SHELL NEWS

JUNE · 1949

Traffic Rules

By Alexander Fraser

President, Shell Union Oil Corporation; Chairman, Automotive Safety Foundation

Organized in 1937, the Automotive Safety Foundation is designed to promote safer and more efficient use of motor vehicles and the sound development of adequate street and highway transportation facilities. Alexander Fraser succeeded Paul G. Hoffman as Chairman of the Foundation in early 1948 when Mr. Hoffman became head of the Economic Cooperation Administration.

Last year thirty-two thousand Americans needlessly lost their lives in traffic accidents, and more than a million were injured. Though the reasons for this tragic toll—which also cost the nation billions of dollars—are many, Mr. Fraser here discusses a major one: Confusion in Traffic Regulations.

WHEN a safety precaution becomes a direct cause of a fatal accident something is wrong with the rule book. Yet day after day throughout the country careful automobile drivers are unwittingly contributing to death on our streets and highways simply because the safety precautions they follow are so confusing to other drivers and pedestrians that they often *cause* rather than *prevent* collisions.

It is bad enough that incompetent and reckless drivers take the lives of thousands of innocent persons every year. But when our hybrid jumble of traffic regulations results in one safe driver signalling another to his death something must be done to correct the contradictions of the traffic control system—or lack of any system at all.

Take, for example, the rules concerning hand signals. Though called the "sign language" of the road, the varied "dialects" of hand signals make them a contributing factor in a great number of fatal accidents annually. For instance, in Connecticut a number of deaths still occur every year because the state's legal signal for a left turn is easily mistaken for a right turn signal by out-of-state drivers. To signal a left turn in Connecticut, a driver must extend the arm horizontally with the index finger pointed and move the hand up and down. Motorists from nearby states like New Jersey and Massachusetts often confuse this movement of the hand for the rotating motion used in their home states to signal a right turn. They may start to pass the car in front on the left side, only s Aren't ALWAYS Safe

to have the Connecticut driver turn directly into their path.

Look at further examples of the legal deathtraps motorists must face today:

Many states require that drivers approaching a school bus from either direction on a highway shall stop when children are boarding or alighting from the bus. Motorists from states which do not have this requirement may fail to observe the law in those states which require the stop. Failing to do so, they may kill or injure children who, anticipating safe passage across the highway, dart out into the traffic lanes.

What the Records Show

Accident records show that many collisions result from non-observance of right-of-way rules. Some states still adhere to the rule that a motorist entering an intersection shall, under all circumstances, yield to vehicles approaching the intersection from the right. When travelling in other states, those accustomed to this law may assume an absolute right-of-way over vehicles on the left. This is often false sense of security, when the driver on the left doesn't follow that rule and gets to the intersection first.

Pavement markers pose another fatal question for the man behind the wheel. In numerous states a double center line painted in the roadway indicates no passing on the left. In other localities the presence of the double marking indicates freedom to cross the line! Obviously, such contradiction is confusing—often to the point of causing head-on collisions.

These examples of perplexing traffic rules and control devices are a small sampling of the hazards experienced by any motorist who ventures out of his own community. There are other dangerous anomalies like pedestrian right-of-way rules, speed limits, the shape of road signs, types of traffic lights and signal equipment, driver licensing and automobile inspection regulations, and more—hardly calculated to win the respect of the motorized American public.

It can be taken for granted that the average driver is fairly familiar with the rules of his own state and city, but he cannot, with the present lack of uniformity, depend upon his knowledge when travelling any distance from home. If he does, his route may terminate in jail, a hospital or the morgue.

Last year alone, the traffic muddle helped snuff out the lives of 32,000 American drivers, passengers and pedestrians. The confusion assisted in the injury of more than a million persons. It abetted a shattering toll of automobile accidents of all kinds topping the eight million mark and a direct cost to the nation of more than two and a half billion dollars.

A Clue to the Culprit

Just what part confusing traffic regulations played in this terrible toll cannot be precisely determined, but the number of out-of-state automobile drivers involved in fatal accidents during any one year will give some indication. With Connecticut as an example again: 45 drivers involved in the state's 251 fatal accidents in 1948 were from neighboring New England states. That was nearly 20 per cent. In some states the percentages of out-of-state drivers involved in fatal accidents were much lower, but in a good number of them the range was between 20 and 30 per cent.

This is not hard to understand when we realize that one fifth of the drivers on the road at this moment are travelling outside the limits of their own state boundaries.

What, then, can be done to make their travel safer?

A principal reason for the lack of responsible accident prevention is that too often traffic administration breaks down at state and local levels—points at which it is most important. Indecision and misdirection, offsprings of public indifference, have spawned a multitude of contradictory and archaic traffic regulations. Year by year the potential of the motor vehicle traffic hazard has increased, and still the man behind the wheel—the one whose life is endangered—remains unaware or unmindful that his is the first responsibility in any effort to take the

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contents

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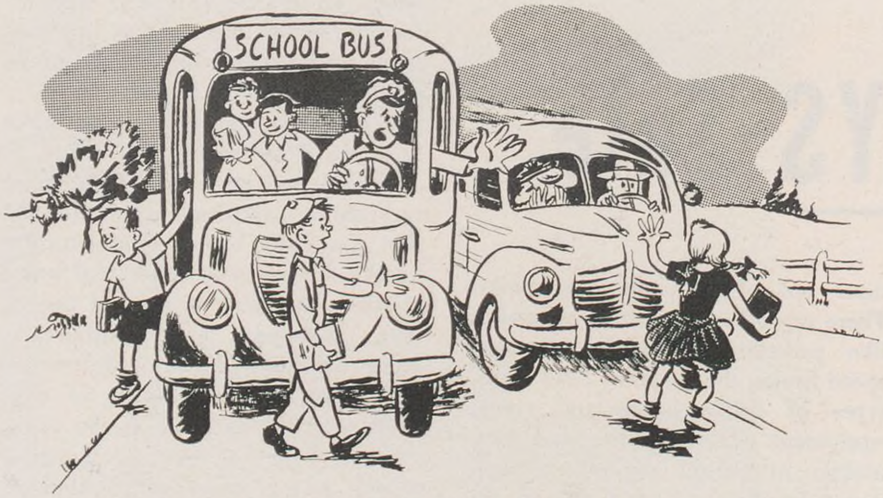


Children are safer in the 35 states which require motorists to stop when a school bus is loading or unloading. But nine states rule that motorists merely slow down, and four states require no such safety precautions at all!

dangerous guesswork out of driving. It is paradoxical that the American public just doesn't seem to care that one set of rules, applicable in every state, would make travel easier, cheaper and safer.

Uniform Codes a Solution

Therein lies the problem's solution: The enactment of uniform vehicle codes in all states and communities. The advantages can be measured in terms of increased safety, reduction of property losses, better observance of traffic laws, more orderly flow of traffic and the extensive economic savings resulting from reduction of congestion.

It isn't difficult to have sane and uniform traffic regulations. A working model of such state legislation has been available since 1926. Called the Uniform Vehicle Code, it was conceived two years earlier when Herbert Hoover, then Secretary of Commerce, called a national conference on street and highway safety, attended by representatives from every state. A committee composed of experts in traffic, safety and legislation compiled the Uniform Vehicle Code, and it has since been revised four times to keep pace with the changing traffic conditions and to prepare for foreseen dangers of the future.

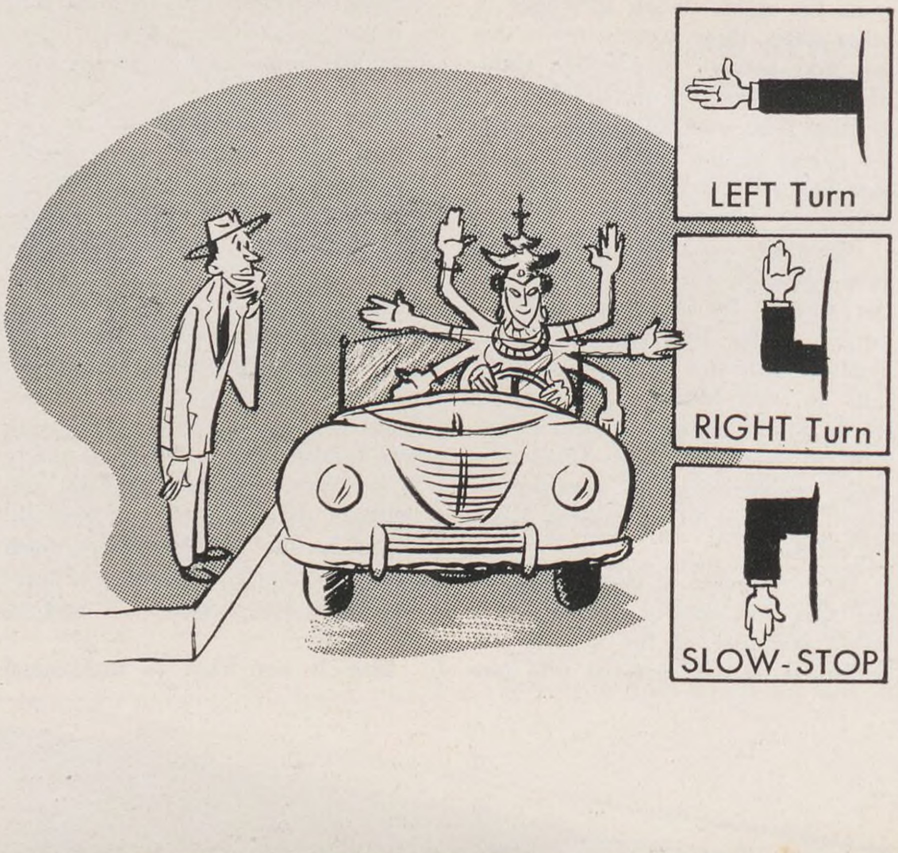
Act V of the Code, the "Uniform Act Regulating Traffic on Highways," is by far the most important and most detailed as far as safety is concerned. It does a complete job of listing the rights and duties of drivers and pedestrians; yet its sum total is an easily understood formula for the rules of the road—most of them dictated by nothing more than courtesy and common sense.

For local communities plagued with obsolete deathtraps and traffic hazards, a Model Traffic Ordinance was compiled as early as 1928. This model ordinance supplements the Uniform Vehicle Code and provides the basis for municipal traffic regulation. It, too, was brought up to date as late as December 1945. There is no doubt, say trained safety authorities, that if this model of sane municipal traffic control were in force in every city and town in the nation far fewer persons would needlessly lose their lives in accidents.

Not All States Follow Code

Just how many cities have followed the suggestions put down in the Model Traffic Ordinance is not known. Roughly, about 30 states have adopted one or more of the five Acts of the Uniform Vehicle Code. It is clear, then, that there is still much to be done to bring the others in line. The laws of six states depart widely from the recommendations of the Code—and, therefore, are contradictory to what the majority of drivers in this country are used to. Other contradictions exist in varying degrees in the laws of the remaining dozen states and the District of Columbia.

Hand signals for left and right turns, stop and slow are clear and uniform in most states; yet confusing variations in some states still account for part of the annual toll of pedestrians' and motorists' lives.



In only four states are pedestrians required to observe STOP and GO signals; in the rest, they can legally take their lives—and others—in their own hands.

Most of those who have studied the traffic situation readily agree on the advisability of uniform regulations, but a few—even some lawmakers — object to altering their long-standing traffic rules on the grounds that new methods mean greater expenditures for administration and enforcement. This may be true to some extent, but it's a shortsighted legislature that can't see the advantage of making additional expenditures which will eventually result in even greater economic savings, not to mention savings in human life and welfare.

Traffic safety administration is a function which, budget-wise, has suffered in order that more spectacular projects might benefit. A 1945 study made in seven of the nation's leading cities reveals that expenditures to prevent crime totalled more than $22 million; the bill to promote traffic safety measures was only $4.5 million. The study also revealed that deaths in those cities resulting from murder and non-negligent manslaughter were 331 while traffic accidents accounted for 904 deaths.

Such a situation, sad commentary that it is, cannot be laid solely at the doorstep of city administrators. Nor can indifference to safety or the lack of interest in uniform traffic laws be blamed upon overworked state legislators. The blame lies with the general public, the great mass of thinking, voting citizens—for, after all, the city fathers and state legislators are the servants, not the rulers, of the people.

Needed: An Aroused Public

What, then, is needed to obtain uniform traffic regulation? First a realization of its necessity, then a sincere interest in getting it on the part of the public. The present anarchy of traffic law and our grim accident record stem directly from the fact that public officials have endeavored to follow an indifferent public opinion which has never really bestirred itself over the seriousness of accident losses nor adequately supported legislation seeking uniform traffic regulations.

If uniform safety is to be had, every individual must make himself heard. You and you and you, whether you are a driver or a pedestrian, can urge sound traffic regulations by writing to your mayor or governor, talking with or writing to your city councilmen, state legislators and public officials such as the attorney general, motor vehicle commissioner and the commissioner of state police. You can get traffic law uniformity on the action program of your Chamber of Commerce, the civic clubs to which you belong, even your church and school organizations. If your city has a traffic safety committee—as many do—you can offer your assistance and advice.

Remember, no one is going to solve the problem of the man behind the wheel unless he himself is willing to cooperate.

M. VOOGD

MARTIN BUCK

A. W. FLEER

W. C. CHONETTE

M. J. WATERS

Shell People In The News

MAARTEN VOOGD has been appointed Manager of Fine Chemicals for Shell Chemical Corporation, where he will coordinate the Company's intensified activity in the production of small volume, high priced chemicals. Educated in chemical and physical engineering, Mr. Voogd served with associated companies overseas prior to joining Shell Chemical Corporation in 1936 as an Engineer at the Shell Point Plant in Pittsburg, California. He was appointed Superintendent of the Shell Chemical Plant at Martinez, California, in 1939, and served in a similar capacity at the Dominguez and Pittsburg plants before becoming Manager at Shell Point in 1943. Since late 1948 he has held the position of Assistant to the Vice President-Manufacturing in New York.

MARTIN BUCK has been appointed Assistant to the Vice President-Manufacturing of Shell Chemical Corporation. He will primarily be concerned with the commercial exploitation by Shell Chemical of the potential opportunities arising from Shell's extensive research activities. A graduate of the University of Illinois, where he majored in chemical engineering, Mr. Buck began his Shell career as a Junior Chemist in Shell Oil Company's Wood River Refinery in 1930. He served there in a variety of technological positions and finally as a Department Head until 1938 when he transferred to the Manufacturing Department in the St. Louis Office. He joined Shell Development Company in San Francisco in 1940 as a Technologist and two years later was transferred to Shell Chemical Corporation as Manager of Manufacturing-Development, in which capacity he served until his new appointment.

A. W. FLEER has been appointed Manager of the Manufacturing-Development Department of Shell Chemical Corporation in New York. A graduate of the University of Michigan where he took his Ph.D. degree specializing in chemical engineering, Mr. Fleer began his Shell career in 1935 as a Technologist for Shell Oil Company in the St. Louis Office. Six years later, in 1941, he joined Shell Development Company as a Technologist in San Francisco. Mr. Fleer was appointed Technical Assistant to the President of Shell Development there in 1944 and served in this position until his recent assignment.

W. C. CHONETTE has been appointed Manager of the Los Angeles Basin Production Division of Shell Oil Company. A graduate of the University of California, where he majored in petroleum engineering, Mr. Chonette began his Shell career as a Roustabout at Brea, California, in 1928. He served at several West Coast locations in production engineering positions before being named Division Exploitation Engineer at Ventura, California, in 1934. After holding various other senior engineering positions, he was appointed Manager of Shell's operations in Alberta in 1943. Mr. Chonette returned to Los Angeles in 1946 as Chief Exploitation Engineer and served in that capacity until his new assignment.

M. J. WATERS has been named Manager of the Manufacturing-Products Application Department in the San Francisco Office of Shell Oil Company. A graduate of the University of California where he received his M.S. degree in mechanical engineering, Mr. Waters came to Shell in 1930 as a Junior Engineer at the Martinez Refinery. He served there in various engineering positions until 1934,

J. M. BRACKENBURY

L. T. WILSON

J. D. DAVIS

F. S. HUMMEL

D. E. HENDRICKS

when he was transferred to the San Francisco Office as Automotive Engineer in the Marketing-Sales Department. In 1936 he moved to the Wilmington Refinery as Technical Assistant, and two years later returned to Martinez Refinery as an Engineer. Following a four-year military leave of absence, Mr. Waters returned to the San Francisco Office in 1946 as a Senior Engineer in the Manufacturing-Products Application Department, the position he held at the time of his recent assignment.

J. M. BRACKENBURY has left Shell Oil Company to become Assistant Manager of the Montreal Refinery of Shell Oil Company of Canada. Mr. Brackenbury joined Shell as a Junior Inspector at the Wilmington Refinery in 1933, after receiving an A. B. degree in chemistry from Occidental College and two post-graduate degrees from the University of Nebraska. He served in various capacities at that location prior to going on a special study assignment to Europe early in 1938. Returning to Shell Oil Company's San Francisco Office later in the year, he advanced through technological positions of increasing responsibility there until 1945 when he was made Chief Technologist at the Martinez Refinery. He has been Assistant Superintendent at Martinez since 1946.

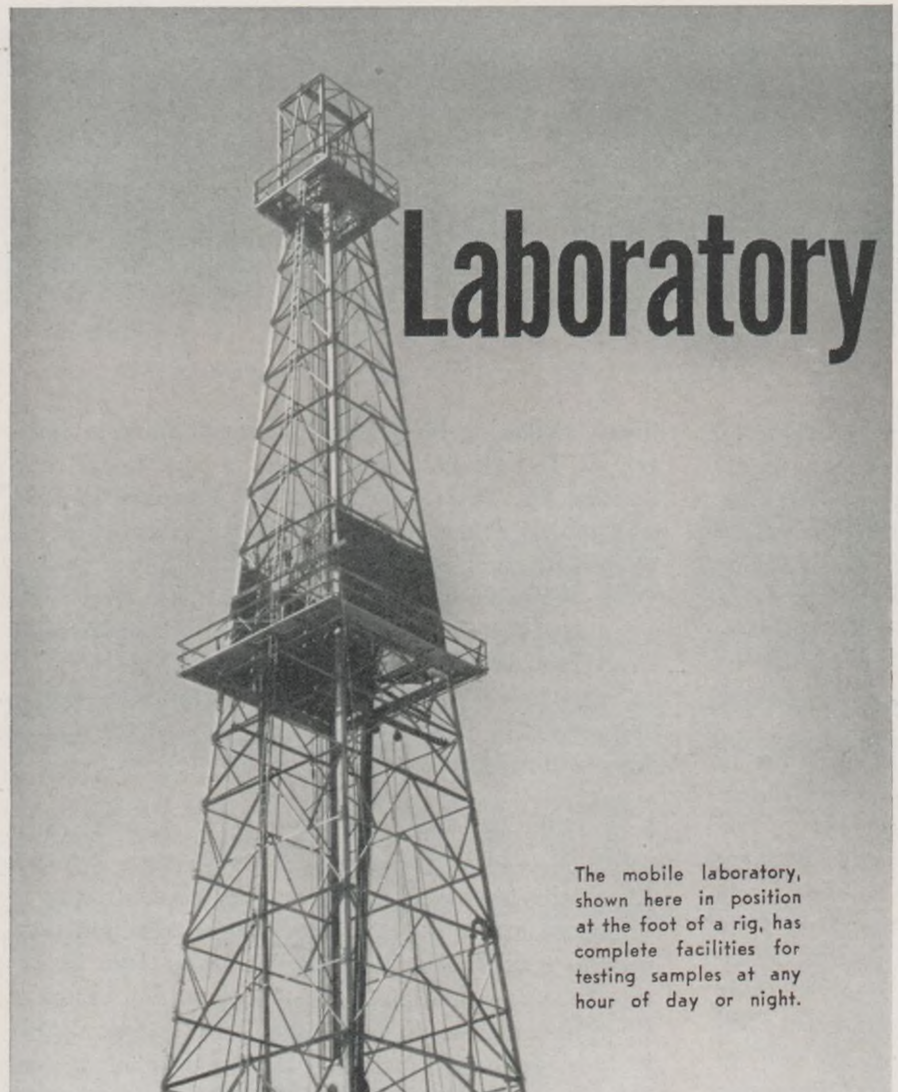
L. T. WILSON has succeeded J. M. Brackenbury as Assistant Superintendent of the Martinez Refinery. After obtaining a degree in geology from Oregon State University, Mr. Wilson came with Shell Oil Company in 1933 as a Junior Inspector at the Wilmington Refinery. He held a wide range of positions there before being transferred to the San Francisco Office in 1937 as a Technical Assistant. Following a five and one-half year military leave of absence, Mr. Wilson rejoined the Company as a Senior Technologist at Martinez in 1946. He became Assistant Manager of the Catalytic Cracking Department at Wilmington later that year, and was made Manager of the department in 1947.

J. D. DAVIS has replaced L. T. Wilson as Manager of the Catalytic Cracking Department at Wilmington Refinery. Following his graduation from California Institute of Technology with a degree in mechanical engineering, Mr. Davis joined Shell Oil Company in 1934 as a laborer at the Martinez Refinery. He served in numerous positions at Martinez and in the San Francisco Office before becoming a Senior Technologist at Martinez in 1944. Mr. Davis subsequently managed the Cracking and the Distilling Departments at Martinez prior to being named Manager of the Dispatching (Gauging) Department in 1946, the position he held at the time of his recent assignment.

F. S. HUMMEL has succeeded J. D. Davis as Manager of the Dispatching Department of the Martinez Refinery. After receiving his B. S. degree from the University of California in 1936, Mr. Hummell joined Shell Oil Company as a Chemist at Martinez. Two years later he was transferred as a Technical Assistant to the San Francisco Office where he served until his military leave of absence in 1942. Upon his return in 1945, Mr. Hummel became a Senior Technologist at Martinez and he held this position until 1948, when he was appointed Assistant Manager of that refinery's Distilling Department. Prior to his new assignment, he served briefly as Assistant Manager of the Refining Department.

D. E. HENDRICKS has been appointed Assistant Manager of the Marketing-Lubricants Department in the New York Head Office of Shell Oil Company. A graduate of Georgia Tech, where he majored in engineering, Mr. Hendricks began his Shell career in 1933 as Service Station Salesman in the Atlanta Marketing Division. He subsequently served as Service Station Manager and Light Oil Clerk in the Atlanta Division before becoming Service Engineer in 1936. Named Industrial Lubricants Manager for the Cleveland Marketing Division in 1939, he remained there until 1941 when he left on a military leave of absence. Upon his return in 1946, Mr. Hendricks was made Manager of the Lubricants Department in the New York Marketing Division and remained in that capacity until his recent assignment.

Laboratory on Wheels



The mobile laboratory, shown here in position at the foot of a rig, has complete facilities for testing samples at any hour of day or night.

IN OUR present automotive era, many a business has been put on wheels. The butcher, the baker, the popsicle maker all drive up to your door to serve you. This idea has proved profitable, saving time and trouble. It's not surprising, therefore, to find the petroleum industry taking advantage of mobility in every possible phase of its operations.

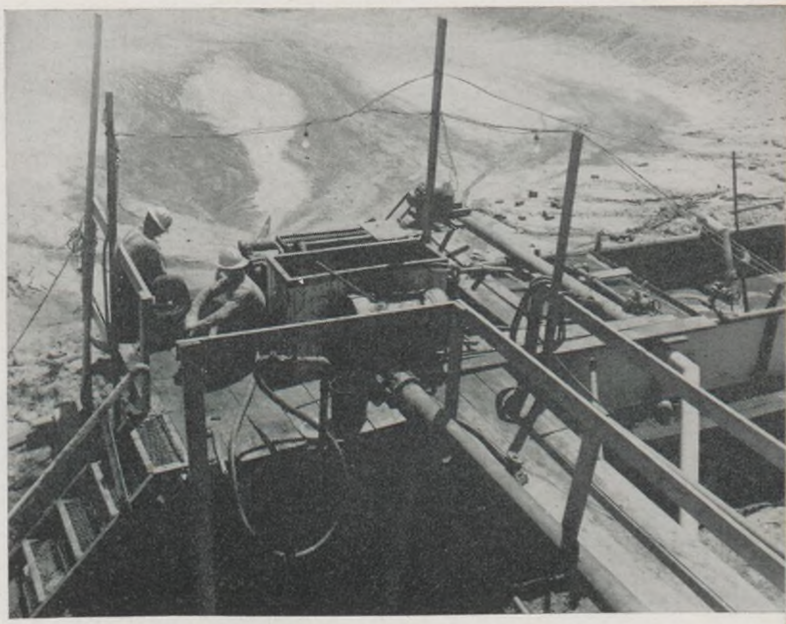
Shell has consistently been one of the leaders in finding new ways to create and utilize portable equipment. One recent example is the Tulsa Area's new mobile laboratory — a compact, portable unit used in the analysis of drill cuttings and core samples at the drilling site. Hooked to a small but powerful truck, this complete laboratory on wheels travels from location to location where it is changed from a vehicle to a scientific workshop in a matter of minutes. Experience with similar traveling labs, now in use in the Houston and Midland Areas and on the Pacific Coast, has shown them to be of real value in exploration and production operations.

Scientific Sampling Necessary

Oil wells today are drilled fast and straight. Delays are expensive. But, as the drill penetrates the earth, exact information must be obtained on each new formation encountered. This involves detailed analysis of drill cuttings washed up from the bottom of the hole with the circulating mud, or examination of core samples cut from the formation.

These analyses, however, can be made only through the use of many delicate instruments. Prior to the mobile units, such instruments were housed in fixed laboratories where

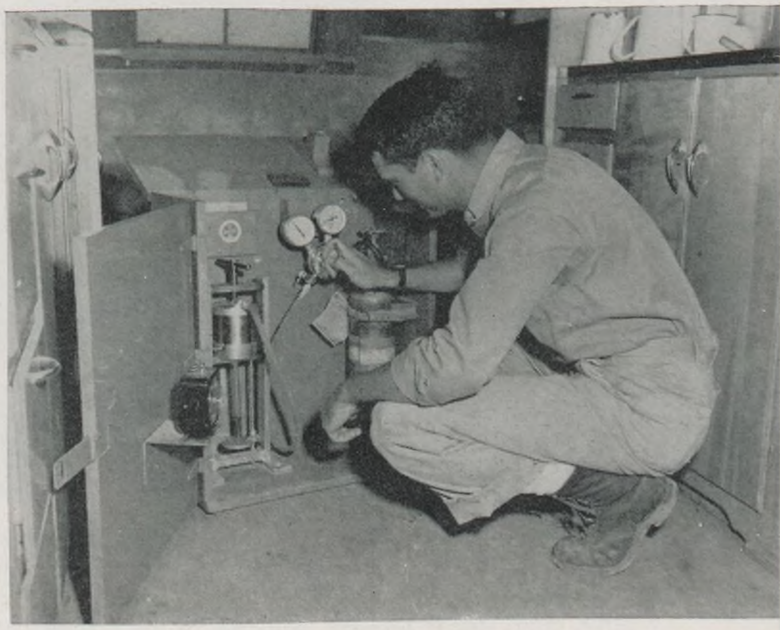
Trim, compact and complete, the Tulsa Area's recently built mobile lab is neatly fitted to the interior of a standard trailer.



Men of a drilling crew look down on the pit from which mud will be pumped through drill pipe, bringing up cuttings for analysis.

Having made its round trip to the bottom of the hole and back, drilling mud flows into a tank into which H. R. Martin reaches for cuttings.

Sensitive equipment, built into an individual cabinet, is used in checking water loss and filter cake thickness of a mud sample.



they were not subjected to the buffeting of oil field terrain.

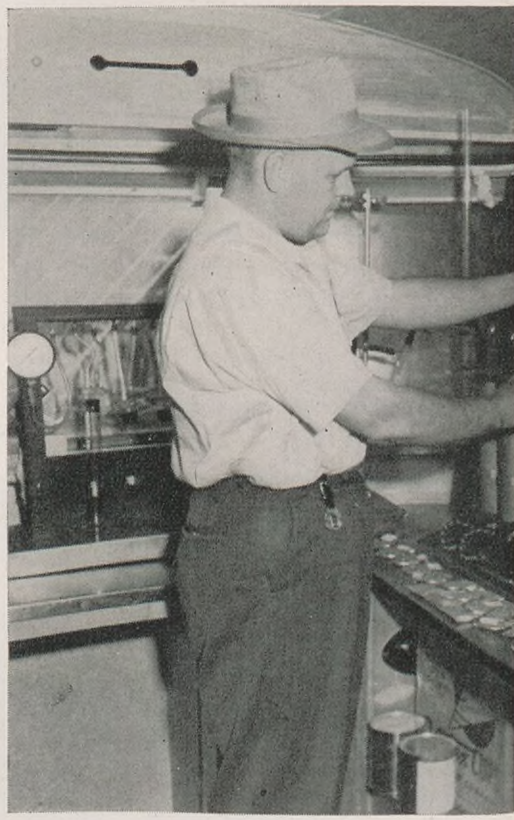
More often than not, well sites are located many miles from the production laboratories with resultant delay in shuttling of samples and information. In many cases drilling has been suspended pending the arrival of information from the laboratory. In other cases, drilling has continued "blind," running the risk that rich oil and gas reserves may be missed completely, even though the bit has penetrated the oil-bearing formation.

25-Foot Trailer Houses Unit

The mobile unit is designed to bring the complete laboratory to the well head, while at the same time, giving maximum protection to the various instruments. Samples can be analyzed on the spot—day or night. Tulsa Area engineers built the unit in a 25-foot trailer. Sensitive instruments were mounted and cushioned while others were stored in built-in cabinets. For crew comfort, an oilburning heating system was installed and the trailer was fully insulated.

Electricity for instruments, which run on a 110-volt D. C. circuit, is created by an automatic generator operating on either natural gas or gasoline. The generator, placed on skids near the trailer, runs whenever a light or instrument switch is flicked on and shuts off automatically when-

Although men of the mobile lab deal primarily with cuttings taken from drilling mud, they also have full facilities for analyzing formation cores such as this one about to be broken up for examination.



R. H. Wilson puts a graduate unit on the extractors which determine oil and water saturation of drilling cores. The field telephone (right) is used for communication between trailer and derrick floor.

ever current is switched off.

On the road, the trailer is hauled by a sturdy truck with four-wheel drive, eight speeds forward, and two reverse. Winches are mounted both fore and aft on the truck for use in case of trouble on bad roads. The vehicle also carries equipment for loading and unloading the portable generator.

Operates Round the Clock

Operating 24 hours a day, the mobile lab is under the supervision of R. H. Wilson. The round-the-clock schedule means plenty of work for the crew of qualified laboratory technicians which includes V. D. Hrabe, A. R. Martin, D. M. McPike and R. E. Robinson.

A typical routine check starts with the gathering of drill cuttings—fragments of matter brought up from the bottom of the hole by the drilling mud. A sample cutting is taken to the trailer's built-in sink and the mud washed off, then cut into portions for the various tests to follow.

One portion, with water added to make a solution, is poured into a sealed Waring Blender — the same gadget that a bartender uses. The solution is agitated at high speed, releasing any vapor which may be contained in the sample. The vapor is then carried to a meter which registers the presence of gas, if any, and gives an indication of the amount.

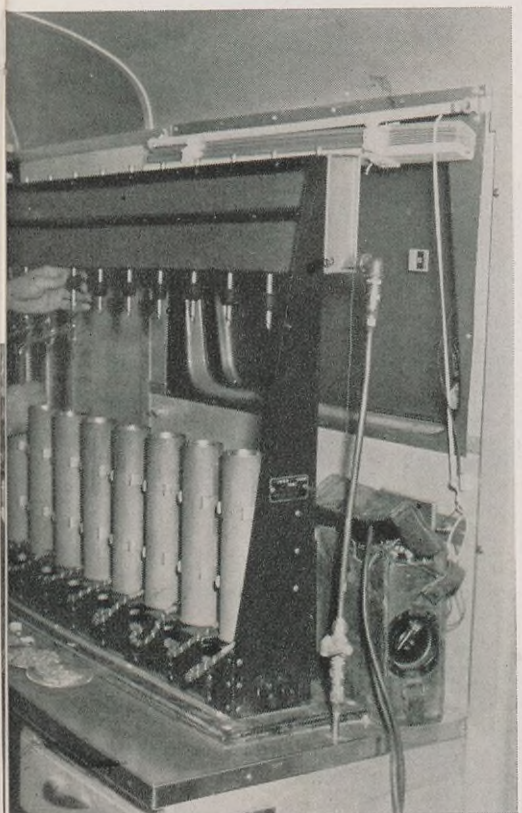
Other portions of the sample are examined under ultra-violet light, sometimes after being washed with solvents, for fluorescence. Hydrocarbons, if present in the sample, give off distinctive, visible radiation.

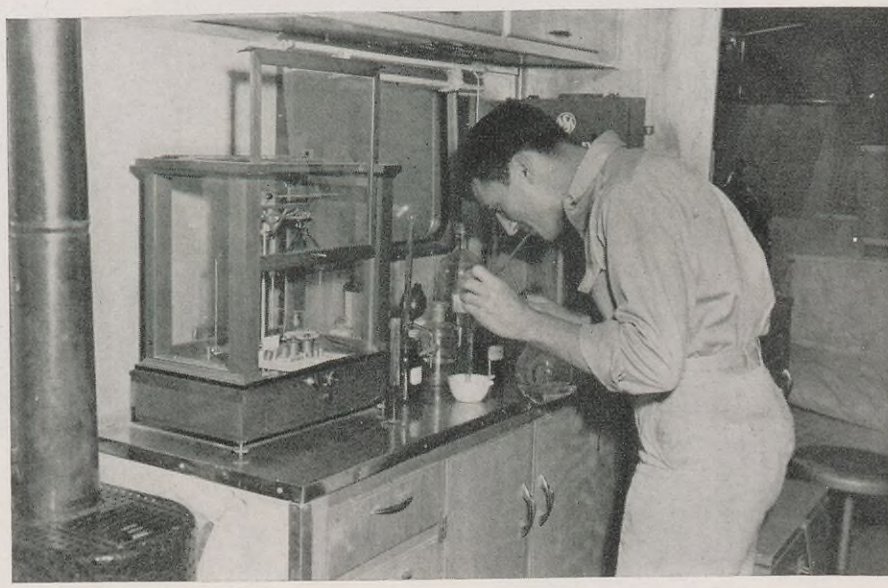
No Rock Too Small to Test

Men of the mobile laboratory, in addition to running routine tests, carry out special investigations on the porosity, permeability and capillary pressure of samples—often working with particles of rock no larger than a match head. In this way, they measure the rock's ability to remain saturated with liquid under certain pressure conditions, an invaluable aid in reconstructing the state of the undisturbed oil or gas reservoir and predicting its behavior when brought in.

Although the mobile laboratory specializes in the examination of well cuttings, complete facilities are also available for making similar measurements on formation cores from wells. That the equipment necessary for all tests described fits so compactly and efficiently into a small space testifies to the careful planning which went into the design of the lab on wheels, as does the ample working space provided for the crew.

Nothing tempting to the taste will come out of this familiar Waring Blender. The men who operate the Tulsa Area's mobile laboratory use the mixer to show the presence and amount of gas in drill cuttings.





A sample is prepared for a test to determine salt content of the mud filtrate. The delicate balances shown at left are capable of accuracy to within a fraction of a gram when used in weighing samples.

Typical of the varied equipment utilized by technicians in the mobile lab is the Marsh Funnel, here being used in the determination of drilling mud viscosity.

PLANNED RETIREMENT

By John Kinloch

OTTO J. ZACH had a tried and proved "design for living" ready to be put into operation when he retired as a carpenter at Willbridge Terminal in the Portland Marketing Division. The suggestion for his future activity came from a friend, but Otto knew that definite planning would be necessary and he gave the idea a practical workout *before* retiring to make certain it was sound.

This "pilot plant" experience was fully successful and "full scale operation" has been even more so since Otto gave up routine work to enjoy his leisure.

"When I retire, I'm going to put my carpenter's tools in moth balls and forget about them," Otto told his fellow workers early in 1946. "About a year ago, a neighbor told me that my property is ideally situated for growing primroses, so I started experimenting with a few varieties. The results were very good and I'm sold on the idea of raising primroses as a hobby that will more than pay for itself."

Not a Day Lost

After 21 years of service, Otto was eligible for retirement in March, 1947, and began his new routine without the break of a single day. He had joined the American Primrose Society, of which Mrs. Zach is now a director, and soon found new friends in his chosen avocation through association with other members and new pleasures in studying and utilizing the education facilities extended.

"I now grow more than 50 varieties of primroses," Otto said recently. "So far this year, I have sold and given away almost 400 dozen plants, but I still have plants growing. Next year, I intend to develop primrose seeds."

When asked if his hobby meant

many hours of hard work, Otto smiled.

"Well, if you call lots of sunshine and fresh air hard work, the answer is—yes," he replied. "As for the hours I put in with my plants, the number varies according to the weather and, of course, on how I feel, whether ambitious or just lazy. I usually get up about 6:30 in the morning—never could sleep late, anyway—and if the weather is good, I get out and putter around the plants until I feel like having a cup of coffee. The rest of the time I work as I feel like it."

Prizes Come His Way, Too

"Have you taken any prizes at flower shows?", was the next question. This turn of the conversation certainly hit the jackpot.

"I've snagged a few," Otto said modestly, then proceeded to tell how he made almost a clean sweep at the American Primrose Society show in Portland in April of this year. Out of 17 entries, he won six firsts, five seconds and four thirds, for a total of 15 ribbons.

"I also received a special award for the best plant in the show," he added.

Not in Business, Says Zach

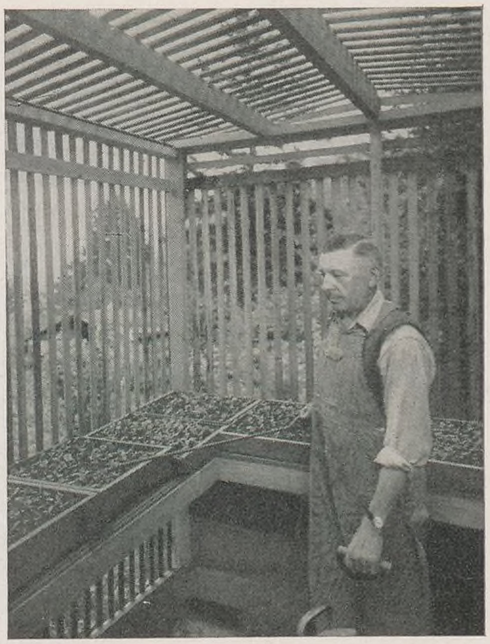
Otto made it plain that he is not in the business of packing and shipping primroses.

"I am not working to make a fortune," he said. "My main returns are good health and contentment. I do sell some plants to defray expenses and to earn enough money to purchase necessary tools and equipment. For instance, I recently purchased a small roto-tiller, a gaso-

line driven machine that saves both time and labor."

On his acre of ground, Otto has also many healthy berry-laden holly trees, from which he also will derive some financial return, since the growing of English holly is an important Oregon industry and thousands of pounds are shipped every year at holiday time. Otto also has fruit trees and vegetables, which make living better while reducing expenses, and a variety of flowers, camellia bushes and magnolias, which make his home a place of beauty.

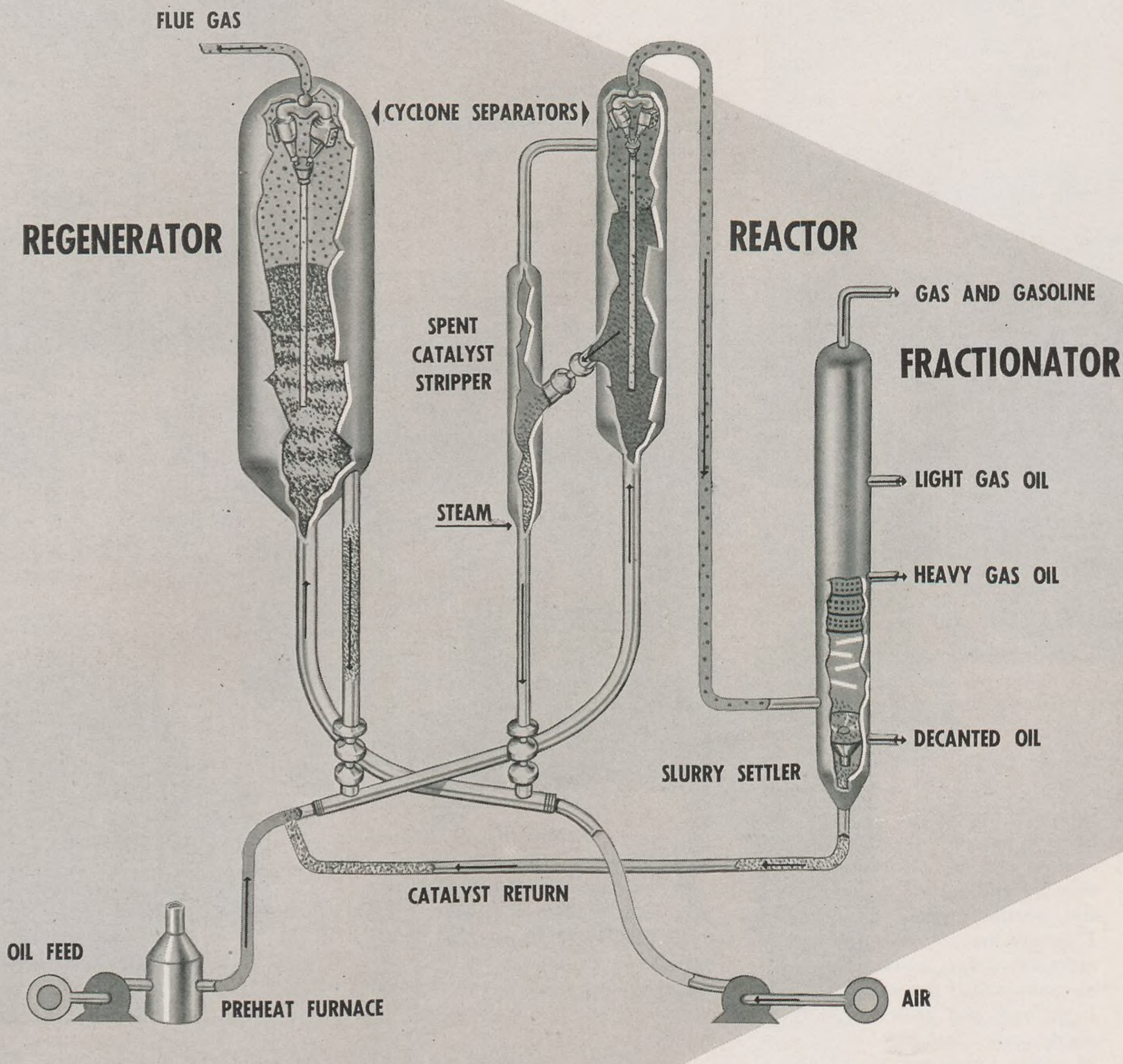
"I miss my Shell friends, naturally," Otto says, "and am glad to keep informed of their activities through our new Portland Division news-



Flats of young plants (above) are carefully tended by Otto Zach, pensioner and enthusiastic gardener. At left, Mrs. Zach admires ribbons awarded her husband's prize-winning plants. A primrose plant as it appears when packed for shipment is shown below.

paper, which I thoroughly enjoy. But I don't regret retirement because now I am really enjoying something I always dreamed about—doing exactly what I want to do without any set schedule of work or hours. I am glad that I gave my retirement plans so much thought, so far ahead of time. The advice to 'plan ahead' is sound and pays off in many ways."

CATALYSTS:



In the operation of the catalytic cracking process (diagrammed above) a mixture of hot catalyst and pre-heated oil is carried to the reactor. There, hydrocarbon molecules are broken down, the resulting vapors passing to the fractionator from which products are drawn off. Meanwhile, the catalyst which has become coated with carbon travels through the stripper to the regenerator where a stream of hot air burns off the deposited coke. The reactivated catalyst then flows down to mix with a new injection of oil.

Mysterious Servants of Man

These Chemical Agents Perform Technical Wonders in Modern Industry—And Also Are Handy to Have Around the House

WHEN a housewife sets out to bake the kind of bread that mother used to make, she mixes up a batch of dough, adding yeast or sour milk in the process. These additives cause a chemical reaction resulting in gases which make the bread light and fluffy. And when the crusty loaf comes from the oven, its quality is a testimony to domestic skill—plus the action of the additive substances which are known to science as catalysts.

Catalysts make things happen. By simple definition, they are substances that "influence the speed of chemical reactions without undergoing appreciable chemical change themselves." Just as the housewife uses a common catalyst when she makes her bread, American industries use catalysts by the ton in various manufacturing processes. Common to the homemaker, the handy man and the farmer, catalysts enter into a thousand and one activities of everyday life. According to one authority, "there is probably no type of chemical reaction which cannot be influenced catalytically, and there is no substance, element or compound which cannot act as a catalyzer."

To illustrate how a catalyst works, the same scientist compared its action to that of a lubricant, which, by reducing friction, causes the speed of an engine to increase. But, while scientists know how catalysts work, they don't know WHY they act that way. The presence of catalysts has been suspected and their actions noted for centuries—yet we still don't know much about them.

The world received its first inkling of catalytic action at a date lost in the past when sugar was first fermented to alcohol, but at that time the ancient tipplers didn't know what gave their wine its kick. Not until the era of alchemy, or medieval chemistry, were the alcohol and acetic acid in the fermented fruit juices isolated and identified.

Meanwhile, discoveries of catalytic action kept pace with history. In the Middle Ages, for instance, alchemists were continually seeking a magic substance or "Philosopher's Stone" which could be used to turn base metals into gold. In one of these experiments during the 16th century, sulphuric acid was heated with alcohol and a new product—ether—resulted. In this case, the sulphuric acid acted as a catalyst, breaking down the alcohol molecules to make a new compound.

It remained for a Swedish scientist, J. J. Berzelius, to coin the word "catalyst" in 1835. After studying the scattered notes and comments on chemical reactions up until his time, he defined the catalytic principle and launched an era of systematic research and discovery.

Only in the last 30 or 40 years, however, has any appreciable advancement been made in learning what catalysts can do in industry. Though a late starter, industrial catalysis was soon adopted on a large scale. It has made cheap, mass production of so many items possible

Under extreme magnification are three samples of catalysts used in the oil industry. At left is freshly-ground catalyst; center, the same substance worn by use; at right, free-flowing microspheroidal catalyst.

Catalytic action played an important part in the making of this appetizing pie.

that thousands of former luxuries are today considered necessities of modern living. Catalysis is used in manufacture of plastics and synthetic rubber, dyes, artificial silk and alcohols. It helps in the large scale production of drugs, soaps, ammonia, beer and perfume. In fact, the use of catalysts in manufacturing has become so widespread that the synthetic production of them has grown into a huge industry in its own right.

Catalysts and Petroleum

Catalysis was first used on a large scale in refining for the polymerization of light refinery gases, a process of combining molecules to form new compounds. Certain light gases, formerly considered as waste and burned as refinery fuel, were passed over a catalyst and transformed into liquid fuel of about 81 octane rating. This use of catalysis increased the net motor fuel yield in thermal cracking by about five per cent and raised the octane rating.

With this achievement behind them, oil researchers began systematic studies aimed at applying the science of catalysis to other branches of refining. The results were the important advances which made modern catalytic cracking possible. The millions of barrels of aviation gasoline manufactured during the war were the result of a whole group of catalytic processes with catalytic cracking in the van. Important roles were also played by catalytic polymerization, alkylation, isomerization, hydrogenation and dehydrogenation.

Oil Industry Is No. 1 Customer

Today, the petroleum industry is by far the leading user of catalysts, employing some 20 million dollars' worth each year for cracking operations alone. The catalysts used for this purpose are composed largely of silica and alumina. There is a "natural" catalyst which can be mined—an earth with chemical properties which make it useful, after treatment, in various refining processes. The bulk of the manufactured catalysts used in refining are known as either "ground synthetic" or "microspheroidal" catalysts. Both look and feel like fine white powder, but the tiny particles of the latter are really tiny round beads, instead of the flaky, irregularly shaped particles of ordinary powder. Contact between the catalyst and vaporized petroleum is important in cracking, and the total surface of the particles in only one pound of powdered or microspheroidal catalyst is often equivalent to 50 acres or more.

Since catalysts are not changed appreciably in performing their tasks, they can be used over and over again although they do lose some of their power through contamination. The refining industry, however, loses less than one-hundredth of one per cent of the tons of catalysts used and reused in a day's cracking operations.

Speeding vs. Retarding

While catalysts are commonly thought of as substances which accelerate chemical reaction—as in refining—they are just as useful in processes which require a slowing down of chemical change. Take, for example, the brine used in the food industry to pickle meats. In this case, the brine serves as a catalyst which retards the decomposition of the meat and keeps it palatable, even adding a tang to its taste.

Anybody sitting down to a snack of pickled pig's feet with a glass of beer has before him a double example of the results of two types of catalytic action—speeding and retarding. Brine catalyst, by putting the brakes on chemical reaction, kept the meat fit to eat; yeast catalyst hastened fermentation and made brewing of the beer possible.

Perhaps you'd like some fluffy brown biscuits to complete the snack. Even the shortening that went into the biscuit dough probably was manufactured with the aid of a catalyst—in this case finely divided nickel which helped cause solidification of vegetable oil into a creamy smooth lard substitute.

We see numerous examples of catalysis in everday life. The farmer reaps the benefits of catalysis when he uses synthetically manufactured ammonia fertilizer on his crops; the house painter applies the catalytic principle when he mixes a drier in his paint to hasten the hardening of linseed oil into a tough film.

"Chemical Parsons"

Because such chemical action occurs, scientists in their lighter moments sometimes jokingly refer to catalysts as "chemical parsons"—agents which can bring about the union of other substances and yet remain unchanged themselves. On the other hand, the catalysts used in refining might be called "chemical divorce judges." In either case, when you consider that the acceleration or deceleration of reaction by catalytic means occurs with the smallest expenditure of energy or material, it is evident that the process, if not exactly free, is quite a bargain.

Perhaps the best example of catalytic action goes on continuously in your own front yard. The green of the grass and the trees is made possible by a coloring catalyst—chlorophyll. This life-giving substance helps trees, grass and farm products draw nourishment from air and water. How it manages to perform these vital tasks—well, nobody quite knows.

Plant Day At Norco

Flag raising ceremonies were held in front of the Main Office Building.

The Bonne Carre Rod & Gun Club sponsored a fly casting contest.

Shell's Refinery in Louisiana Celebrates Its 29th Anniversary

Filling the day from eight in the morning until late at night, a program of sports events, music, movies, games, a parade, a barbecue and dancing drew a capacity attendance of Shell employees and their families to Norco Refinery's Plant Day on Saturday, May 7. An annual affair, Plant Day this year marked the 29th anniversary of the refinery.

For the guests there was 1,100 pounds of boneless barbecue.

Eager lines of children surrounded the ever popular Merry-Go-Round.

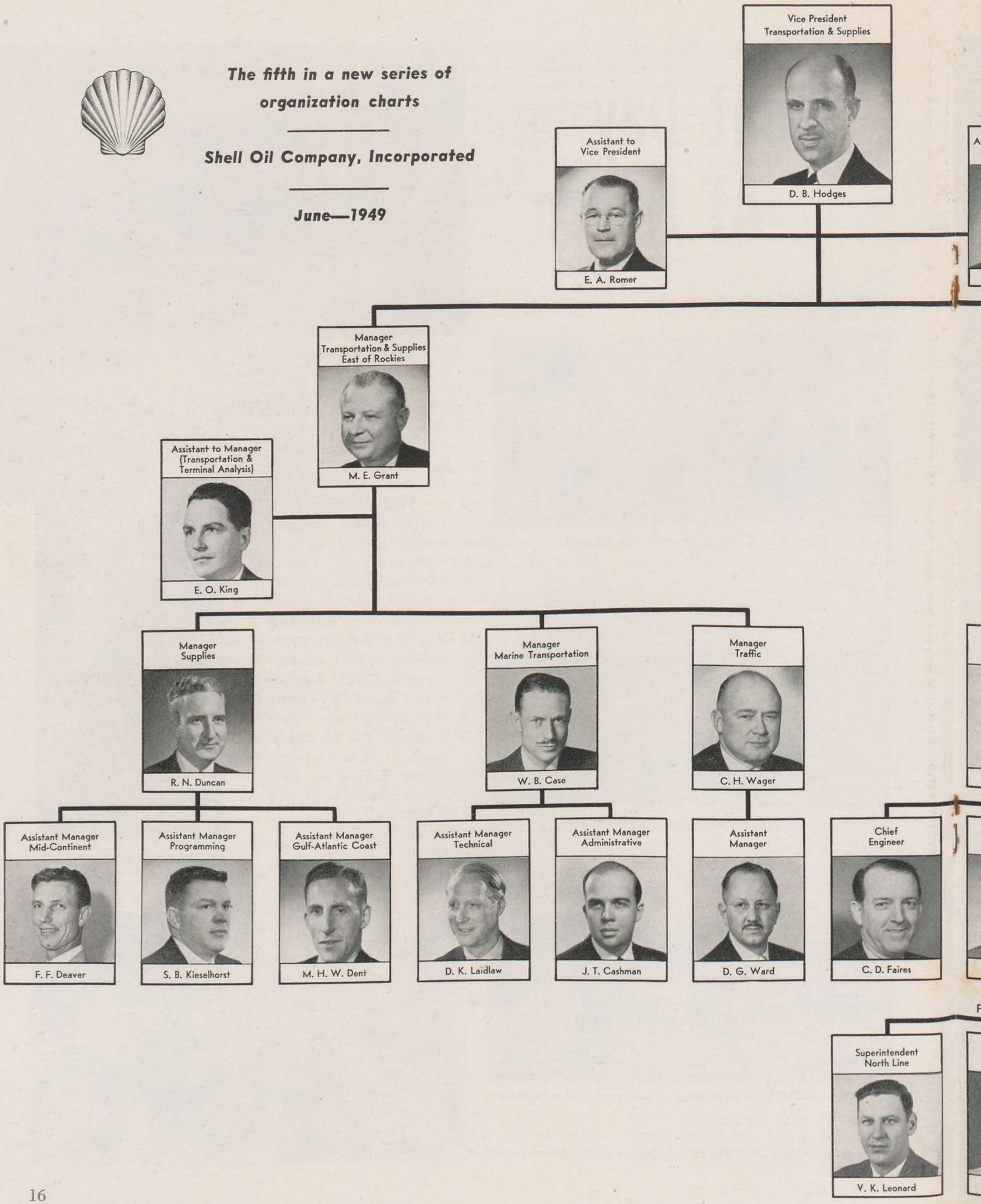
The Octopus Ride also drew its share of teen-agers and youngsters.

Serving the more than 3,000 who attended was a sizable undertaking. >

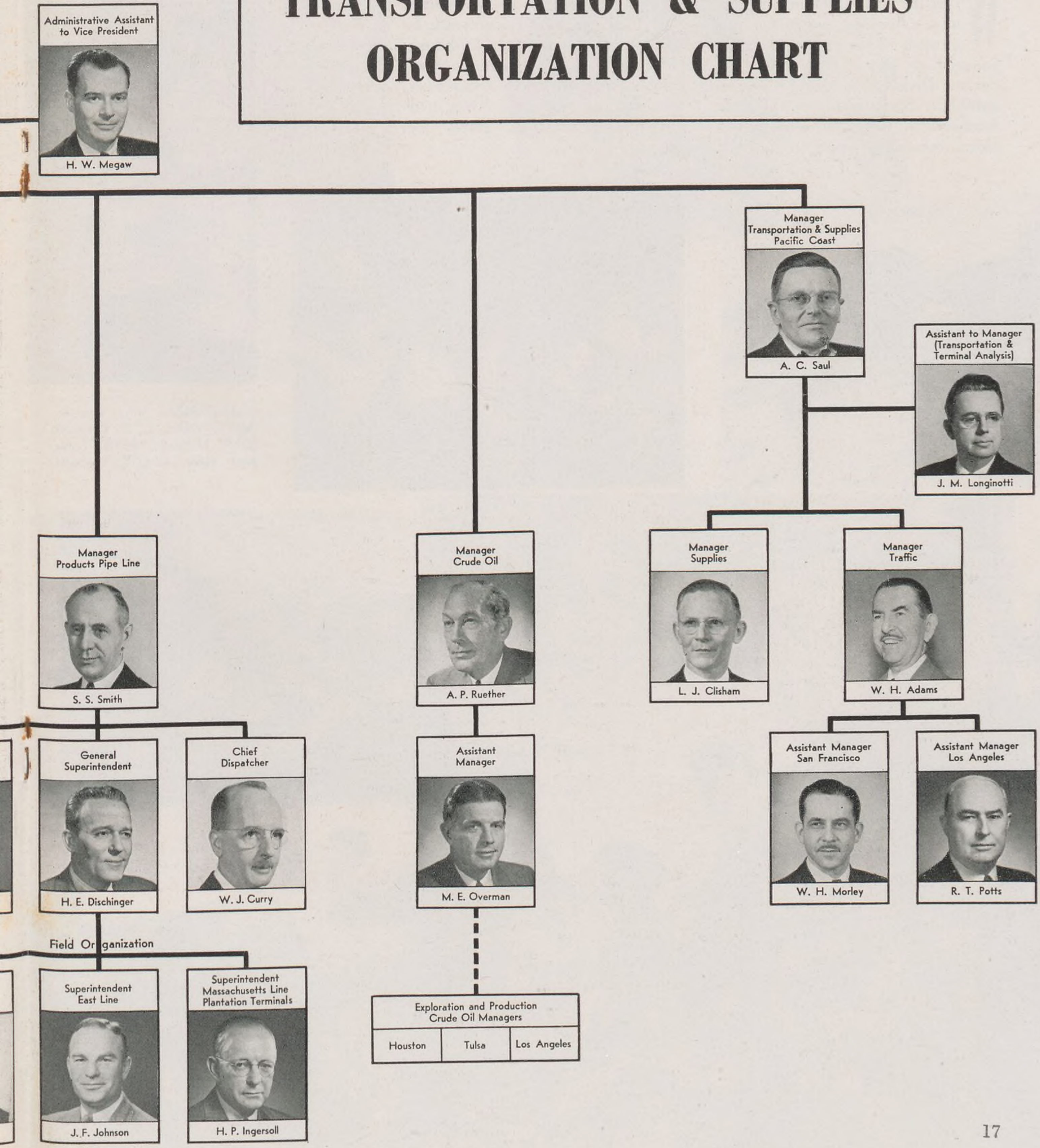
The fifth in a new series of organization charts

Shell Oil Company, Incorporated

June—1949



TRANSPORTATION & SUPPLIES ORGANIZATION CHART



Barbecue by the Sea

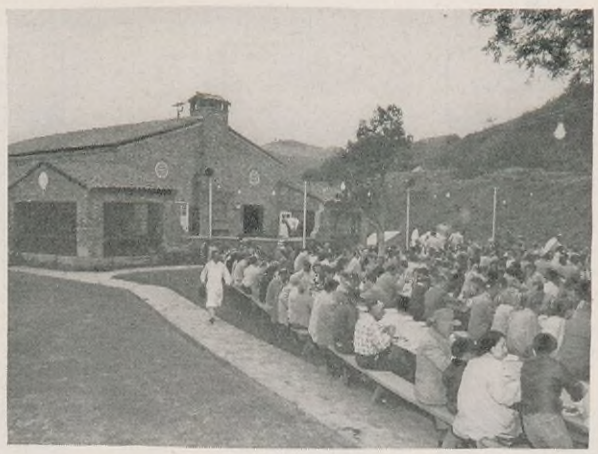
WITH the Shell Clubhouse at Ventura, California, and its spacious grounds as the setting, the 10th annual Field Day of the Coastal Production Division on May 14 was attended by Shell employees and their families from more than a dozen divisions, refineries, plants and offices.

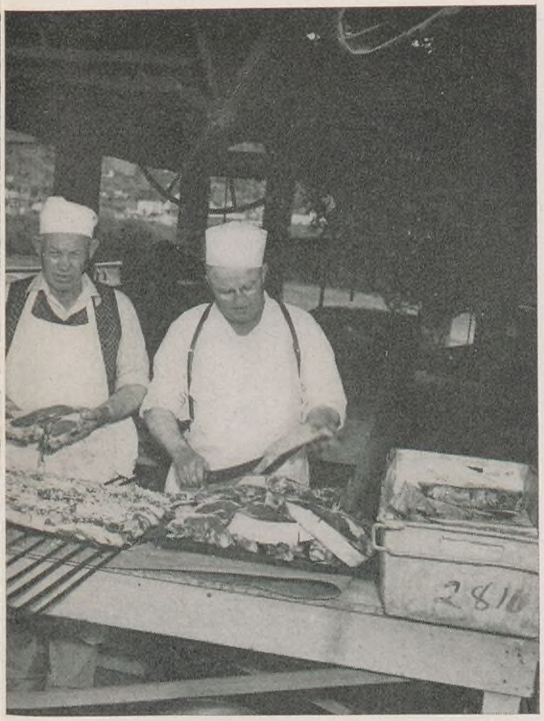
Originated in 1936 by the Ventura Shell Club, the event has grown to be the most widely attended of Shell employee activities in Southern California. Approximately 1,000 persons took part in golf and bowling tournaments, a barbecue, games and dancing.

< Bowling honors were won by, left to right: L. B. Clement, D. F. Milbradt, R. R. Evans, Harry Estep and D. C. Woizeski.

^ L. R. Newfarmer prepares to "sink" a short one (above, at left). G. E. Miller, E. L. McDowd and V. W. Finch, left to right, complete the foursome.

Climax of the Field Day was the barbecue served at long tables on the lawn facing the Shell Clubhouse terrace. >





Preparing the barbecue took many hours. Walter Anderson, J. F. Ross, J. N. Billinger and C. F. Waid, left to right, trimmed the steaks.

Richard Bramley, center, in charge of all arrangements for the barbecue, passes loaves of bread to W. O. Leitch, at left, and John Brandolino.

^ Kay Kendrick kept score for her Daddy's team. The bowlers are R. J. Janisse, J. P. Hutchens, W. A. Kendrick and Joseph Gorchak.

< L. M. Carter holds the pin while W. L. Hobro putts. Louise H. Schock, only woman entrant in the golf tournament, and A. M. Johnson, third from left, await the result.

Present was a three-generation Shell family headed by J. P. Vickers, first annuitant of the Dominguez Plant. The family comprised, left to right: Mrs. Vickers; Mr. Vickers; Jimmy Vickers; a son, J. N. Vickers; Patsy Vickers; Donny Vickers and Mrs. J. N. Vickers.

Shell Point

Shell's Ammonia Plant at Pittsburg, California, Has Put West Coast Agriculture on a Rich and Rewarding Diet of Concentrated Nitrogen

NOT far from Pittsburg, California, on the Sacramento River, about 30 miles northeast of San Francisco, Shell specialists take two elements and turn them into powerful agricultural vitamins. From natural gas and just plain air, they manufacture tank car and truck loads of ammonia, and make possible a process as important to agriculture as the invention of the harvester.

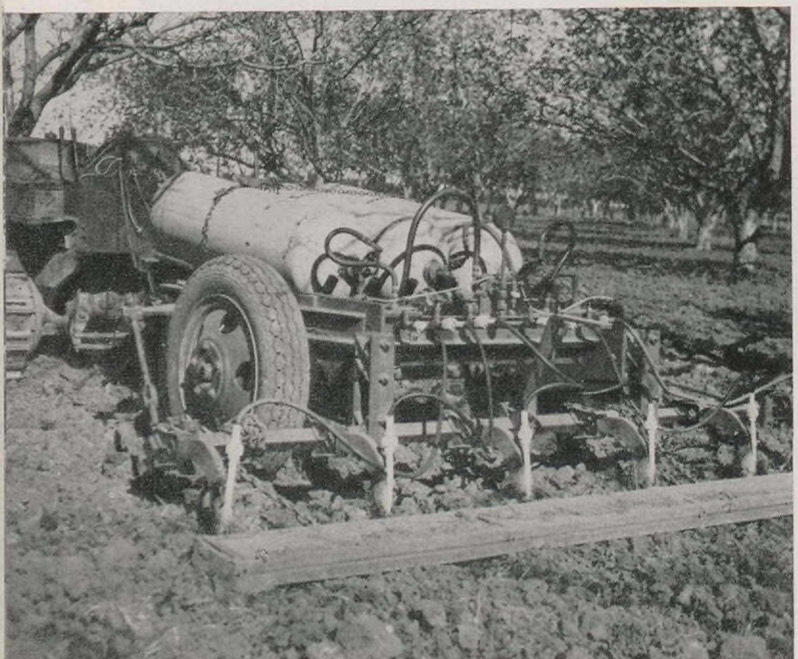
The background for these Shell Point operations is a story millions of years old, of the starvation diet that plants have had to endure ever since they first came on the earth.

No matter where it grows, a green plant depends upon nitrogen in much the same way that human beings depend upon oxygen. It gets the element through its roots from the ground. The trouble is, Nature doesn't always compensate the soil for the lost nitrogen as rapidly as it is exhausted. Thus, one way or another, men have had to put nitrogen back into the soil through fertilizer during all the years they have been sowing and reaping their fields.

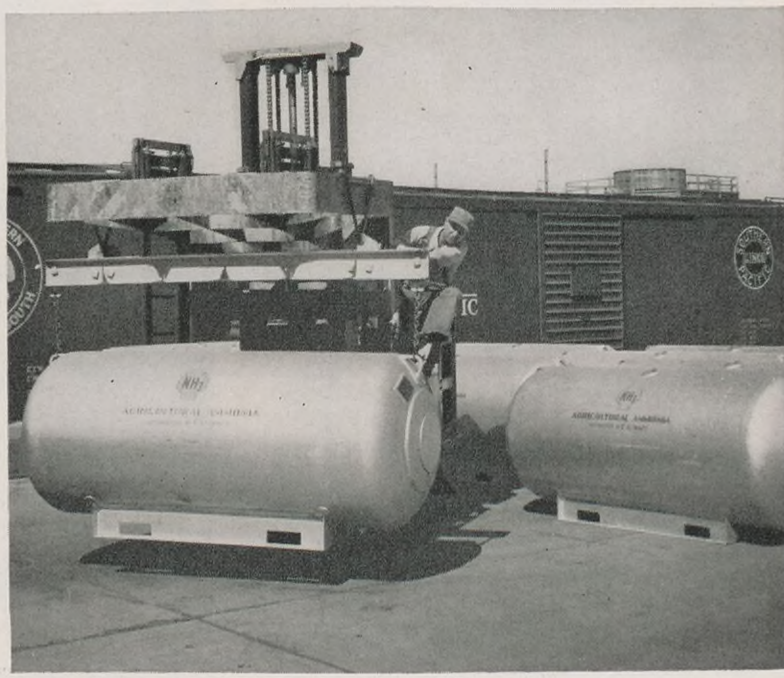
Gradually, through the years, various compounds of ammonia have proved to be the outstanding fertilizers. Rich in nitrogen, ammonium nitrate (33% nitrogen by weight) and ammonium sulphate (21% nitrogen by weight) particularly, outdistanced other forms and became the most popular and economic solid fertilizers.

Room for Improvement

But petroleum chemists knew there was room for improvement. They knew that ammonia (82% nitrogen by weight) would be a better fertilizer than any of its more costly compounds if only a practical and efficient way could be found for get-

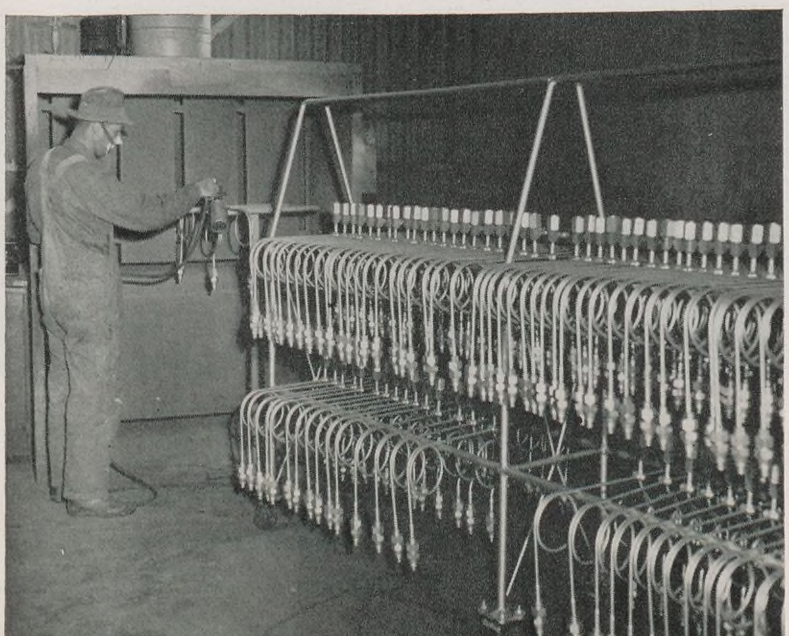


Designed for orchard use, this tractor trailer carries three cylinders of ammonia for enriching the soil by the Shell process known as Nitrojection.



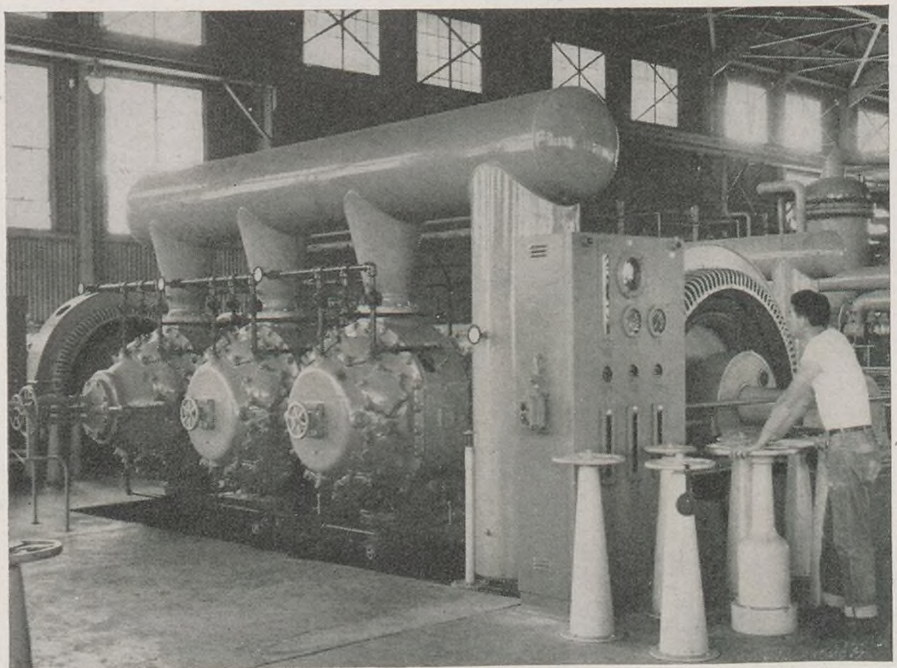
Using a special truck-mounted device, Frank Donithan lifts one of the new larger cylinders which contains 1,600 pounds of ammonia ready for shipment.

The mountains of ammonium sulphate crystalline fertilizer pictured above are moved by conveyors to the sacking plant or into chutes for bulk delivery. Here, tractor operator Herbert Synatzske pushes the product into chutes with a bulldozer blade.

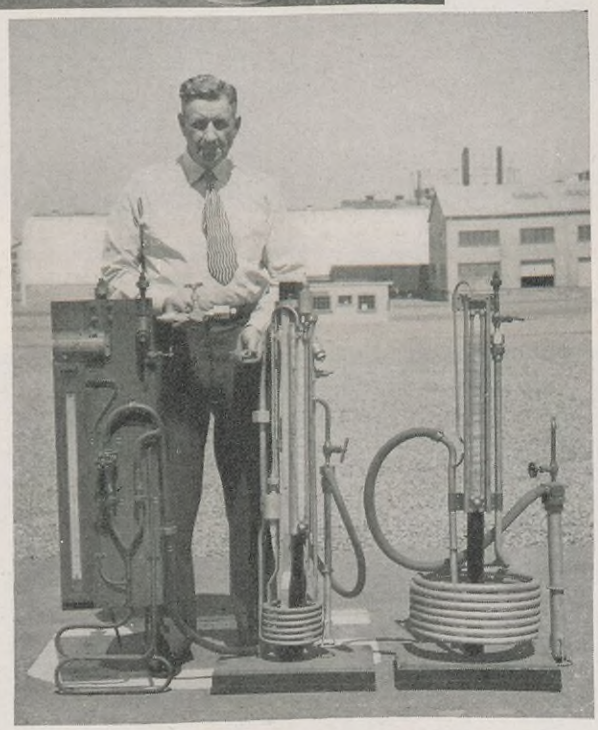


Used in applying ammonia to the soil, the tubing manifolds being spray-painted here by I. N. Fluitt are among the equipment designed and produced at Shell Point.

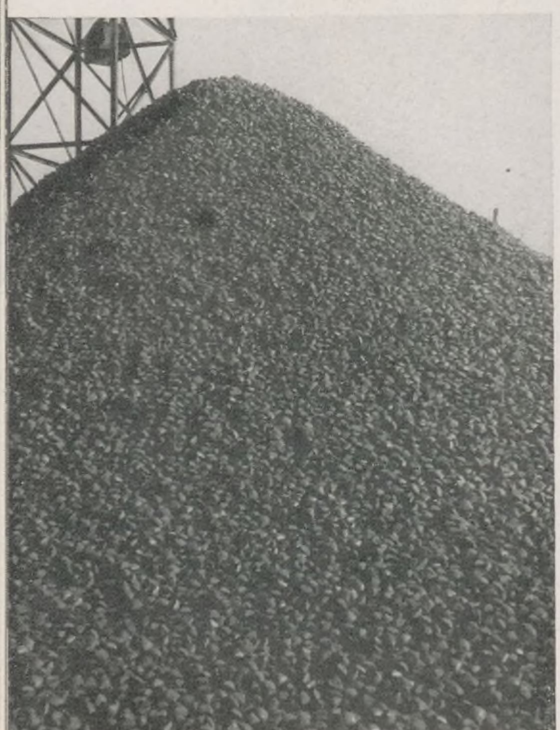
Modern equipment at the Pittsburg plant loads ammonium sulphate in bulk into long trailer trucks at the rate of approximately one ton per minute.



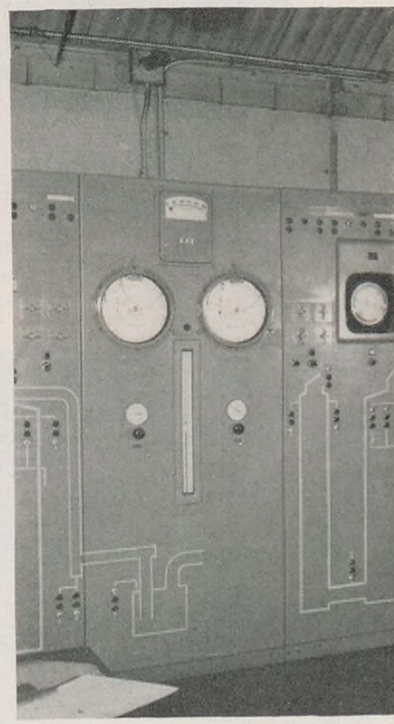
Frank Karaglanis, Operator No. 1, at the controls of one of four new compressors recently installed at Shell Point.



Holding a compact modern flow meter, Marketing Supervisor Frank Durbin stands behind three meters of earlier design.



One of the huge piles of carbon briquettes awaiting shipment from Shell Chemical's synthetic ammonia plant.



ting it into soil starved for nitrogen.

The story of Shell Point is the story of how the way was found.

To produce ammonia for ammonium sulphate fertilizer and for other industrial purposes, Shell Chemical Corporation in 1929 began construction of the synthetic ammonia plant at Shell Point. The location was chosen primarily because of its proximity to the vast agricultural regions of California. Intentionally located within easy pipe line reach of the natural gas fields of central California, Shell Point was the first synthetic ammonia plant in the world to use natural gas as its basic raw material.

From this natural gas and air, Shell Point makes hydrogen and nitrogen and combines them to produce anhydrous ammonia. As the chemist explains it:

" . . . Natural gas is first introduced into one of five huge cylindrical furnaces in the cracking plant where it is cracked and decomposed into hydrogen and carbon. From the furnaces the crude hydrogen passes into a huge gas reservoir (capacity 1,000,000 cubic feet) from which it goes on to be purified by a series of absorption and washing treatments. After naphthalene, benzene, carbon monoxide and other fractions have been removed, the pure hydrogen is blended with pure nitrogen obtained by the fractionation of liquid air. The two gases react at high pressure forming anhydrous ammonia which is liquid under pressure, a gas when released . . . "

In the beginning, Shell Point produced from 75 to 80 tons of anhydrous ammonia per day. Most of this was used in the manufacture of ammonium sulphate which was made by the absorption of the ammonia in an acid solution. (Far less rich in nitrogen than the ammonia from which they were made, solid fertilizers such as ammonium sulphate were the only ones at the time which could be effectively applied to the soil.) In addition to the ammonia used in the manufacture of ammoniun sulphate, a substantial part of the plant's early production was sold in bulk for industrial purposes, chiefly explosives, or in cylinders for refrigeration purposes.

Competition Becomes Severe

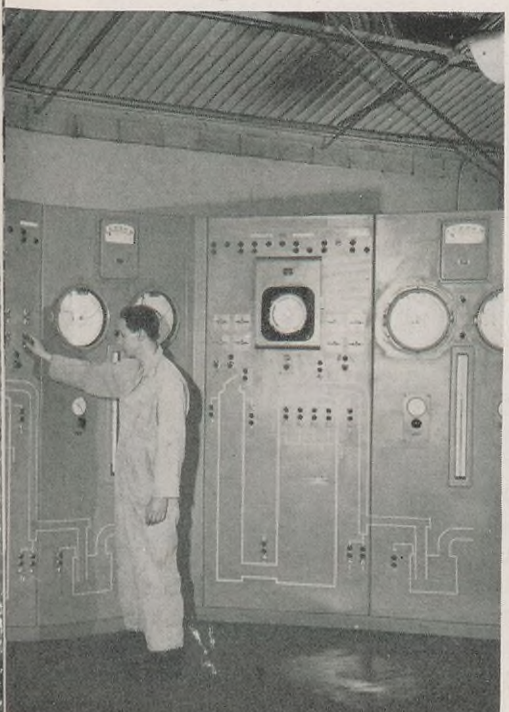
The new plant had been in operation only a short time when severe competition was encountered from the discovery that waste sulphuric acid left over from refinery operations could be successfully used in the manufacture of ammonium sulphate. The new development was a double blessing: it provided Shell Point with a cheap source of acid and simultaneously removed a big refinery headache, disposal of waste sludge. It also provided Shell Point with a by-product oil that could be used as a low grade furnace fuel after the acid had been removed or neutralized.

Then, beginning about 15 years ago, Shell Point revolutionized the fertilizer industry with two new processes that made possible for the first time the direct application of anhydrous ammonia itself to plant life.

F. H. Leavitt refined the process further by applying ammonia as a gas directly into the soil of non-irrigated areas, through a tilling method known as Nitrojection.

Many Problems Overcome

These new techniques were developed slowly since many problems had to be overcome before they could be applied successfully. For example, the volume of ammonia to be applied varies with different types of soils and for different crops. In the case of Nitrogation, Shell Chemical had to design accurate flowmeters for metering the correct volume of gas for particular irrigation situations. In Nitrojection, where the ammonia was injected directly into the soil, it was necessary to devise applicators



Operator No. I Michael Berish checks the operation of the remarkable "cycle timer" which automatically times and arranges the operations of the five furnaces in the natural gas reforming plant.

In this aerial view of Shell Point, all plant buildings are on the far side of the highway shown in the foreground. Close to California's farming regions, the plant supplies them with needed fertilizers.

Japanese and European production of ammonium sulphate. Prices dropped to unprofitable levels and for several years threatened the continued operation of the plant.

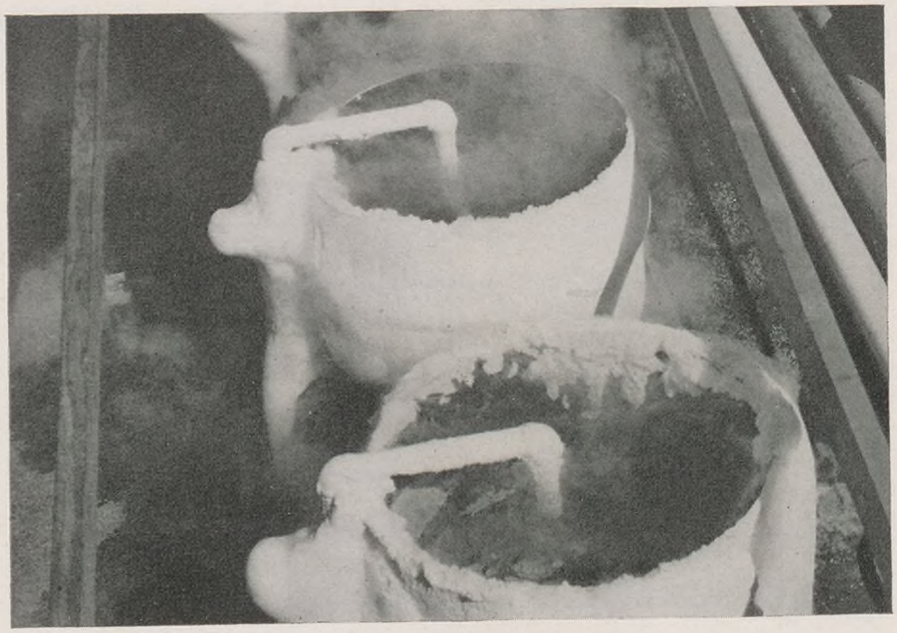
Shell Point survived this critical period by improving its processes and developing new markets.

The first process improvement was

Designed for use on irrigated land, Nitrogation—as the first process was called—introduced ammonia as a gas into the irrigation waters which fed the soil. This process made it possible to increase greatly the amount of nitrogen supplied to the soil from a unit volume of fertilizer. A few years later, Shell research specialist

which could be adapted readily to farm equipment and tilling methods already in use.

From the very first, Shell Point's ammonia fertilizer had a tremendous impact on agriculture. In some instances crop production per acre was more than doubled as Nitrogation particularly proved useful in the large



These frost-covered vessels and pipes discharge the pure oxygen produced during the preparation of nitrogen from liquid air.

irrigated farms and citrus groves of California and Arizona. And the application of nitrogen to the soil through the medium of anhydrous ammonia quickly became an accepted practice.

Increased Production

The resulting demand for ammonia fertilizer brought about two changes at Shell Point. One was an increasing accent on production of ammonia for agricultural purposes. The other was the development of a continuous program of design improvement and plant expansion.

Among the facilities recently provided by this plant modernization program are fully automatic cycle timers and an additional generator in the cracking plant, a new nitrogen apparatus, four new compressor units, and a carbon dioxide scrubber. Other new installations include increased storage capacity for anhydrous ammonia, and new crystallizers, evaporators and centrifuges for the production of ammonium sulphate.

The result of the continuous modernization is today's neat, efficient and interesting plant. Set well back from the passing highway, on a 76-acre tract, its operating units attract numerous visitors during the year.

Greatest attraction is the spectacular gas cracking operation. At half hour intervals, the incoming gas is shut off and the furnace is purged with steam which removes most of the carbon. Thereupon the furnace lid is opened, compressed air is released into the chamber and the resulting combustion of the remaining carbon shoots a column of flame 30 or 40 feet into the air. The dramatic effect continues sometimes for half a minute.

Each twenty-one feet in diameter, the furnaces are lined with checker fire brick that has been heated to a high temperature. The "cycle-timer," a fully automatic control board, performs all the operations necessary to the proper timing and functioning of the equipment.

Carbon is a major by-product of this operation. Recovered by filtration from the water-carbon mixture and dried, it is sacked in bulk or formed into briquettes through the addition of asphalt. Carbon, of course, has many uses in industry, principally in the manufacture of steel where it is used as an additive to the molten metal.

Safety Measures Are a Must

Involving temperatures ranging from 2,400 degrees F. to minus 300 degrees F. and pressures as high as 3,000 pounds per square inch, the extreme operating conditions in the plant make safety precautions imperative. Today, a full-time safety and fire inspector works closely with a committee of twelve men from the operating and maintenance sections, instilling safety precautions and procedures, spotlighting plant danger points, etc. A well-fitted hospital room and station wagon ambulance are kept on hand for emergencies.

As a result of these activities, accidents have been reduced steadily until now the plant figure is actually one-eighth of the industry average . . . a record recognized by the National Safety Council in a series of annual awards.

Shell Point is the largest synthetic ammonia plant west of the Rockies, and produces about half the nitrogen used in California agriculture. This huge volume is equally divided between the anhydrous ammonia and the sulphate forms. Either way, plants and planters are eating it up.

Another Shell Point Achievement

Although synthetic ammonia is the plant's first concern, oldtimers there can remember Shell Point's important experimental work in the manufacture of iso-octane gasoline, anti-knock component of motor and aviation fuels. Earlier experiments at Shell Development Company's Emeryville laboratories had demonstrated that the then precious iso-octane could be produced by passing pure hydrogen through di-isobutylene in the presence of a catalyst. Since the Pittsburg plant was a nearby source of large quantities of purified hydrogen, a pilot plant for the new process was built there in 1934. After a series of modifications and new pilot plants, a successful method of manufacture was developed and subsequently introduced at Shell's refineries.

Shell Went to the Fair

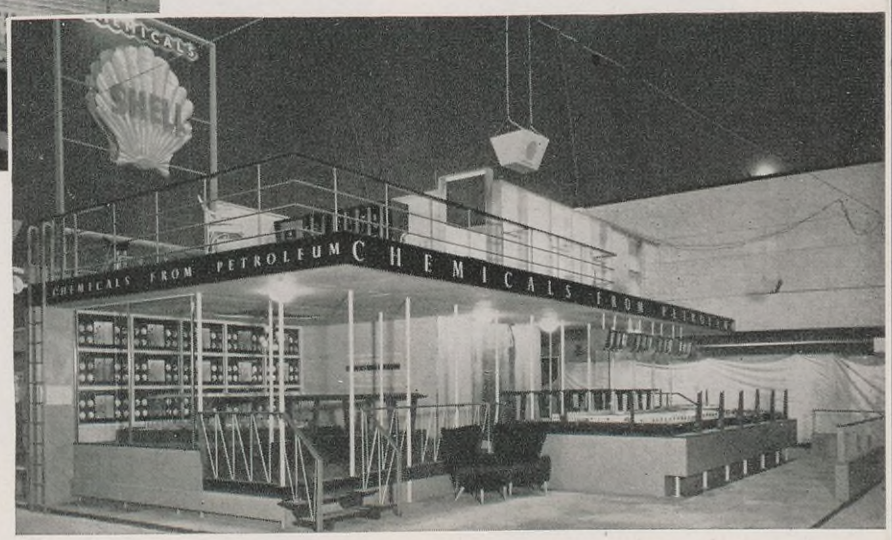
Shell Stole the Show at the 1949 British Industries Fair by Reproducing Everybody Else's Exhibit in Accurate Miniature

THE British Industries Fair is an annual event that attracts thousands of trade buyers from all parts of the world. It is a market place in which British industry displays its wares, and the wares are so considerable that there is no one building in the British Isles large enough to serve as its shop window. The Fair, as a result, is held in three different exhibition halls: at Olympia and near-by Earl's Court in London, and at Castle Bromwich in Birmingham.

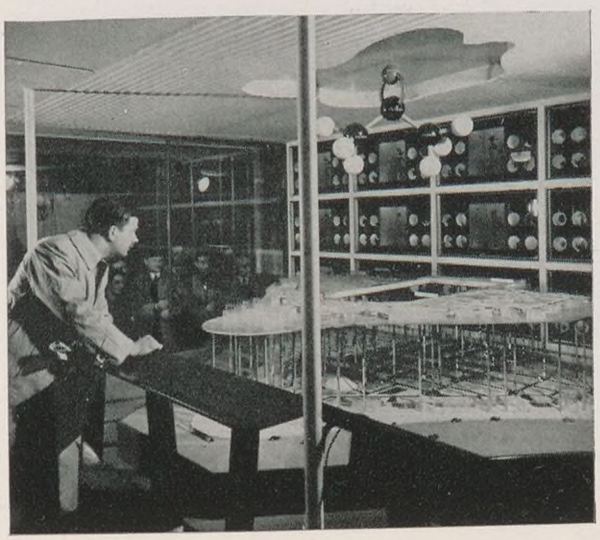
This year, when the B. I. F. officially opened on May 2, Olympia was the exhibition site for the chemical industry, and Shell, as a manufacturer and distributor of chemicals made from petroleum, was one of the industry's leading exhibitors.

Faced with thousands of competing attractions, Shell's exhibit at Olympia had to be extra special to attract the notice and interest of Fair visitors. And it was; scaled at one-eighth of an inch to the foot, the ingenious display presented scale models of each of the three Fair sections complete in every detail.

< Accompanied by Princess Elizabeth and the Duke of Edinburgh, Her Majesty the Queen of England visited the Shell Exhibit. Left to right: Harold Wilson, President of the Board of Trade; Princess Elizabeth; W. H. Young, Deputy Director of the B.I.F.; her majesty; George Legh-Jones, Chairman of the Board, Shell Union Oil Corporation; Frank Hopwood, Director, Shell Union Oil Corporation; A. Wolcough, Shell Petroleum Company (London); and H. Norcross, General Manager, Shell Chemical Development (London).



An over-all view of Shell's exhibit at Olympia. >



< The 766 exhibit stands in the Earl's Court model were linked to lighted panels indicating petroleum-based chemicals used by industries represented in the model.

They Have Retired

Manufacturing

D. G. GRAY
Wilmington Refinery
Engineering Field

O. W. KIRKPATRICK
Wood River Refinery
Engineering Field

V. H. RECKER
Wood River Refinery
Engineering Field

H. A. RUNNELS
Wilmington Refinery
Engineering Field

Marketing

B. C. GEISLER
Seattle Division
Operations

P. J. PIEROTH
San Francisco Office
Sales

H. L. SWARTS
Los Angeles Division
Operations

Treasury

J. E. ROBERTS
Coastal Division

Exploration and Production

G. W. GARDNER
Coastal Division
Production

O. M. THIBODAUX
New Orleans Area
Production

Shell Chemical Corporation

J. L. LEWIS
Houston Plant
Industrial Relations

W. L. MAY
Shell Point Plant
Ammonia

coast to coast

B. W. Sisk, A. J. Billingsley, W. F. Nixon, M. T. Hartwell, S. A. Ayres, E. C. Blanchard and B. B. Hayden (left to right) comprised the "galley crew" at the annual stag barbecue held at Brea, Calif., by employees of the Dominguez Chemical Plant.

John A. McCaddin, Coastal Division employee, has been awarded the Joseph A. Holmes Safety Association's Medal of Honor for rescuing a co-worker after an explosion last October at the Ventura, Calif., storehouse.

A dinner at the Ambassador Hotel, Los Angeles, was a feature of the 1949 Emblem Party held by members of the Ten Year Club of Shell Chemical Corporation's Dominguez Plant.

Chosen "Sweetheart" of the Houston offices of Shell Oil and Shell Pipe Line, Mrs. Pat Mosele, a secretary in the Houston Area Exploration Department, was presented at the Shell Employees Club dance on May 6.

D. E. Taylor, L. R. Newfarmer, J. N. Gregory, F. E. Rehm, W. C. Chonnette, E. W. Masters and W. C. Roberts (left to right) occupied the head table at the Emblem Party held last month by the Los Angeles Basin Division's Ten Year Club. >

< Both present employees and pensioners attended the Los Angeles Basin Division's Emblem Party. The group at the table in the foreground comprises, left to right: M. G. Erickson (retired), E. C. Van Sickle, G. W. Henderson (retired), R. M. Pollard, F. G. Engel, E. O. Cotter and B. L. Skinner (retired).

A Refinery Office Managers' meeting April 26 in Houston was attended by, left to right, seated: G. C. Rockafield, W. G. Precobb, A. A. Buzzi; C. C. Smith, Vice President of Houston's Second National Bank; J. H. White, P. E. Foster, and P. E. Keegan. Standing are, left to right: L. L. Sarchett, J. T. Kirk, P. J. Albright, R. V. Miller, J. L. Laurent, A. J. Fontaine and R. L. Lucas. >

Special Products Representatives of the various Marketing Divisions met with members of the Head Office Marketing-Special Products Department on April 26 in New York City. V

Service Birthdays

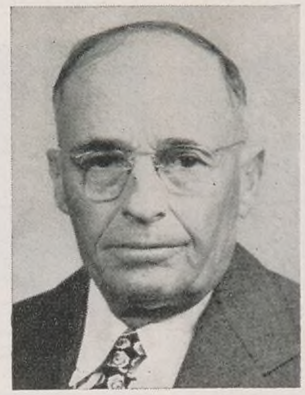
Thirty Years

F. W. LITTELL
Shell Pipe Line Corp.
Head Office

Thirty-Five Years

D. NEILSON
San Francisco Division
Administration

Thirty Years



L. J. TROXLER
Norco Refinery
Engineering Field

Twenty-Five Years

W. H. ALDERSON
Wilmington Refinery
Distilling

R. V. BAILEY
Chicago Division
Operations

M. E. BLOCK
Los Angeles Office
Exploration

H. J. BORGSTEDT
St. Louis Division
Operations

H. L. BRYANT
Tulsa Area
Production

H. E. CARY
Products Pipe Line
Effingham, Ill.

A. CLIFTON
Midland Area
Production

T. F. COLMER
Martinez Refinery
Gauging

J. F. CREWS
Wood River Ref'y
Utilities

E. J. DAVIS
Los Angeles Basin Div.
Gauging

W. W. Dawley
Sacramento Division
Sales

O. M. DUTY
Tulsa Area
Production

TWENTY-FIVE YEARS—*Continued*


J. E. EDELL
Wilmington Refinery
Engineering


G. F. GARIBALDI
San Francisco Div.
Operations


R. R. GAYER
Tulsa Area
Production


R. V. HEILMANN
Tulsa Area
Production


E. C. HENRY
Shell Pipe Line Corp.
Texas-Gulf Area


G. A. HERNDON
Wood River Refinery
Cracking


W. A. HUTCHINSON
Tulsa Area
Gas-Gasoline


J. H. JOHNSON
Midland Area
Gas-Gasoline


F. LITTLER
San Joaquin Division
Production


E. T. MAGUIRE
Wood River Refinery
Control Laboratory


B. C. MATHEWS
Tulsa Area
Production


C. G. McLAREN
Tulsa Area
Purchasing-Stores


F. MIRAMONTES
Martinez Refinery
Engineering


W. T. MITCHELL
San Francisco Div.
Operations


L. K. MOWER
Houston Area
Exploration


J. J. NOLAN
Martinez Refinery
Refining


H. J. OLYMPIUS
Wilmington Refinery
Purchasing-Stores


E. M. OVERSTREET
San Francisco Office
Pers. & Ind. Rel.


T. J. PATTERSON
Wood River Ref'y
Engineering Field

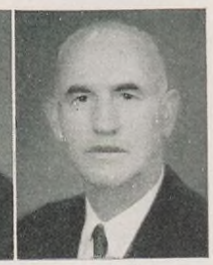

G. G. ROBERTS
Portland Division
Operations


L. O. ROBERTS
Wood River Ref'y
Engineering Field


F. P. ROBINSON
Wood River Ref'y
Topping


M. G. SOOTER
Coastal Division
Production


J. SNYDER
L. A. Basin Div.
C. & M.


J. W. SNYDER
Portland Division
Operations


J.W.SOUTHWORTH
Detroit Division
Administration


H. F. STANLEY
San Francisco Office
Purchasing-Stores


W. R. THOMPKINS
Seattle Division
Marketing Service


C. H. WAECHTER
Los Angeles Div.
Operations


F. L. WHITTINGTON
Shell Pipe Line Corp.
Mid-Continent Area


T. C. WILSON
Martinez Refinery
Distilling


H. W. WITTE
Pipe Line-North
Production

Head Office

20 Years

R. C. Hensel............Purchasing-Stores
J. Paar, Jr.....................Treasury
G. Purcell.................Manufacturing
A. H. Thielker.......Shell Union Oil Corp.
D. R. Whitehorne................Treasury

10 Years

M. L. Shannon...................Treasury

San Francisco Office

20 Years

F. K. Brevet..........Real Estate & Devel.
N. E. Davis.......................Legal
W. S. Floyd............Purchasing-Stores
C. V. Kiefer......................Asphalt
L. E. McGonigle..Transportation & Supplies
E. J. Uhl...............Marketing Service

15 Years

D. M. Anderson...Personnel & Ind. Relations
J. C. Schultz.............Plant-Automotive

10 Years

Frances H. Hussey.........Public Relations

Exploration and Production

HOUSTON REGIONAL OFFICE

15 Years

G. E. Archie..................Production
E. W. Jones...................Crude Oil
J. D. Milburn.................Production

HOUSTON AREA

20 Years

W. W. Gaines................Production
W. R. Rodman................Production

15 Years

Agnes M. Christofferson.........Production
W. A. Fletcher................Production
Frances C. Mosher...............Treasury
J. D. Pickell.......................Land
F. A. Rice....................Production
P. P. Unkel....................Treasury
T. J. Weigel..................Exploration
C. E. York......................Treasury

10 Years

R. F. Beery, Jr................Production
J. M. Fouts, Jr................Production
J. W. Moore...................Production
F. G. Phillips..................Production
H. F. Pierce...................Production

MIDLAND AREA

15 Years

A. C. Bulnes..................Production
T. S. Edrington...............Exploration
F. J. Howard................Gas-Gasoline
F. J. Nicholson.....................Land
W. T. Thomas..................Production

10 Years

S. T. Allega...................Production
R. F. Madera..................Production

NEW ORLEANS AREA

20 Years

B. S. Bell.....................Production

15 Years

J. W. Gammage, Jr.............Production
W. C. Gorden..................Production
J. W. Gravis..................Exploration
M. Hebert.....................Production
W. R. Kemper.......................Land
A. M. Lawrence................Production
T. M. Moore.........................Land
I. T. Turner...................Production
W. D. Unsworth................Production
R. W. Wingo.........................Land

10 Years

A. J. Dugas...................Production
M. F. Williams.................Production

TULSA AREA

20 Years

C. W. Amey....................Production
A. I. Findley..................Production
E. G. Gibson...................Production
B. L. Johnson..................Production
H. D. Junkens..................Production
O. G. Parcher..................Production
C. L. Payne....................Production
H. S. Simmering................Production

15 Years

M. A. Asbury................Administration
E. C. Fick.....................Production
R. F. Hays.....................Production
D. A. Marston..................Production
J. W. Milligan.................Production
R. Noll........................Production
C. R. Stanley....................Treasury
G. H. Starritt.................Production
C. L. Sutherland...............Production

10 Years

B. V. Barker...................Production
H. B. Bridges..................Production
A. T. Eyler, Jr.................Production
K. E. Fink.....................Production
W. C. May......................Production
E. F. McGeehon.................Production
H. D. Reynolds.................Production

LOS ANGELES REGIONAL OFFICE

20 Years

W. R. Butterfield.....Pers. & Ind. Relations
C. A. Kelson........................Land
H. R. Thornburgh...............Exploration

15 Years

W. R. Mainland..................Treasury

COASTAL DIVISION

15 Years

E. E. Clark....................Production
C. S. Jensen......................C. & M.
W. F. McIntyre................Exploration
G. M. Neilson.....................C. & M.

LOS ANGELES BASIN DIVISION

20 Years

E. Day.............................C. & M.

15 Years

A. B. Bilbo.......................C. & M.
L. C. Coffey.......................Drilling
M. W. Hurley..................Exploration

10 Years

C. G. Reynolds......................Land

ROCKY MOUNTAIN DIVISION

10 Years

B. P. Eastin..................Exploitation

SAN JOAQUIN DIVISION

20 Years

F. W. Benedict................Production

15 Years

R. H. Keesee............Purchasing-Stores
C. W. Ryan......................Treasury
E. H. Stinemeyer..............Exploration

10 Years

D. H. Sears...................Exploration

PIPE LINE

20 Years

W. D. McBride............Pipe Line-North

10 Years

A. R. Cowan..............Pipe Line-North

EXPLORATION AND PRODUCTION RESEARCH

20 Years

H. A. Miller......................Physical

15 Years

G. R. Barber..................Manufacturing

Manufacturing

HOUSTON REFINERY

20 Years

H. M. Archer...................Engineering
B. B. Dorrell...................Dispatching
M. Isaac.....................Technological
J. M. Kelly..............Engineering Field
J. W. Lisano......................Cracking
M. S. Newman...................Engineering
R. E. Pendleton...................Cracking
G. L. Stewart.....................Treating
W. G. Vance....................Engineering

15 Years

R. G. Funk.....................Lubricating
G. L. Matson.............Engineering Field
J. O. Rollins..................Engineering

10 Years

W. L. Darby...........Control Laboratory
C. R. Dukes....................Lubricating
E. P. Grigassy.........Research Laboratory
G. P. Hinds, Jr........Research Laboratory
G. T. Jones.......................Treating
W. L. Leamons..........Industrial Relations
H. R. Neal.......................Utilities
F. L. Niederhofer.........Engineering Field
Q. C. Stanberry, Jr......Control Laboratory
L. E. Vaughan............Engineering Field
B. J. Walter.....................Utilities

MARTINEZ REFINERY

20 Years

B. Bolger.....................Compounding
E. S. Darger....................Fire & Safety
L. M. Prater......................Cracking
L. M. Seclef...................Engineering

15 Years

A. Agostino....................Engineering
H. F. Bradeen.....................Cracking
E. C. Coppola..................Engineering

NORCO REFINERY

20 Years

C. B. Cambre......................Topping
D. A. Dill............................Gas
H. L. Duhe...............Engineering Field
L. A. Durocher...........Engineering Field
A. R. Lambka.............Engineering Field
E. J. Lousteau....................Treating
J. Matis.................Engineering Field
F. E. Zerinque....................Cracking

WILMINGTON REFINERY

20 Years

H. D. Ninnis....................Laboratory
R. L. Pomroy..................Machine Shop

15 Years

D. L. Cleveland................. *Technical*

10 Years

C. A. Kelly..................... *Gauging*
B. J. Penner.................... *Mechanical*

WOOD RIVER REFINERY

20 Years

M. Beltz................ *Engineering Field*
E. B. Erler............. *Engineering Field*
J. M. Fair.................. *Lube C. & S.*
C. J. Haemmerle............... *Alkylation*
R. E. Harrawood................. *Topping*
H. S. Hartkopf.................. *Cracking*
B. A. Hill.................. *Dispatching*
J. Kidd................. *Engineering Field*
W. B. King.................. *Lube D. & D.*
E. C. Lawrence.......... *Engineering Field*
A. E. Nelson.................... *Topping*
W. O. Schmidt........... *Engineering Field*
H. W. Schulte........... *Engineering Field*
W. J. Simmons............... *Lube C. & S.*
D. V. Smith..................... *Topping*
O. G. Smith................. *Lube C. & S.*
H. N. Starkey........... *Engineering Field*
F. E. Thompson.......... *Engineering Field*
F. G. Travis............ *Engineering Field*
S. W. Woods............. *Engineering Field*

15 Years

F. A. Dettmer........... *Engineering Field*
J. H. Harmon............ *Engineering Field*
E. J. Juneau............ *Engineering Field*
L. E. Ozier............ *Engineering Office*
E. W. Ryan.................. *Lube C. & S.*
J. J. Sainteve.......... *Engineering Field*
Pearl C. Shearlock...... *Control Laboratory*

10 Years

C. E. Abendroth............... *Alkylation*
G. C. Bailey............ *Engineering Field*
F. G. Blumberg.............. *Lube C. & S.*
D. M. Boyle............. *Engineering Field*
G. D. Brokaw........... *Control Laboratory*
O. D. Brooks............ *Engineering Field*
J. A. Budde............. *Engineering Field*
J. B. Chamness......... *Engineering Office*
F. L. Clark............. *Engineering Field*
W. D. Doak.............. *Engineering Field*
L. E. Donaldson............. *Lube Treating*
R. E. Franklin.......... *Engineering Field*
M. A. Garcelon.......... *Engineering Field*
O. G. Gilbert........... *Engineering Field*
J. E. Gray.............. *Engineering Field*
W. E. Hendricks........ *Treating Light Oil*
F. J. Hess.............. *Engineering Field*
J. K. Howard.......... *Industrial Relations*
H. A. Huber............. *Engineering Field*
L. H. Huelsman.......... *Engineering Field*
R. L. Johnson........... *Engineering Field*
W. G. Korte............. *Engineering Field*
J. L. Leverett.......... *Engineering Field*
M. Levi, Jr............. *Engineering Field*
H. McMonigle............ *Engineering Field*
C. D. Milford........... *Engineering Field*
V. R. Muentnich......... *Engineering Field*
J. T. Podner............ *Engineering Field*
W. S. Rives............. *Engineering Field*
C. E. Rushing........... *Engineering Field*
M. E. Ruyle............. *Engineering Field*
E. C. Schuette.......... *Engineering Field*
W. F. Sedekum........... *Engineering Field*
R. F. Stringer.......... *Engineering Field*
N. E. Tomlinson............... *Alkylation*
R. L. Turner............ *Engineering Field*
A. W. Uhlig............. *Engineering Field*
E. A. Wade.............. *Engineering Field*
E. W. Wagenblast........ *Engineering Field*
F. J. Weese............. *Engineering Field*
D. E. York.................. *Dispatching*

Marketing Divisions

20 Years

G. Lothridge.......... *Albany, Operations*
R. D. Knox...... *Atlanta, Marketing Service*
R. B. Coleburn............ *Baltimore, Sales*
E. W. Sandker..... *Baltimore, R. E. & Devel.*
E. C. Swanson.......... *Baltimore, Treasury*
L. P. Farrell................ *Boston, Sales*
E. L. Gorman........... *Boston, Operations*
E. A. Hanley............. *Boston, Treasury*
H. E. James............ *Boston, Operations*
W. C. Kelley........... *Boston, Operations*
C. C. Nealey........... *Boston, Operations*
R. A. Hutcherson...... *Chicago, Operations*
P. J. Kelso........... *Chicago, Operations*
H. M. Brown.............. *Cleveland, Sales*
H. J. Wells......... *Cleveland, Operations*
N. H. Miles........ *Detroit, Administration*
J. L. Fowley....... *Indianapolis, Operations*
E. F. Melody........... *Minneapolis, Sales*
R. E. Morgan........... *New York, Treasury*
A. R. Ulrich..... *Portland, Marketing Service*
B. F. Allen.... *Sacramento, Marketing Sales*
N. B. Lowell............ *Sacramento, Sales*
C. H. Noble.... *St. Louis, Marketing Service*
J. J. Schmidt.... *St. Louis, Marketing Service*
C. Bristlin....... *San Francisco, Operations*
R. C. Green........ *San Francisco, Treasury*
L. G. Morris........ *San Francisco, Treasury*
R. E. Owen......... *San Francisco, Treasury*
L. F. Randall..... *San Francisco, Operations*
O. A. Schmiege...... *San Francisco, Treasury*
V. B. Garber........... *Seattle, Operations*
H. W. Peet............. *Seattle, Operations*
S. E. Salmon........... *Seattle, Operations*

15 Years

F. C. Hoffman.......... *Albany, Operations*
R. H. Webster.......... *Albany, Operations*
M. L. Millard.......... *Boston, Operations*
G. E. Fry............. *Chicago, Operations*
W. S. Randolph...... *Cleveland, Operations*
H. H. Roth............ *Detroit, Operations*
E. J. Stiles.......... *Detroit, Operations*
H. K. Elwood....... *Indianapolis, Operations*
O. B. Allison...... *Los Angeles, Operations*
L. G. Crosby............ *Los Angeles, Sales*
J. C. Worrell.. *New York, Marketing Service*
M. E. Timmer............ *St. Louis, Treasury*

10 Years

M. C. Cook............ *Albany, Operations*
P. C. Waldman. *Baltimore, Marketing Service*
J. J. Kroeger................ *Boston, Sales*
Dorothy M. Hoff....... *Chicago, Operations*
F. W. Spooner............. *Chicago, Sales*
C. E. Starn.............. *Detroit, Treasury*
M. C. Hallock...... *Los Angeles, Operations*
J. T. Parker........ *Los Angeles, Operations*
J. H. Bos................. *New York, Sales*
L. E. Bottiglier....... *New York, Operations*
R. A. Albright......... *Portland, Operations*
R. W. Bjorkquist....... *Portland, Operations*
D. C. Dagman.............. *Portland, Sales*
J. L. Cerutti........ *Sacramento, Operations*
F. S. Rowland .... *San Francisco, Operations*
M. B. Havnaer .... *Seattle, Sales*
C. M. Sweeny........... *Seattle, Operations*

Products Pipe Line

10 Years

J. A. Hargraves........... *Waltham, Mass.*
N. S. Hinman........... *Spartanburg, S. C.*
V. O. Lipperd.............. *Zionsville, Ind.*
B. C. Moomaw.......... *W. Boylston, Mass.*
R. Tharp .... *Springfield, Ohio*

Sewaren Plant

20 Years

J. G. Scully .... *Compound*

15 Years

W. G. Clark....................... *Depot*

10 Years

L. D. Genovese.................. *Terminal*
M. O. Hunt .... *Terminal*

SHELL CHEMICAL CORPORATION

20 Years

E. E. Caler.................. *Head Office*
G. E. Richards.................. *Martinez*
E. G. Saxon...................... *Houston*

15 Years

E. C. Blanchard............... *Dominguez*
M. J. Doody.................. *Shell Point*
H. E. Hughes.................. *Dominguez*
B. T. Peterson .... *Martinez*

10 Years

W. C. Dietrich.................. *Martinez*
E. Haupt...................... *Dominguez*
C. L. Jones...................... *Houston*
J. R. Minnich................ *Shell Point*
R. W. White .... *Houston*

SHELL DEVELOPMENT COMPANY

20 Years

G. W. Hearne.................. *Emeryville*
A. J. Johnson............... *Head Office*
R. N. Shiras................ *Head Office*

15 Years

L. H. Bayley.................. *Emeryville*
C. F. Lee..................... *Emeryville*
O. H. Milmore............... *Head Office*

10 Years

E. T. Bishop.................. *Emeryville*
G. J. Carlson................. *Emeryville*

SHELL PIPE LINE CORPORATION

20 Years

B. L. Adkins................ *Bayou System*
J. R. Barclay.......... *Mid-Continent Area*
P. M. Farmer.............. *Texas-Gulf Area*
J. H. Hall............ *Mid-Continent Area*
D. C. Jones............... *Texas-Gulf Area*
L. S. Morgan.......... *Mid-Continent Area*
M. W. Robertson......... *West Texas Area*
J. G. Weatherford......... *Texas-Gulf Area*

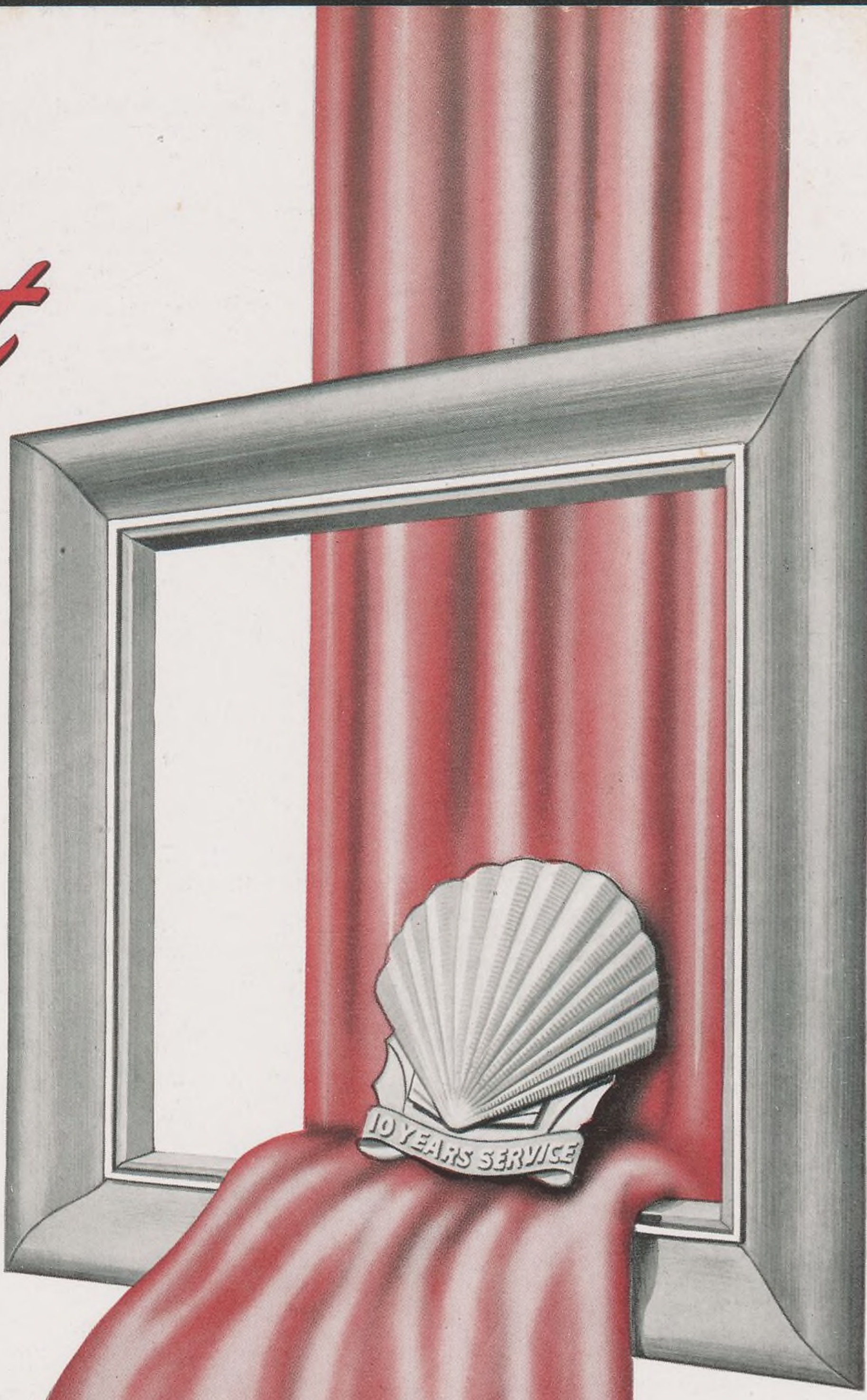
15 Years

S. B. Bean............... *West Texas Area*
C. H. Bixler............. *West Texas Area*
J. A. McCormick.......... *West Texas Area*

10 Years

K. L. Gillispie.......... *West Texas Area*
D. R. Joseph................ *Head Office*
W. T. Rainey................ *Head Office*
C. A. Rodgers......... *Mid-Continent Area*
J. E. Wagner................ *Head Office*

matters of *Fact*



the years of service

. . . piled up by Shell employees make an impressive total. More than 40% of all Shell employees have 10 or more years of Company service as follows:

10 to 14 years	4,300
15 to 19 years	3,700
20 to 24 years	3,800
25 years and over	1,700

FAMILY PORTRAIT

STENOGRAPHER

MARGARET HENLEY

Of the more than 3,000 women who play important roles in Shell's operations, 570 are stenographers like attractive Margaret Henley of the New Orleans Area Office. Maggie, as her friends call her, takes dictation, types reports, and receives, distributes and dispatches mail.

Miss Henley joined Shell in August 1947 as a Junior Stenographer in the Treasury Department; now she's a Stenographer in Exploration. Before coming to work at the New Orleans Office, she worked for the American Red Cross at the Navy and Marine hospitals in the "Crescent City," interviewing veterans making pension claims. She has a Bachelor of Arts degree from Newcomb College, where she majored in languages.

A native of Meridian, Miss., Maggie shares an apartment in New Orleans' French Quarter with Elsie May Munn, a Shell co-worker. She spends a lot of her spare time at her hobby of making useful articles out of transparent plastics, and is active in the shows and entertainments presented by the New Orleans Shell Club.

SHELL OIL COMPANY
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