboratory work or setting up more challenging courses for outstanding pupils.

Shell pays the tuition and living expenses for the Fellows, and also provides travel pay and $500 cash to make up for summer income the Fellows might have earned.

After they complete their summer seminar, the teachers are expected to be catalysts among teachers in their schools and communities by passing on to others what they learned.

"Each day I discover something new that I can use with my classes," wrote Robert R. Coombs, a mathematics teacher at Bakersfield, California, who was a 1956 Shell Merit Fellow at Stanford. "Our physics teacher is sharing much of the material and many of the ideas I received."

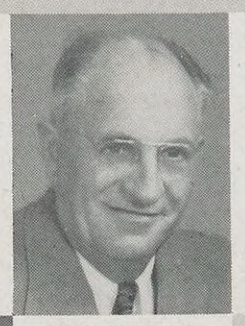
The Shell Merit Fellowships are not the only Company program to aid education and science. Shell also grants graduate fellowships to college students, gives grants to various colleges for pure research, employs teachers in the summer with the understanding they will return to the classroom in the fall, and encourages Shell personnel to lecture in schools or help in any way they can. However, the Merit Fellowship program is the one most directly concerned with solving the shortage of scientists and engineers —a shortage that may reach 500,000 by 1975.

Monroe E. Spaght, Executive Vice President of Shell Oil Company and President of Shell Companies Foundation, Incorporated, has pointed out that though national survival makes it imperative that we have more engineers and scientists, too few high school students are entering these fields. The Shell Merit Fellowship program is designed to help encourage science education.

"We in industry can't overhaul the country's educational system," Mr. Spaght said, "but we can make the country so conscious of its shortcomings and its needs that it will be done" ■

They have RETIRED

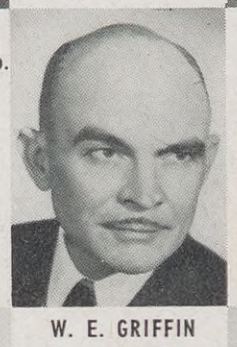
V. B. DOUGLAS
Pacific Coast Area
Production



C. W. FUHRMAN
Pacific Coast Area
Purchasing-Stores

L. S. GREENE
Albany Div.
Operations

E. F. AUGUSTINE
Shell Development Co.
Emeryville



W. E. GRIFFIN
Sacramento Div.
Sales

W. O. BRAMEL
Pipe Line Dept.
Harristown, Ill.

A. E. HACKER
Tulsa Area
Production

H. O. HOLMES
Indianapolis Div.
Operations

C. J. HUTCHESON
Tulsa Area
Production

C. M. JEFFERAY
Wilmington Refy.
Fire & Safety

A. W. KESSER
Wilmington Refy.
Engineering

C. E. McTAGGART
St. Louis Division
Operations

H. N. MILLER
Wilmington Refy.
Treasury

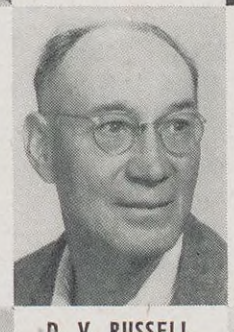
R. A. MOORE
San Francisco Div.
Operations

T. F. NEWBY
Indianapolis Div.
Operations

E. F. PRIMAS
Wood River Refy.
Engineering

L. A. RILEY
Norco Refy.
Engineering

G. D. ROBERTSON
Houston Area
Production



D. V. RUSSELL
Pacific Coast Area
Production

G. G. SENFTLEBEN
Pacific Coast Area
Exploration

E. A. SUNDLOF
San Francisco Office
Purchasing

O. N. WAGGONER
Tulsa Area
Production

D. R. WHITEHORNE
Head Office
Financial

G. J. WILSON
Sacramento Div.
Sales

Where Mules Beat Motors

When the Rains Come on the Texas Gulf Coast Mule Trains Take Over from Trucks

The mule team hauls the wagon carrying the portable drill through heavy woods toward the next shot point. The wagon is equipped with a motor to power the drill.

IN the search for oil from the Arctic Circle to the Gulf of Mexico, Shell seismic parties hop aboard many unlikely conveyances, including helicopters, marsh buggies, canoes and dog sleds. They use mule trains, too.

The mules were drafted early this spring to help a seismic party under contract to the Company's Houston Exploration and Production Area in work on the Upper Texas Gulf Coast near the Louisiana border.

Automotive equipment had bogged down in the mud of the rainy season. The delay was costing about $1,000 a day and, even more important, valuable time. Marsh buggies were ruled out because they could not maneuver in the woods of the locale. So the call went out for the mules — stubborn, perhaps, but sure-footed and durable in mud. (A mule train was used at least once before by Shell when automotive equipment proved useless —

Scanning a shot record are, left to right, V. E. Liles, Division Geologist; James Farrow, Seismic Observer (partly hidden); James Webb, Manager of Seismic Party 209; and J. T. Hartman, Division Geophysicist. The mule in the background seems interested too.

V. E. Liles, left, and J. T. Hartman watch the spray of mud and water caused by the seismic shot, the sound waves of which are recorded by delicate instruments. The shots produce data to help map the sub-surface earth structures for further study.

by a seismic party working out of Woodville in East Texas in 1951.)

A mule train includes four mule skinners, eight mules, and four wagons carrying, respectively—explosive powder, water, drilling equipment, and recording instruments. Each wagonload of equipment is drawn by two mules handled by a mule skinner.

The mules are transported in vans to as close as they can get to the site of operations. The wagon carrying the portable drill leads the way to make a hole for the dynamite shot; then comes the water wagon (to supply drilling mud), the powder or shooting wagon and the instrument wagon.

These seismic operations are an important phase in oil exploration because they produce data to map structures below the surface. When a shot of dynamite is set off, the equipment in the instrument wagon measures the time the sound wave takes to return from each underground layer. In this way, the seismologist determines the distance of each reflecting horizon from the surface. This information gives clues about where oil might be found.

The mule train made the grade. Where only one or two shots a day, if any, could have been made with marshland automotive equipment, the dependable mules pulled fast enough to make five to six shots a day.

The last wagon in the train provided a striking contrast: rugged mules, holdovers from the past, hauling the most delicate, up-to-date equipment used in the search for oil ■

In heavily-wooded areas, a mule skinner uses a brush hook to clear a path for the wagons.

Before loading the shot hole, a mule skinner brings up the wagon carrying the powder magazine, nicknamed the "shooting wagon."

Bring 'em Back Alive

Max Riley of Emeryville Research Center Gives A New Twist to the Old Hobby of Shell Collecting

Sea shell collecting would seem to be a peaceful hobby. But not the way it is pursued by Max R. Riley, Safety Serviceman at Shell Development Company's Emeryville Research Center.

Most sea shells, also called mollusks, are collected after the sea animals that grow them have died. Riley's collection has only shells he collected when the animals were alive —so that the rich coloring of the shells could be preserved before sea and sand eroded them.

Riley adds another twist to his hobby by hunting only with a flashlight and knife and his own breath control. No aqualungs, swimfins or other diving aids for him!

There are probably few people who have come back from a holiday near a shore without a seashell. But the number of Americans who have taken up amateur conchology as a serious hobby are relatively few — an estimated 10,000 or so. That's surprising when one realizes that shell hunting grounds cover not only the entire U. S. coastline, but also rivers, ponds and even hot springs. And the basic equipment needed is simple—a sieve, a mask or goggles, a pair of sneakers to protect the feet, a trowel for digging, and possibly a chisel and hammer to loosen clinging shells.

Riley's contest with tricky tides and hostile sea life started about 10 years ago when he was with the United States Navy at Saipan in the Mariana Islands of the western Pacific Ocean. Since then he has added to his collection from the coasts of Florida, the Gulf of Mexico and the Pacific Coast.

The most exciting of Riley's underwater experiences came while diving one night near a reef about two miles off Saipan. He and his companions were startled by the unusual activity of small fish swimming rapidly past them. Turning their flashlights off, they saw that the fish were being chased by a school of deadly barracuda, ranging from three to eight feet in length. The shell fanciers immediately climbed on to the reef—where they stayed for two hours while the barracuda swam around.

The result of this type of derring-do is a collection of more than 1,000 shells. They vary in size from those that will sit on the head of a pin to the *lambis truncata,* or spider shell, which is a foot in diameter and weighs about three pounds.

Caring for a shell collection is relatively simple, Riley says. Just polish them occasionally with a cloth soaked in olive oil to remove dust. But, he adds, a collection must be kept up to date with new additions or it rapidly becomes obsolete.

So when vacation time comes for the Riley family, he is out collecting sea shells. But these days he steers as far as possible from barracuda ■

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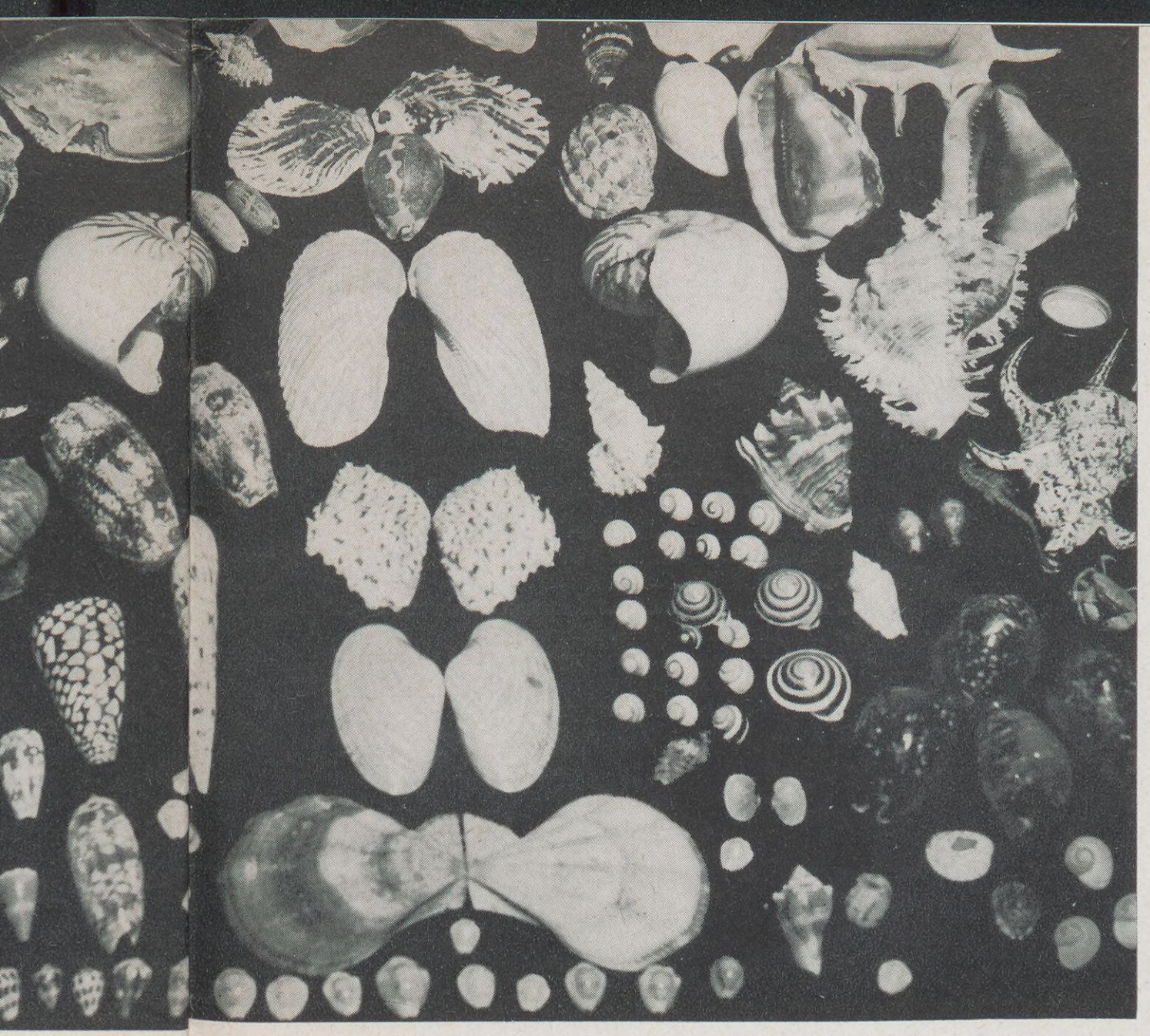
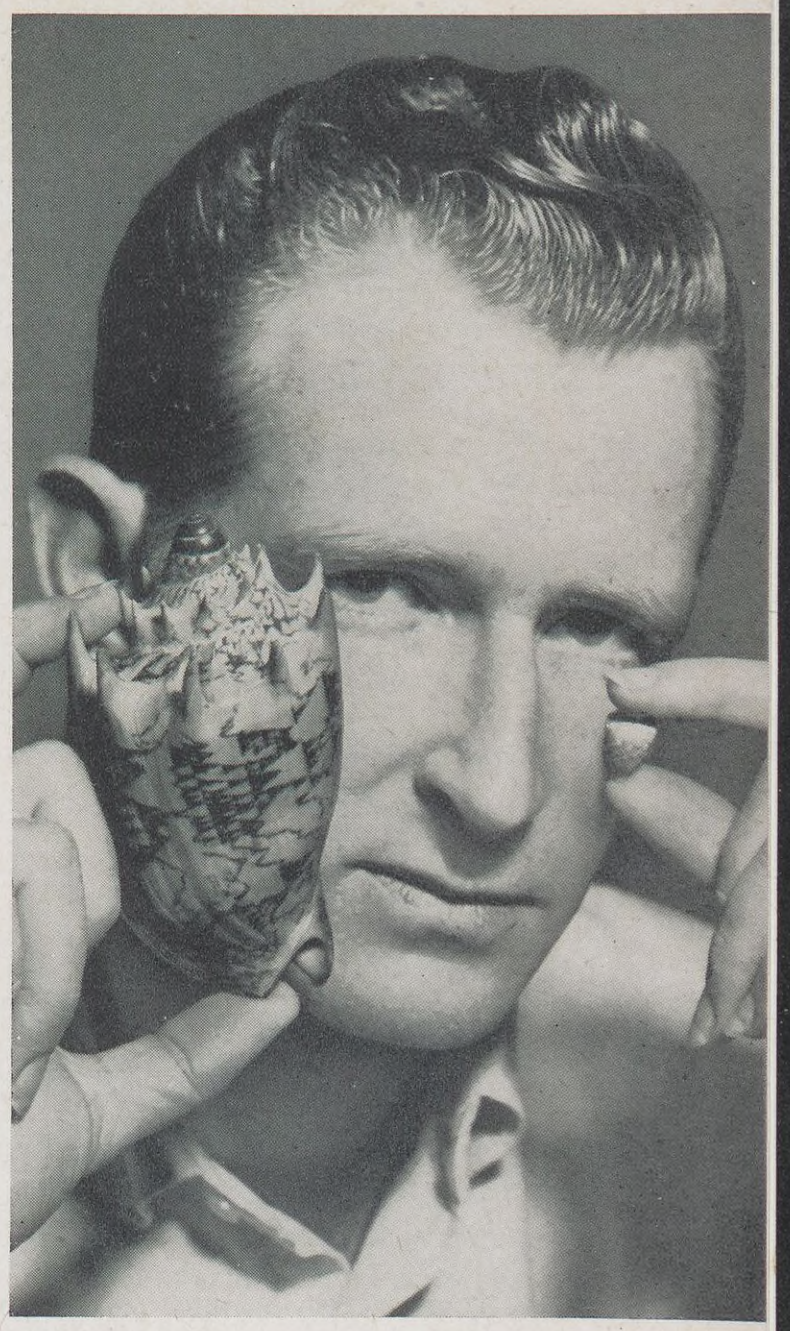
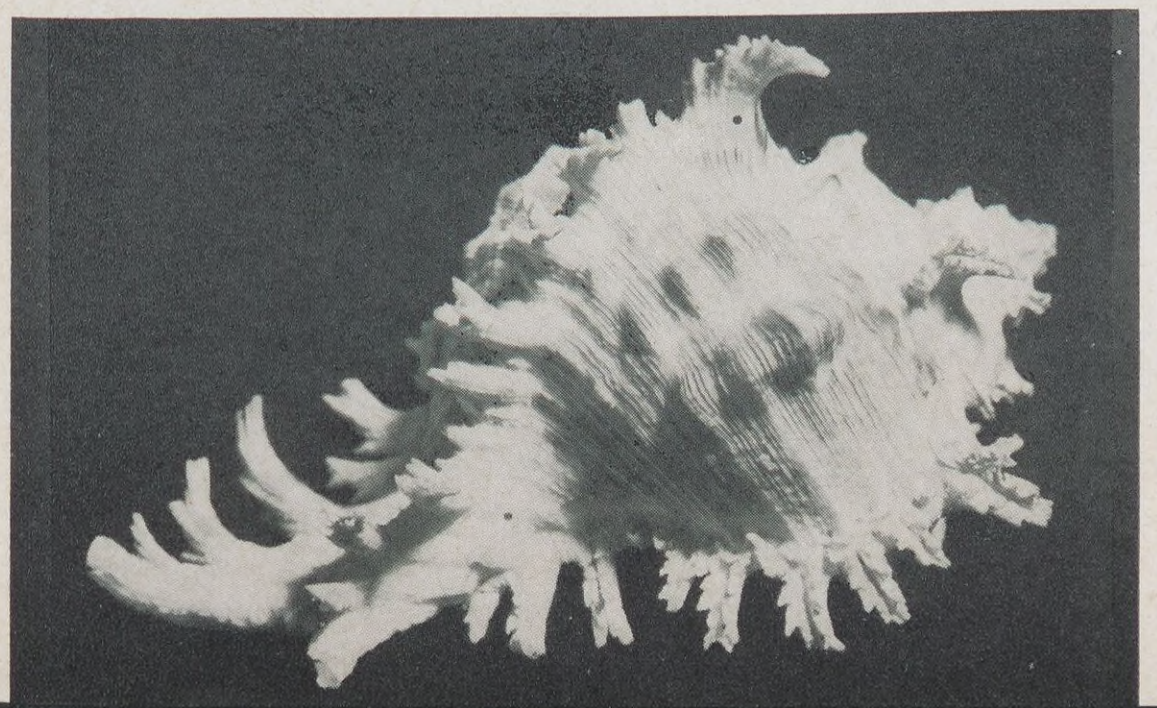


Max Riley's collection of seashells includes this array of beauties. Some are so small they must be viewed under a magnifying glass, and his largest shell is a foot in diameter.

Riley holds up two rare shells from his collection of more than 1,000 collected in the U. S. and abroad.





Left, above, Riley polishes with a cloth a small but rare shell which he identifies as a cone type. Below it is another unusual shell, the laced murex, which he found off the West Coast of Florida.

SHELL *Coast t*

GATE GARDEN

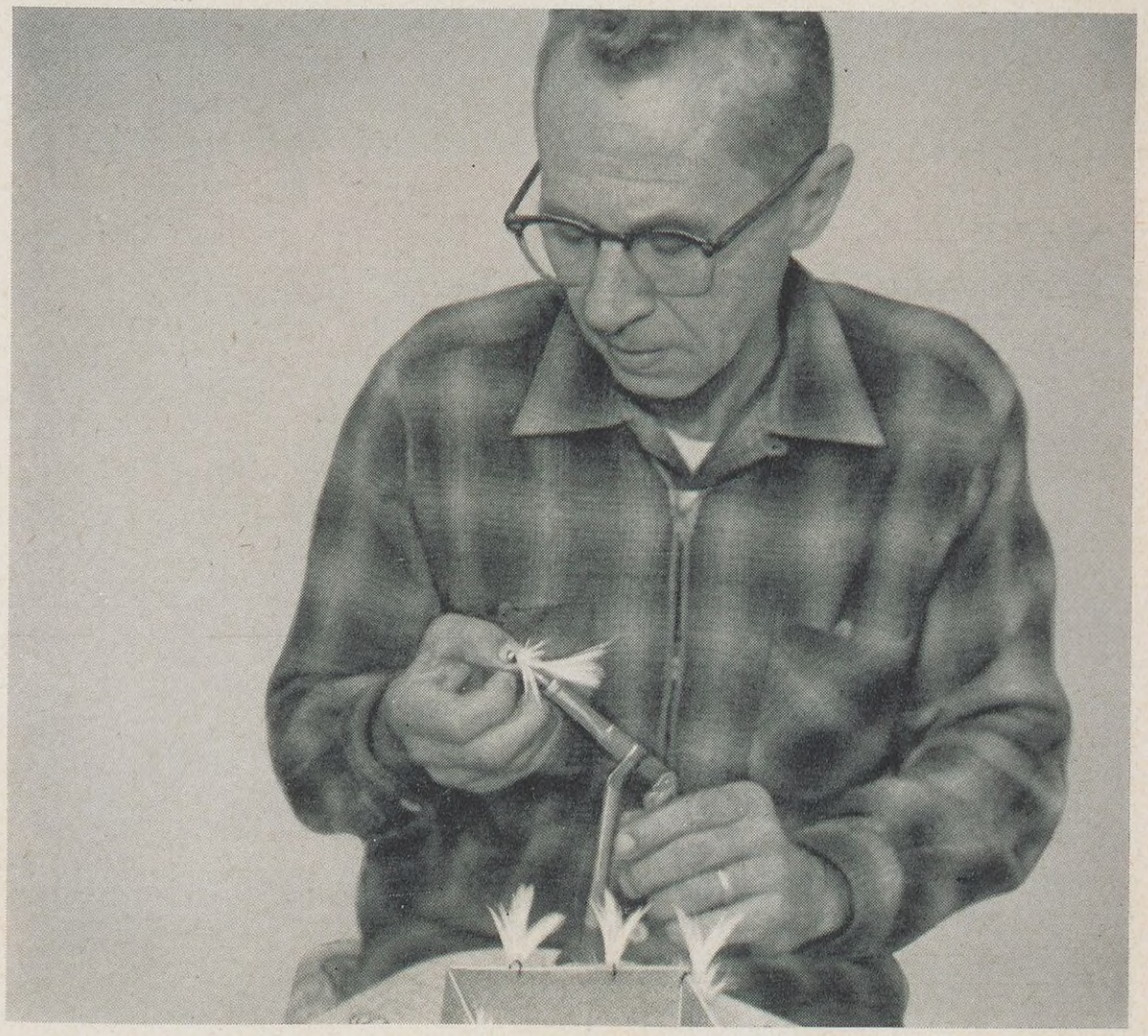
Gateman Earl Small of Shell Oil Company's Houston Refinery kneels by some of the flowers he has planted at the Construction Gate. He planted a dozen different kinds of flowers, including roses, zinnias and marigolds, because he likes gardening and because the blossoms give passing drivers "a little something pretty to see."

FISH FOOLER

W. A. Equitz, Field Gauger in the Pipe Line Department, Los Angeles of Shell Oil Company's Transportation and Supplies Organization, is the inventor of a wet fly that has been fooling fish in increasing numbers in both fresh and salt waters.

Equitz calls it the "VeeBee." He designed it two years ago to fill his need for a fly that would give the appearance of being alive in slow waters. (Wet flies are made to resemble minnows or dead insects and are used to lure fish under water; dry flies are kept afloat to attract fish to strike at the surface.) Equitz's fly consists of two tail feathers, a split feather wrapped around the top to simulate a fish's gill movements, and two eyes made from links of a chrome ball-chain—all tied around a fish hook.

He and his wife, Vera—who is also an expert at tying flies—made many of the flies for their own use and for friends, until the "VeeBee" became so popular that they decided to sell the flies through distributors. Last year they sold thousands of "VeeBees" of various colors to West Coast fishermen.



Because both are avid anglers, the Equitzs plan their vacations around the fishing seasons—and at the same time expand their markets for the "VeeBee" at different locations. They hope the "VeeBee" eventually will become a standard item in the tackle box of most western fishermen ■

oast to Coast

NEW OFFICER

G. T. Tennison, Volatiles Supply Manager of Shell Oil Company's Houston Transportation and Supplies Department, has been elected president of the Natural Gasoline Association of America. Tennison will serve in the post for two years. He previously was vice president and a member of the board of directors.

IN THE SWIM

Doris Payne of Shell Development Company's Exploration and Production Research Division in Houston successfully defended her Southwestern AAU Synchronized Swimming Solo title recently, and also was a member of the winning doubles and team groups. Her solo routine theme is "Look Out, L'il Abner," which explains her costume as Daisy Mae.

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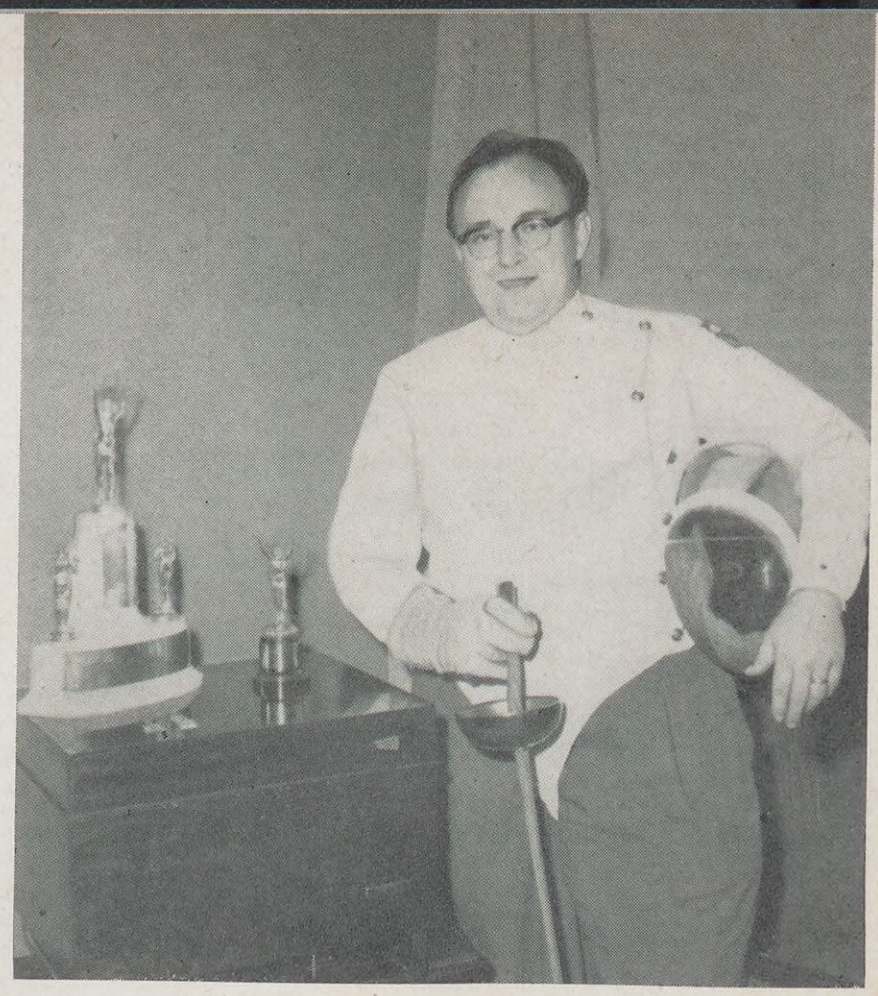
FENCING MASTER

C. A. Schleg, Draftsman in the Land Department of Shell Oil Company's New Orleans Exploration and Production Area, is seldom foiled in his efforts to add to his collection of fencing trophies.

Recently Schleg, who has been fencing for about four years, won the Senior Epée championship of the New Orleans Fencing Club, and took second place in the Senior Saber matches. He won the large trophy for first place in the Club's Junior Foil competition in 1955, and the smaller trophy in 1954 for second place in the Senior Foil matches of the New Orleans Recreation Department.

As a beginner, Schleg concentrated on the foil. Later he took up the épée and the saber. His interest is shared by his wife, Yvonne, now one of the best women fencers ■

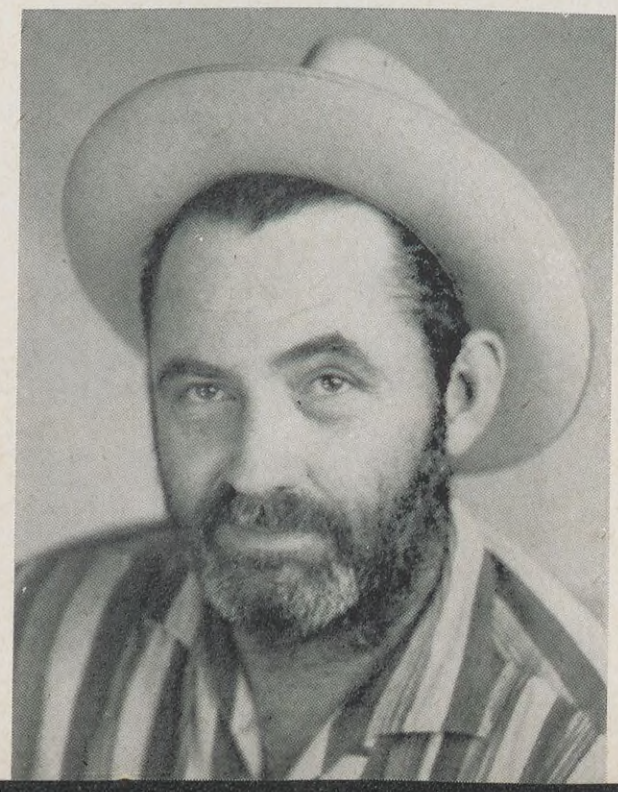


PALMETTO POLO

J. G. Robinson, riding white horse, an Operator at Shell Chemical Corporation's Imperial, California, Bottling Plant, helped organize and leads one of the state's first "palmetto polo" teams, shown here playing a Yuma, Arizona, team. The game, a variation on polo, began in Florida. The players use rubber-tipped mallets to hit a 12-inch rubber ball at goals 20 feet wide on an 80-yard field.

APPEARED WITH BEARD

L. G. Dunham, Rotary Driller in Shell Oil Company's New Orleans Exploration and Production Area, grew his beard to appear in bit parts in "Band of Angels," a movie starring Clark Gable filmed in part near Dunham's Donaldsonville, Louisiana, home. Dunham, on vacation, was chosen by the casting director to appear as a Yankee soldier in a hanging scene, and again as a sheriff. It was his first acting experience.



Service BIRTHDAYS

Thirty-Five Years

G. V. BIRKINSHAW
Portland Division
Manager

W. A. CARPENTER
Houston Refy.
Distilling

C. W. HAND
Wood River Refy.
Engineering

H. E. MILLER
Seattle Div.
Sales

H. B. PRICE
Houston Refy.
Thermal Cracking

P. J. SHEA
Pipe Line Dept.
Bakersfield, Calif.

L. SOUTHARD
Wood River Refy.
Engineering

R. D. STETSON
Los Angeles Div.
Manager

C. F. STONE
Wood River Refy.
Dispatching

J. L. WEBSTER
New Orleans
Marketing

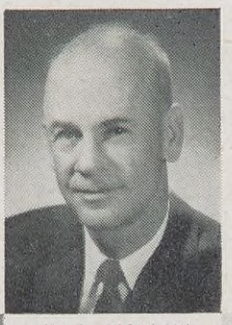
O. WILHELM
Head Office -
Explor. & Prod.

Thirty Years

R. M. ADAMSON
San Francisco Office
Marketing

J. W. BAUMGARTNER
Chicago Division
Operations

C. F. BEYERS
Pipe Line Dept.
Long Beach, Calif.



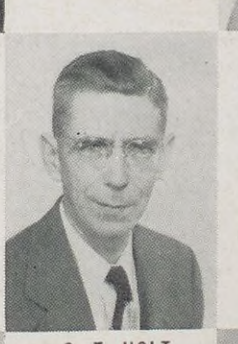
H. S. BIGELOW
San Francisco Div.
Marketing Service

W. F. CHAPMAN
Pipe Line Dept.
Long Beach, Calif.

C. C. CURVEY
Pipe Line Dept.
Vicksburg, Mich.

C. A. DESMOND
Wilmington Refy.
Treasury

E. J. DUNNE
San Francisco Office
Transp. & Supplies



G. T. HOLT
Martinez Refy.
Engineering

T. F. HUDSON
Pipe Line Dept.
Litchfield, Ill.

W. G. INABNET
Midland Area
Production

M. I. JACKSON
Minneapolis Div.
Treasury

A. A. MILLER
Martinez Refy.
Cracking

O. E. ROBB
Tulsa Area
Production

Thirty Years continued

H. S. ROBERTS
Tulsa Area
Production

J. A. ROTHENFLUCH
Portland Division
Operations

F. T. SILK
Wilmington Refy.
Engineering

R. E. STEVENS
New Orleans Area
Exploration

H. C. SWIFT
Martinez Refinery
Engineering

M. J. TREBINO
Martinez Refy.
Engineering

S. L. VALENTINE
Martinez Refy.
Engineering

L. G. VERGEZ
San Francisco Div.
Treasury

E. L. WEBB
Pipe Line Dept.
Ventura, Calif.

W. B. WILLIAMS
New Orleans Area
Pers. & Indus. Rel.

Twenty-Five Years

A. L. CAMERON
Norco Refy.
Engineering

W. J. CHESSER
Pacific Coast Area
Production

W. M. DAVY
San Francisco Office
Marketing

R. E. DOYLE
Los Angeles Div.
Treasury

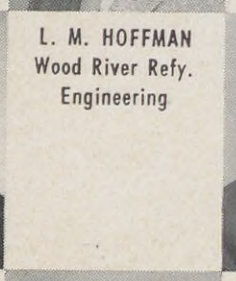
L. R. GOLDSMITH
Head Office
Manufacturing

U. A. GUBSER
Wood River Refy.
Refinery Lab.

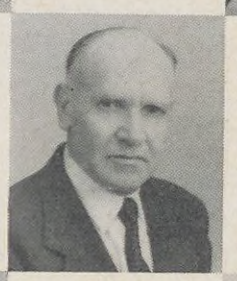
H. A. HAMILTON
Shell Development Co.
Modesto

J. E. HARGROVE
Minneapolis Div.
Treasury

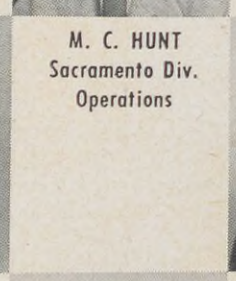
H. S. MacLAGGAN
Head Office
Marketing



L. M. HOFFMAN
Wood River Refy.
Engineering

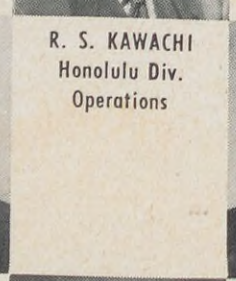


W. M. MARSHALL
New York Div.
Operations



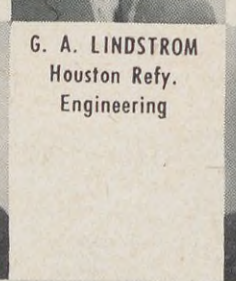
M. C. HUNT
Sacramento Div.
Operations

D. D. MATTISON
Midland Area
Land



R. S. KAWACHI
Honolulu Div.
Operations

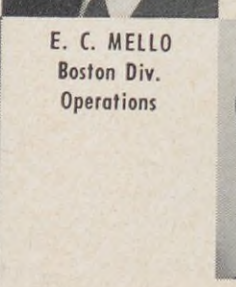
L. L. McCRABB
Tulsa Area
Transport



G. A. LINDSTROM
Houston Refy.
Engineering

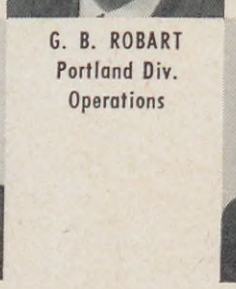
C. W. McDOWELL
New Orleans Div.
Sales

A. F. SMITH
West Coast
Pers. & Indus. Rel.



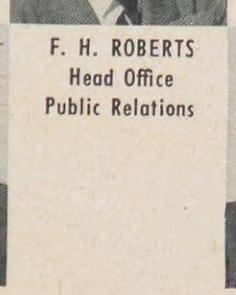
E. C. MELLO
Boston Div.
Operations

R. A. SMITH
Portland Div.
Operations



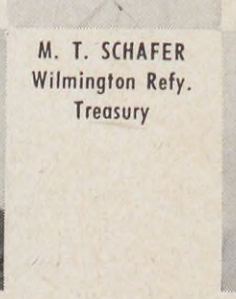
G. B. ROBART
Portland Div.
Operations

L. J. TROXLER
Norco Refy.
Engineering



F. H. ROBERTS
Head Office
Public Relations

J. E. VAUGHN
Tulsa Area
Production



M. T. SCHAFER
Wilmington Refy.
Treasury

J. G. WILLIAMS
Honolulu Div.
Sales

L. WEBB
Line Dept.
tura, Calif.

HARGROVE
eapolis Div.
reasury

McDOWELL
rleans Div.
Sales

WILLIAMS
lulu Div.
Sales

SHELL OIL COMPANY

Head Office

20 Years

G. A. Berryman.....Transp. & Supplies

15 Years

Mildred E. Damiani.....Pers. & Indus. Rel.
Ellen M. Henderson.....Financial
Louise E. Trimbath.....Marketing

10 Years

H. C. Burkholder.....Marketing
Josephine C. Calo.....Manufacturing
Marie A. Chapdelaine....Pers. & Indus. Rel.
Margaret E. Dunn.....Purchasing-Stores
Mary S. Murdoch.....Marketing
R. C. Nelson.....Manufacturing
F. Power.....Marketing
J. W. Small.....Financial

SAN FRANCISCO OFFICE

15 Years

Yvonne L. Fouch.....Manufacturing
R. J. Hughes.....Manufacturing

Exploration and Production

CALGARY AREA

20 Years

R. N. Gadbois.....Land

10 Years

A. L. Oliphant.....Land
A. G. T. Weaver.....Production

DENVER AREA

20 Years

J. B. Smith.....Production

10 Years

R. E. Burns.....Exploration
H. M. Gullickson.....Legal

HOUSTON AREA

20 Years

W. M. Cogen.....Exploration
G. W. Heid.....Exploration
G. C. Hogan.....Production
S. J. Shores.....Exploration

15 Years

P. Delcambre.....Exploration
W. Mahaffey.....Production
J. R. Patterson.....Production
J. R. Powell.....Production
P. Tamez.....Production

10 Years

W. E. Curry.....Production
O. E. Downs.....Production

MIDLAND AREA

20 Years

E. N. Durham.....Production
J. M. Palmer.....Production
A. W. Woody.....Legal

15 Years

S. E. Carnes.....Production
C. McCracken.....Gas

10 Years

E. J. Akins.....Land
M. W. Jones.....Production
O. M. Kidwell.....Exploration
R. Magee.....Land
B. H. Pinnell.....Production
J. P. Standefer.....Production
C. L. Stimac.....Production

NEW ORLEANS AREA

20 Years

J. O. Guzman.....Production
A. M. Hebert.....Production
E. J. Wunstull.....Production

15 Years

E. P. Boudreaux.....Production
L. G. Dunham.....Production
E. T. Eitzman.....Exploration
R. W. Kelley.....Production
H. J. LeBlanc.....Production
T. Leleaux.....Production
C. B. Simmons.....Production

10 Years

C. H. Addison.....Production
Anna V. Ainsworth.....Administrative
C. J. Arceneaux.....Exploration
M. E. Aucoin.....Treasury
M. H. Baxter.....Production
H. N. Bradford.....Production
E. C. Corbeau.....Land
J. J. DeLuca.....Land
D. V. Dufrane.....Land
L. J. Ertel.....Transport and Materials
N. Ferguson.....Production
J. A. Fox.....Land
C. A. Gray.....Transport and Materials
J. H. Jackson.....Land
M. H. Jobe.....Treasury
R. W. Johnson.....Production
D. F. Kreider.....Production
S. J. LaCoste.....Land
R. A. Lawrence.....Transport and Materials
L. P. McDonald.....Land
L. A. Miller.....Production
R. C. Oelkers.....Pers. & Indus. Rel.
C. E. Richards.....Exploration
C. B. Simpson.....Production
V. R. Valley.....Exploration
A. R. Williams.....Production

PACIFIC COAST AREA

20 Years

P. W. Collier.....Production
H. D. Finkle.....Production
L. Hensley.....Production
R. Lowery.....Production

15 Years

C. L. Desautelle.....Production
J. S. Gragg.....Treasury
D. F. Smith.....Production
R. B. Stallings.....Production
C. Swindle.....Production
P. E. Wills.....Production

10 Years

R. K. Cary, Jr.....Production
Frances J. Coe.....Treasury
Elizabeth M. Price.....Treasury

TULSA AREA

20 Years

R. F. Bracken.....Production
J. M. Davis.....Legal

15 Years

M. G. Bryan.....Treasury
A. L. Garrison.....Gas
W. C. Irons.....Transport

10 Years

E. V. Mathys.....Exploration
E. E. McLaughlin.....Exploration
C. I. Slagle.....Exploration
S. E. Westmoreland.....Exploration

Manufacturing

ANACORTES REFINERY

20 Years

R. Nowlin.....Engineering
R. C. Spitze.....Engineering

15 Years

A. A. Arndt.....Technological

HOUSTON REFINERY

20 Years

C. Agnew.....Engineering
W. A. Bailey, Jr.....Research Lab.
J. C. Brewer.....Dispatching
A. P. Garner, Jr.....Refinery Lab.
J. B. Jones.....Stores
L. Mikle.....Effluent Cont.
C. Newton.....Engineering
S. L. Orr.....Cat. Cracking
F. J. Slott.....Engineering
S. L. Stewart.....Engineering

15 Years

M. D. Jergins.....Lubricating Oils
A. Mason.....Cat. Cracking
W. B. Parton, Jr.....Dispatching

10 Years

J. L. Adams.....Engineering
H. D. Albin.....Engineering
E. Alexander, Jr.....Engineering
P. J. Bagwell.....Engineering
J. Bigham.....Lubricating Oils
J. L. Boysen.....Engineering
C. H. Brinkman.....Engineering
A. G. Buckley.....Engineering
O. Champs.....Engineering
C. K. Cook.....Distilling
D. R. Creel.....Distilling
S. D. Cumby.....Engineering
J. E. Dowda.....Engineering
C. L. Erickson, Jr.....Aromatics
H. V. Gettys.....Engineering
D. E. Giles.....Lubricating Oils
G. W. Glasgow.....Engineering
I. Harlan, Jr.....Engineering
K. R. Harlan.....Engineering
G. A. Havens.....Gas
G. D. Hays.....Engineering
R. L. Hornsby.....Refinery Lab.
C. S. Insall.....Engineering
R. H. Jackson.....Lubricating Oils
T. E. Lackey.....Engineering
L. R. Law.....Lubricating Oils
J. L. Lemond.....Engineering
T. J. Lockhart.....Engineering
A. J. Marches.....Engineering
V. Martin.....Aromatics
R. E. McCune.....Engineering
V. E. McDaniel.....Research Lab.
W. H. McReynolds.....Lubricating Oils
W. T. Mehrkam.....Engineering
K. S. Messenger.....Dispatching
B. H. Milstead.....Engineering
J. Mitchell.....Treating
C. F. Pack.....Engineering
B. E. Parnell.....Engineering
N. Perry.....Engineering
W. P. Polson.....Cat. Cracking
H. Provost.....Engineering
W. F. Raymond.....Engineering
J. C. Rector.....Refinery Lab.
E. P. Reed.....Engineering
B. C. Roper.....Thermal Cracking
J. R. Singleton.....Engineering
W. O. Smith.....Engineering
E. R. Sonnier.....Engineering
H. Sowell.....Engineering
W. E. Strait.....Utilities
J. L. Swearingen.....Engineering
W. E. Tanner.....Lubricating Oils
H. J. Wickel.....Engineering
J. E. Williams.....Engineering
L. Williams.....Engineering
P. J. Wilson.....Engineering
R. J. Woodard.....Engineering

MARTINEZ REFINERY

15 Years

J. A. Avila.....Engineering
H. N. Donia.....Engineering
R. C. Eiffert.....Research Lab.
R. H. Graves.....Engineering

10 Years

M. M. Marchi.....Engineering
W. M. Morrison.....Engineering

NORCO REFINERY

20 Years

L. L. Landry, Jr.....Engineering
C. L. Babin.....Engineering

10 Years

C. J. Champagne.....Cat. Cracking

WILMINGTON REFINERY

20 Years

H. J. Gollatz.....Dispatching
H. H. Hickey.....Refinery Lab.
A. O'Hare .....Engineering
Lillian M. Roberts.....Cat. Cracking
J. W. Smale.....Distilling

15 Years

H. R. Day.....Engineering
L. E. Long.....Refinery Lab.
J. Raffa .....Engineering
G. W. Weible.....Engineering
B. R. Yates.....Engineering

10 Years

R. W. Barnes.....Technological
D. R. Briggs.....Alkylation
V. E. Johanson.....Engineering
V. F. Mauerhan.....Dispatching
R. H. Jones.....Engineering
J. W. Raasveld.....Engineering
R. P. Stoker.....Dispatching
A. Thomas .....Engineering

WOOD RIVER REFINERY

20 Years

E. S. Bowen.....Engineering
J. Critchley, Jr.....Engineering
J. L. Dickerson.....Engineering
E. Gross .....Engineering
O. M. Lindquist.....Engineering
C. J. Paulfrey.....Engineering

15 Years

K. S. Baird.....Aromatics
J. C. Barton.....Distilling
L. F. Bartels.....Thermal Cracking
E. L. Bohnenstiehl.....Engineering
J. B. Dammann.....Thermal Cracking
H. W. Davidson.....Pers. & Indus. Rel.
H. J. DeVries.....Engineering
F. N. Foley.....Engineering
F. M. Ford.....Dispatching
C. J. Garde.....Engineering
H. E. Hobson.....Dispatching
D. O. Hug.....Refinery Lab.
S. G. Jouett.....Engineering
W. L. King.....Refinery Lab.
D. M. McCracken.....Engineering
F. J. Merkel.....Aromatics
R. K. Monaghan.....Experimental Lab.
C. L. Morrow.....Engineering
W. T. Murphy.....Engineering
C. E. Nisinger.....Engineering
M. E. Oldham.....Engineering
W. C. Perkins.....Engineering
A. G. Rahn.....Engineering
O. M. Scholl.....Lubricating Oils
J. Senchak .....Engineering
H. W. Sittner.....Engineering
L. D. Skeldon.....Thermal Cracking
J. W. Southard.....Engineering
G. Spears .....Engineering
W. A. Stanton.....Engineering
T. K. Turpin.....Engineering
B. J. Ursch.....Engineering
R. Weigel .....Engineering
L. V. Young.....Utilities
V. Zalders .....Engineering
J. R. Zoeller.....Engineering

10 Years

A. W. Amrein.....Utilities
R. Becker .....Engineering
A. T. Brooks, Jr.....Engineering
J. E. Donelson.....Lubricating Oils
F. V. Floyd.....Compounding
N. Karcher .....Engineering
H. L. Kirchner.....Engineering
J. B. Lucas.....Alkylation
D. D. Melton.....Gas
H. T. Morris, Jr.....Alkylation
G. M. Rathgeb.....Engineering
R. J. Wall.....Technological
D. L. Worley.....Light Oil Treating

Marketing

MARKETING DIVISIONS

20 Years

J. W. Vogels.....Baltimore, Operations
R. B. Leary.....Boston, Operations
M. Francesconi.....Chicago, Treasury
P. H. Scheyli.....Chicago, Operations
B. M. Seman.....Los Angeles, Operations
D. E. Schultz.....Portland, Operations
H. W. Ehrhardt....Sacramento, Operations

15 Years

G. W. Crawford.....Atlanta, Operations
W. E. Hall.....Baltimore, Operations
J. Lynch.....Boston, Operations
A. K. Dean.....Detroit, Operations
C. D. Harden.....Indianapolis, Treasury
S. W. Ruhl.....Los Angeles, Operations
E. T. Boone.....New Orleans, Operations
G. R. Nordblad.....Seattle, Operations

10 Years

W. F. Dalheim.....Albany, Sales
R. B. Patterson.....Atlanta, Sales
J. C. Doyle.....Baltimore, Operations
H. R. Hebenstreit.....Chicago, Real Estate
Helen M. Braun....Cleveland, Mktg. Service
J. R. McKinney.....Cleveland, Sales
K. L. Baker.....Detroit, Treasury
Esther T. Pang.....Honolulu, Treasury
J. W. Rusk.....Indianapolis, Operations
P. B. Triplett.....Indianapolis, Operations
D. C. Appleby.....Los Angeles, Sales
R. E. Bee.....Los Angeles, Operations
H. J. Schulz.....Los Angeles, Operations
B. A. Peterson.....Minneapolis, Operations
C. D. Byers.....New Orleans, Sales
E. J. Kopas.....New York, Operations
A. D. Ogden.....New York, Sales
W. V. Vigna.....New York, Sales
T. W. Davis.....Portland, Operations
L. J. Fry.....Sacramento, Sales
J. C. Dunn.....St. Louis, Treasury
J. H. James.....St. Louis, Operations
P. E. Latterell.....San Francisco, Sales
N. F. Darrow.....Seattle, Treasury

SEWAREN PLANT

15 Years

T. M. Hanley, Jr.....Laboratory

10 Years

J. E. Dougherty.....Compound
R. J. Haborak.....Engrg. & Maint.
G. M. Hasko.....Engrg. & Maint.
J. Hiriak.....Compound
N. F. Kreuscher.....Terminal

Pipe Line Department

20 Years

G. D. Bloom.....Wasco, Calif.
C. J. Howard.....Bakersfield, Calif.
J. B. Lawler.....Niles, Michigan
H. W. Stroh.....Sibley, Illinois

10 Years

Irene B. Zambenini.....Terre Haute, Ind.
C. J. Gulotta.....East Chicago, Ind.

SHELL CHEMICAL CORPORATION

20 Years

G. L. Harding.....Dominguez
P. Berdella.....Shell Point
J. P. Cunningham.....Torrance (Mktg.)
F. D. Moss.....Torrance

15 Years

M. L. Griffin.....Head Office
T. R. Bradley.....Houston
G. R. Chamberlain.....Houston
C. B. Johnson.....Houston
D. N. Rindsberg.....Houston
C. H. Rogers.....Houston
W. L. Russell.....Houston
R. B. Brown.....Shell Point
E. O. Wingfield.....Shell Point

10 Years

J. D. Turner.....Dominguez
L. S. Alpert.....Head Office
W. A. Lass.....Head Office
D. J. Burke.....Houston
H. L. Butler.....Houston
M. E. Davison.....Houston
A. V. Driskell.....Houston
L. H. Earles.....Houston
W. R. Engelhardt.....Houston
W. L. Fortune.....Houston
L. L. Johnston.....Houston
M. M. Stratton.....Houston
W. L. Wheelock.....Houston
R. E. Countz.....Shell Point
F. W. Hannsgen, Jr.....Torrance (Mktg.)
R. D. Donaldson.....Torrance

SHELL DEVELOPMENT COMPANY

20 Years

E. L. Derr.....Emeryville
Ernestine B. Kirkhoff.....Emeryville
R. V. Stone.....Emeryville

15 Years

L. F. Glass.....Emeryville
E. M. Myers.....Emeryville
R. B. Olney.....Emeryville
C. P. Strand.....Emeryville

10 Years

T. H. Andruss.....Emeryville
R. E. De Brunce.....Emeryville
J. W. Mepham.....Emeryville
M. J. Marek.....Houston
R. W. Coffey.....Modesto

SHELL PIPE LINE CORPORATION

20 Years

T. C. Bryant.....West Texas Area
J. C. Mayfield.....Texas-Gulf Area
M. M. Prinett.....Mid-Continent Area
H. Zarlengo.....Texas-Gulf Area

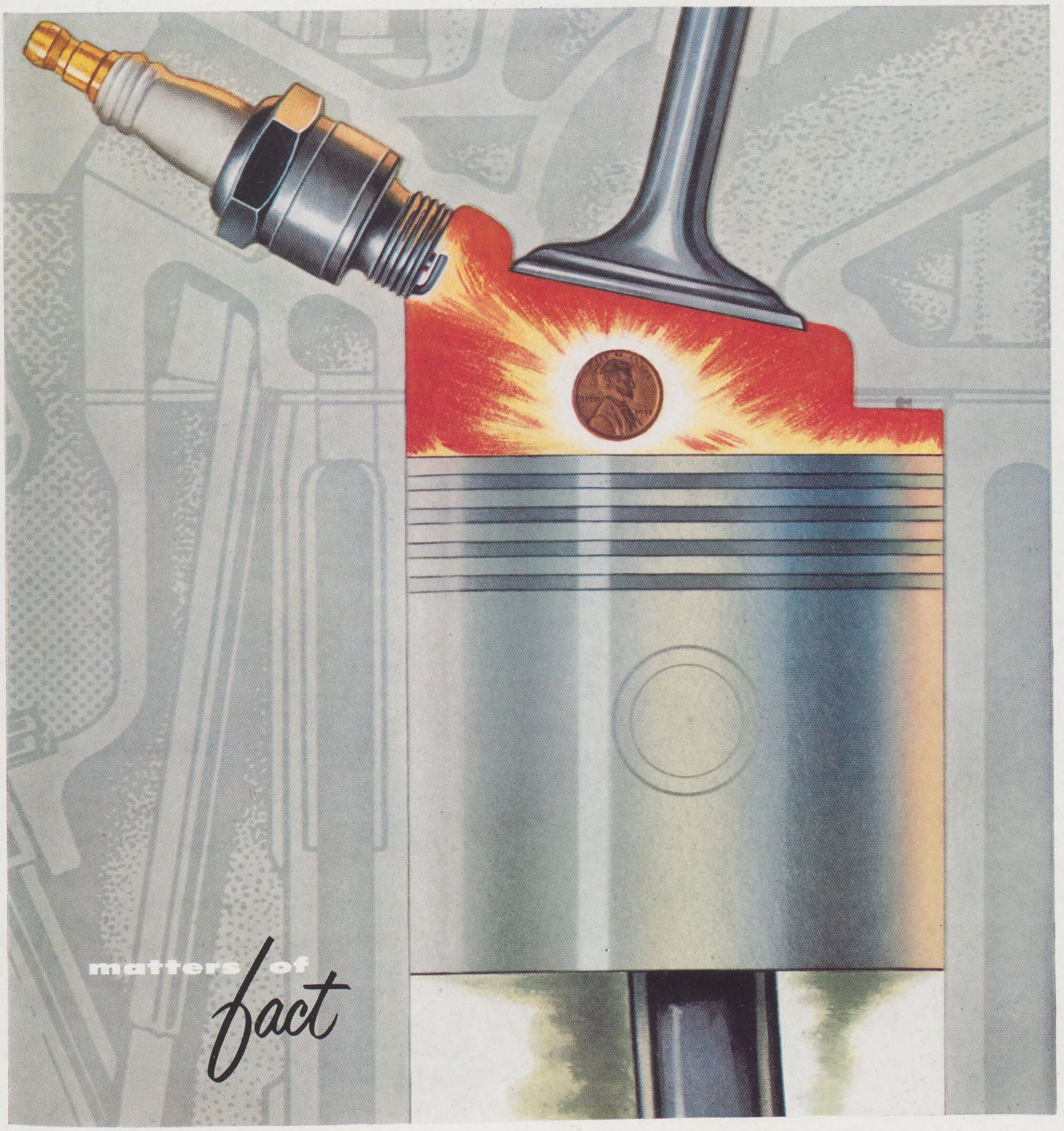
15 Years

H. J. Hutchison.....Mid-Continent Area
S. I. Rice.....West Texas Area

10 Years

R. D. Large.....Texas-Gulf Area
C. K. Smith.....Mid-Continent Area
V. I. Porter.....West Texas Area

MORE POWER PER PENNY



Gasoline's octane numbers—the measure of its potential power—have risen steadily during the last 10 years to meet the exacting demands of modern automotive engines. Regular grade gasoline has gone up from 80 octane in 1946 to a range of 88-93 now; premium grade from 86 to 98; and the new super-premium grade, such as Super Shell with TCP*, is in the range of 99-101 octane.

Back of the improvements in quality and performance of gasoline is the investment of many millions of dollars in research and new refinery facilities. But despite the large capital expenditures and other increased costs of making gasoline, its price has risen only a few pennies. Today, in fact, there is more power per penny in gasoline than ever before.

*Trademark Shell Oil Company

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Cambria Heights 11, N. Y.

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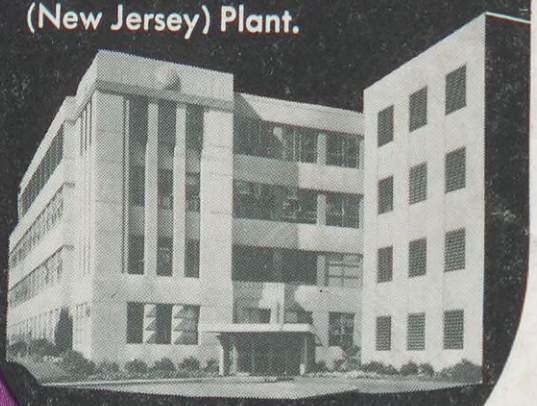
RESEARCH FOR GEARS

The pressures imposed on automobile and truck gears have increased greatly with the introduction of more powerful engines capable of high speed operation.

Shell's SPIRAX* EP Gear Lubricant has been improved to protect gear surfaces from the increased loading. The improvement was made through a new additive developed at the Emeryville Research Center (below) after several years of research.

The improved lubricant has been completely field-tested and is now being marketed. The additive is manufactured at Shell Chemical's Denver Plant and the lubricant is compounded at the Wood River and Martinez Refineries, the Willbridge (Oregon) Terminal, and the Sewaren (New Jersey) Plant.



*Trademark Shell Oil Company