THE TEXACO STAR

FALL 1962

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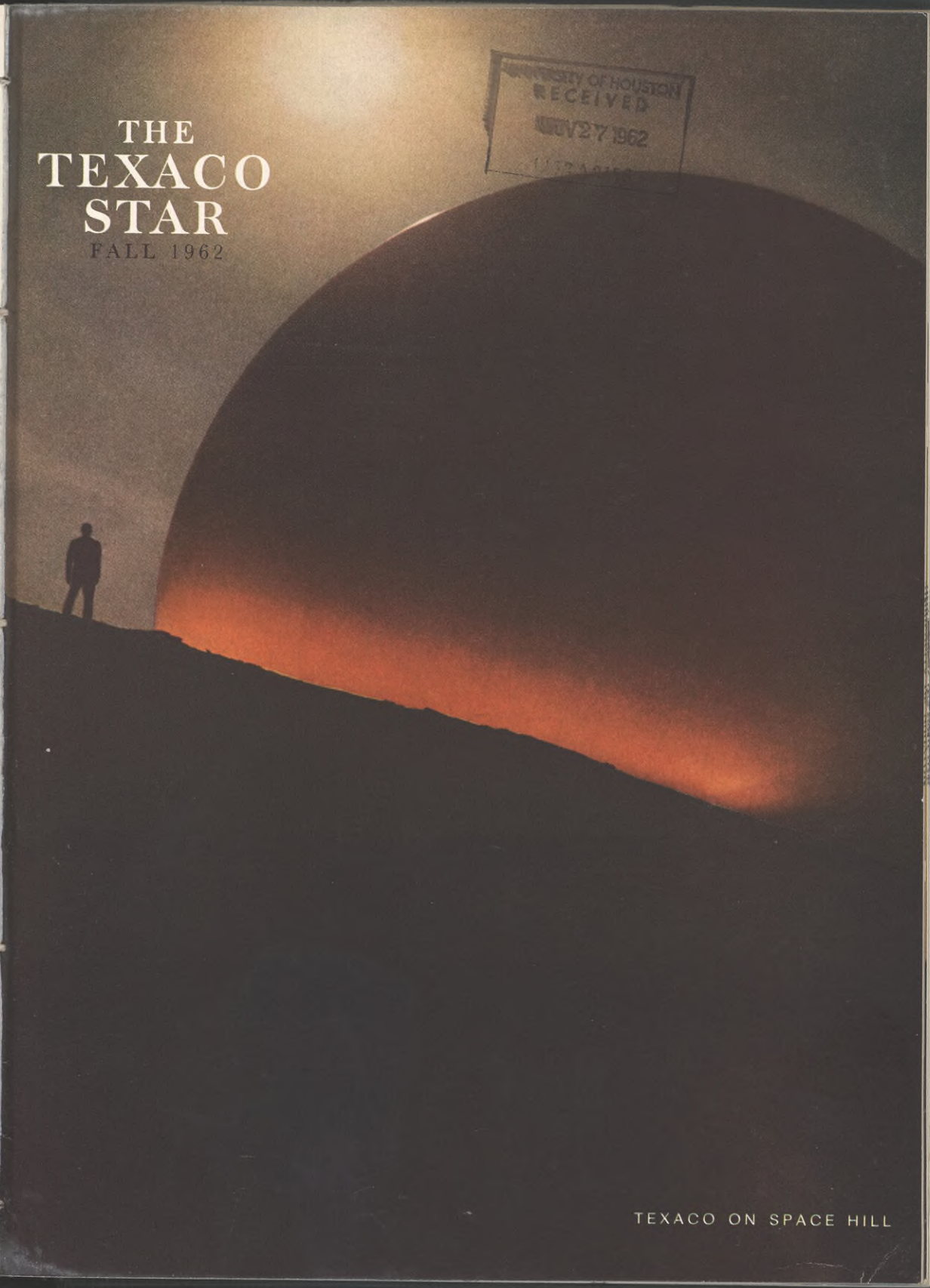

TEXACO ON SPACE HILL

FUTURE

EXPOSURE

What ever happened to the scientist in his ivory tower? Not so long ago it was the popular notion he worked in one, idly puttering with abstruse theory while the rest of us wrestled with our everyday problems. That notion has faded in recent years, as science has more and more become a practical shaping force in our lives. If the scientist ever really *did* live in an ivory tower he has moved out of it: into a down-to-earth research center like the one *(left)* Texaco now is completing at Port Arthur, Texas, for instance. The new facility will be finished in 1965, and will occupy 35 acres. It will consist of 15 separate laboratory and office buildings, five pilot-laboratory bays, service buildings, and enclosed storage areas. Five of the administrative and service buildings already have been completed and are being used. One of the main aims of the new center is to provide a suitable environment for the most productive possible scientific effort by hundreds of Texaco scientists and technicians now working at Port Arthur in scattered locations. It also will provide a research atmosphere that should attract the bright new research people Texaco looks for to carry out its increasingly important scientific investigations. Most of the work done at the new center will be on "pilot" projects, as contrasted with the more fundamental studies done at the Texaco Research Center in Beacon, New York. Port Arthur teams will develop new petrochemicals, advanced refining techniques, more effective corrosion and contamination deterrents. They will carry out studies covering a broad range of petroleum fuels and lubricants. Texaco's research in the field of exploration and production is conducted in modern laboratory facilities located at Bellaire, Texas. Special process development facilities are also located at the Department's Research Laboratory at Montebello, California. Texaco Experiment Incorporated, Richmond, Virginia, is a subsidiary of Texaco devoted to the conduct of research in the areas of propulsion systems and the utilization of high-energy fuels. The new Port Arthur Research Center will give Company scientists and technicians another home with a view—not down, from an ivory tower, but out into the future.

THE TEXACO STAR

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THE COVER: In the dusk, the 13-story inflated radome that houses the tracking mechanism for the Telstar communications system glows near Andover, Maine. The man at the left gives a measure of the structure's size, just as the headlines bannered across the world when the first public Telstar broadcasts were made last July provided a measure of the world's awe. Texaco's contributions to Telstar are described in "Texaco on Space Hill," beginning on Page 16.

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A PROGRAM FOR RATIONAL TAX REVISION

Editor's Note: Tax-rate reform offering greater freedom for economic growth has been the subject of many Congressional proposals. As our Federal lawmakers move toward tax revision in the year ahead, it is timely to consider the merits of identical bills (H.R. 12632 and H.R. 12633) introduced in July, 1962, by Representative A. S. Herlong, Jr. (D-Fla.), and Representative Howard H. Baker (R-Tenn.). As pointed out in the following article, which is based upon statements made by Representatives Herlong and Baker, the legislation they propose would provide for systematic rate reductions in personal and corporation income taxes over a period of five years within the framework of a balanced budget.

EVER SINCE THE MID-1950s, the American economy has suffered from chronic sluggishness. Although it has had its ups as well as its downs, the overall charting shows a worrisome failure to move ahead at the lively annual rate that means economic health.

According to the best diagnoses by our economists, business leaders, and informed people in Government, this illness in the economy can be traced in large part to two related causes.

First is headlong Federal spending with its inevitable "red ink" financing. Second is the oppressively high taxation levied on both individuals and corporations to help pay bills Federal spending has created.

It is not surprising that both the private and corporate citizen, riding such a merry-go-round of spending and taxation, have become weary. It is not hard to see, either, why both have become wary—wary particularly of stepping up outlays, and taking risks in the hope of financial rewards. Present tax rates not only severely restrict the funds available for spending but also sharply curtail the amount that can be kept if—as a result of hard work and risk taking—a gain in before-tax income is achieved.

In the case of industry it has meant reduced incentive—and funds—to construct new plant and equipment (economists use the term "capital formation") capable of supplying new products or using new techniques to increase the efficiency of production. Instead, industry has made do with existing equipment despite the fact that much of it is technologically out of style. Consumers, too, have been reluctant about increasing their purchases of durable goods and other "big ticket" items.

The inevitable result of too little capital investment is stunted economic growth and a nagging unemployment problem. Growth comes from capital formation, and when programs of heavy public spending and taxation take too much money from the private economy, new capital formation is discouraged.

The notion persists, in some quarters, that the way to spur economic expansion is to increase Government spending and not worry about the budget deficits. The theory is that an increase in private spending will be encouraged this way, lifting the national income and the tax revenues.

Admittedly, a temporary spurt is possible if fear of inflation becomes widespread. But it is surely no formula for enduring prosperity. The experience of this nation and others is clear proof that runaway Government spending isn't a sound economic policy.

In more thoughtful quarters, attention has been turned to the possibilities of spurring economic expansion and job-creating enterprise by cuts in tax rates, and one of the most imaginative and responsible proposals in that area has been made jointly by Representatives Herlong and Baker of the House Ways and Means Committee.

Their proposals, contained in identical bills H.R. 12632 and H.R. 12633, are for a five-year program of gradual cuts in personal and corporate taxes. The reductions would be made on a scale that would offer some hope of maintaining a reasonably balanced budget and by a method that would tend to maintain some check on Government spending during the five-year period.

By the end of the five-year period both corporate and individual income tax rates would have been cut to a maximum of 42 percent. Other graduated rates of individual tax would be reduced in a consistent pattern, with the present 50 percent rate (to take one example) coming down to 23

percent. The first bracket rate of 20 percent would be lowered to 15 percent, assuring a minimum reduction of 25 percent to every personal taxpayer.

The combined top rate of corporate tax would be reduced two percentage points a year, or from 52 to 42 percent, over the five-year period. The new top rate of 42 percent would still be over 10 percent higher than the 38 percent top rate of corporate tax between World War II and Korea.

It is estimated that the yearly tax saving would be approximately $3.7 billion ($2.7 billion from individual rate reduction and $1 billion from corporate rate reduction), based on current income levels.

WHAT WOULD HAPPEN to tax revenues while these reductions were being put into effect? Would they decline by the $3.7 billion a year in tax savings accruing to individuals and corporations? The answer is "no." The tax savings would mean increased spending power for the all-important private sector of the economy. The beneficial effect of higher consumer and business outlays would provide a major stimulus to economic growth and national income. Accordingly, the tax base would be enlarged and thus provide Government revenues to finance the reductions arising from the lower tax rates.

However, until after all the reductions have been put into effect, the revenue increase probably would not be sufficient to finance the tax rate reductions and provide margin for any further significant increase in Federal spending. The proposed legislation gives priority to using this revenue increase for tax rate reform instead of for increased spending. As in earlier bills, however, the Congressmen have included a provision that at any time after the first year the President could postpone reductions scheduled in any succeeding year. This would give the Federal Government flexibility to deal with an emergency, which is only prudent. However, it would also exert a powerful restraint both on the White House and Congress when it comes to proposing or voting spending projects.

Commenting on that built-in restraining feature of the Herlong-Baker proposal, *The Journal of Commerce* in an editorial recently noted that "it would require a singularly tough President and an equally tough Congress to snatch away from taxpayers a scheduled reduction in order to increase Government spending."

H.R. 12632 and H.R. 12633 would improve the business climate and the public psychology, creating optimism for the future. They would encourage forward business planning in anticipation of the reform of growth-retarding income tax rates over the five-year period. Their enactment would have a more favorable effect on the economy in the short-range than a large, immediate one-bite tax reduction.

An increase in economic growth and capital formation combined with an end to headlong advances in Federal spending will contribute to solving our persistent balance-of-payments problem. Expanded and more efficient levels of production will increase American industry's ability to expand its exports. This will contribute to a more favorable balance in our international accounts and increase world confidence in the stability of the dollar.

In setting the rate reductions, the two Congressmen have been aware of the need to restore to our economy the benefits of mobile venture capital in the hands of individuals. The top individual rate is set at the same level as the top corporate rate. Too, the lower the top rate of individual tax, the greater will be the protection for all middle bracket taxpayers. Proposals for higher top rates of tax inevitably carry with them higher rates through the critical middle brackets.

Representatives Herlong and Baker have also recognized that when a tax reduction is in the air the amount by which tax rates are cut in any one year is not necessarily as significant as public knowledge that further reductions will follow.

A tax cut that unhinges still further an already unbalanced budget and accelerates the outflow of gold will not solve the major problems facing the economy today. It will merely ease some by making some others worse. Spacing out the tax reduction over a period of years seems to be the most workable and effective way to achieve the rate reform our economy needs within the framework of a balanced budget. •

A PROPER APPROACH

Shortly after the introduction of H.R. 12632 and H.R. 12633, Congressman Baker wrote to Texaco Board Chairman Augustus C. Long asking for his views on the new bills. An excerpt from Mr. Long's reply appears below:

"It has been our position that the oppressively high individual and corporate income tax rates in effect for the past several years have been detrimental to our economic well-being and should be reduced. We have felt further that we should conduct our affairs on the basis of a balanced budget, and should achieve greater economy in governmental expenditures. For several years we have supported proposals made by you which would achieve these aims. . . .

"Under our present appraisal of the general economic situation, we believe that your proposal for rate reform represents a proper approach to our current tax problems. We therefore are pleased to lend continued support to your proposals, and indeed are most appreciative of your efforts to achieve real tax rate reform."

OIL IN THE HIGH COUNTRY

The Colorado Rockies provide spectacular background for a domestic producing venture

WHERE IN THE WORLD do you look for oil? Wherever in the world it is likely to be.

Petroleum energy is too important to progress for oilmen to let either distance or discomfort slow their search, and more often than not they find themselves far from home in areas they almost certainly would not choose for a visit.

But every once in a while the search for oil takes men to places they would gladly have paid to see. The job is no easier because of the scenery; the chances of discovery are no better. Still, the change from desert, jungle, and swamp is welcome. Texaco crews now working in the Colorado Rockies work as hard as oilmen anywhere, but they admit you couldn't hope to find oil in a more handsome setting.

Headquarters for Texaco's current operations in the mountains is the old cow town of Craig, in the northwest corner of Colorado. Some 40 miles to the south, crews are working Wilson Creek, a field that dates back to 1938 and now holds 36 Texaco producing wells. Seventy miles east of Craig, another group is busy in the Pinnacle field, which is relatively new and still being developed.

Wilson Creek is the highest major producing area in the United States. Its topmost well is 8,378 feet above sea level, and other wells in the field seem to hang on the sides of mountains. Preparing drill sites and creating access roads has been a major engineering job. Thirty-five miles of roads have been cut out of the mountainsides to wind around peaks, over razor-back ridges, and along the edges of slopes that sheer straight down a

thousand feet or more. One of the roads is called "Little Burma Road" because it dances down one side of a ridge in the same dizzying way the wartime supply route picked its way across the Asian mountains.

Heavy snow in mid-May is not unusual at Wilson Creek—and it usually returns, after several months of lovely summer, early in October. For a good part of the year, just keeping the roads open is steady work.

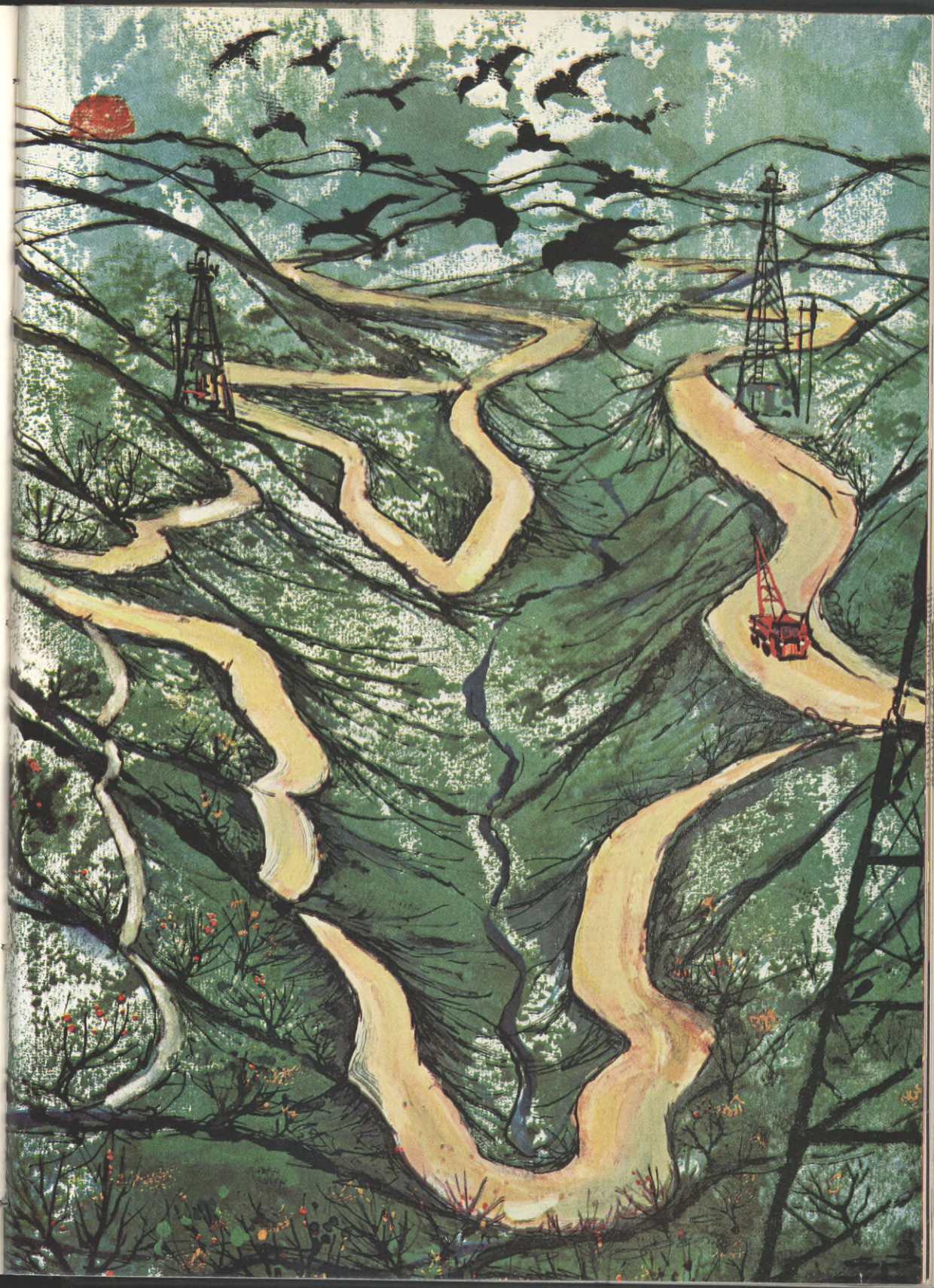
Like the rest of the Rocky Mountain area, Wilson Creek dazzles the visitor with natural variety. The mountains alone are beautiful enough to seem almost contrived, and in the valleys between them stands of aspen, oak, and fir delight the eye. Pronghorn antelope graze just off the roads; deer and bear are common; some of the world's pluckiest trout swim the streams. During the mild months, the oilman finds himself in one of the most pleasant places he is ever likely to lay eyes on.

There is unusual variety of another sort at Wilson Creek. Aside from conventional pumping units in the field, Texaco uses gas injection and several other types of recovery techniques, and also maintains wells that flow naturally. Because of this range in production methods, the field has become a fine training ground for new Texaco producing men. It gives them a sound working knowledge of many production situations, condensed in one fairly small area.

When artist Richard Erdoes arrived at Wilson Creek to do the paintings on these pages, he found 22 Texaco employes living in a camp that includes a couple of offices and storage buildings and two rows of comfortable cottages huddled in a snug canyon.

The season's first snows were due

At Wilson Creek, highest producing area in the United States, access roads twist through mountains in dizzy patterns.



Richard Erdoes, who did the illustrations for this article, has contributed to such national magazines as Life, Fortune, *and* Horizon. *He drove into Colorado's high country for* THE STAR *with his family, camping out whenever the mood struck. A native Austrian and a veteran skier and mountain climber, he found Rockies "every bit as beautiful as the Tyrol," hopes to take family back one winter.*

in a few weeks, and for the 28 children in camp (there are 15 families), snow news was very good news. The steep roads make mile-long sled and ski runs, until they have been cleared for the working crews.

Even in the high country, though, school comes before skiing. One of the buildings in camp is the schoolhouse, and a county-paid resident teacher takes the younger children through the fourth grade. The older kids travel to Meeker, about 19 miles away. In the winter, particularly, the school becomes a community center.

Several sheep and cattle ranchers have grazing rights in the Wilson Creek area, and their flocks and herds meander all through it. The derricks and "Christmas trees" attract them mightily, and old-timers say there are two reasons for the attraction. For one thing, a thorough backscratching on a piece of metal equipment seems to ease those tensions. Then, the mountain men insist, their animals just get plain lonesome once in a while. The hum of oil or gas racing through pipe under pressure gives them a feeling of companionship. It is not at all unusual to spot a steer with an ear to the valve of a "Christmas tree," in any case. All this is touching, but it can also be damaging to the equipment, and the more delicate equipment now has been fenced in.

When Erdoes finished his sketches at Wilson Creek, he moved on to the Pinnacle field. On the way, he drove through Steamboat Springs, which is one of the country's top skiing centers and is also one of the places where Texaco's product research teams put different auto fuels and lubricants through punishing winter road tests.

The Pinnacle field is different from Wilson Creek in several ways. It is considerably higher, and the mountains around it are snow-capped. The field is in Routt National Forest, and great care has been taken to keep the area beautiful. Only a few wells have been drilled, and nobody knows yet just how productive Pinnacle may turn out to be.

The three-man drilling crew lives in a trailer in the field. During heavy snowstorms the men have been isolated for several days, and they often have rescued herds of cattle trapped in snow and in danger of starving, using a "sno-cat."

While cattle and sheep cause a certain amount of trouble at Wilson Creek, beavers are the villains at Pinnacle field. They regularly dam up culverts and flood the roads. The beavers are protected by law, and there is not much the oilmen can do to stop them.

It may be some time before Texaco is able to satisfy itself that the Pinnacle field has the potential Wilson Creek holds, and it also may very well be that Pinnacle will turn out to be a disappointment. In oil exploration, nothing is sure except that more oil is needed.

Oil in Colorado is nothing new. This year, the state marks its 100th anniversary in the oil business.

It traces its history in the industry back to the barrel-a-day well drilled, in 1862, on Four Mile Creek near Canon City. The well was drilled by A. M. Cassidy, a man with impeccable credentials. He had been a member of the crew that brought in the Drake well at Titusville, Pennsylvania, three years earlier, to give America an oil industry.

At Four Mile Creek, Cassidy brought in another winner. His well started what was to become the Florence field, which flourished for about half a century.

That field now is pretty well played out, but in its time it has produced a cumulative total of more than 14 million barrels of crude oil. And over the years Colorado has become a substantial oil producing state (about 41 percent of its land area has been proved productive or leased for oil exploration). In 1961, petroleum and its products accounted for very nearly half the value of Colorado's total mineral production.

The crude oil produced at Wilson Creek, unlike most Colorado oil, is high-gravity and always in demand. Texaco's production is pipelined to Salt Lake City and refined for marketing in that area.

Despite the dynamism with which the Company has been expanding its worldwide interests in recent years, finding domestic oil still is its most basic of jobs and one it continues to put great emphasis on. Last year, Texaco completed more than 1,800 wells in the United States, more than 85.8 percent of which produced oil or gas in commercial quantities.

And despite steadily improving seismic techniques and constantly building geological information, oil still is where you find it. The Rocky Mountain crews can comfort themselves with the thought that this is one of the most beautiful places in the world to look for it. •

Ranchers have grazing rights in areas where oilmen work, and a cattle-jam on an access road is familiar sight.

IMPROVED PRODUCTS FOR THE MAN WHO WEARS THE STAR

When new Sky Chief gasoline was introduced this spring as "the nearest thing yet to a perfect gasoline" (see the Summer issue of The Star), 1962 shaped up as a big year for Texaco and Texaco motorists. Two new products, available this fall, make it even bigger.

The first is New Havoline Motor Oil. Blended of costlier base stocks and exclusive additives, New Havoline provides outstanding protection under all kinds of driving conditions. It is specially formulated for the kind of driving most of us actually do, rather than the kind that is best for our cars.

The ideal conditions for driving, from a mechanical standpoint, are a steadily maintained pace and a fairly long run—the conditions one finds in thruway driving, for instance.

On a long drive the engine thoroughly warms up and most of the normal products of combustion blow out the exhaust pipe and the crankcase vent. The oil in the crankcase holds what's left in suspension so it can be carried off with the regular oil change.

But most of the time we are making short trips of a mile or two. We are frequently stopping and starting in heavy traffic. In this kind of driving the engine never really gets warmed up, so combustion is incomplete. Some of the raw gasoline and some of the partially burned fuel, as well as water vapor (a by-product of combustion), seep into the crankcase and contaminate the motor oil.

Under these driving conditions a heavy burden is placed on the motor oil because its job is to hold the engine contaminants—and they include road grit, lead salts, and acid along with the raw gasoline, partly burned fuel, and water vapor—in suspension until the oil is changed. If it doesn't do that, those contaminants settle out and form a sludge that clings to engine parts like valves, pistons, and valve lifters. Aside from decreased engine power, that sludge can cause excessive wear in the engine parts and often is the cause of sticking valve lifters.

New Havoline stops sludge by breaking contaminants down into tiny particles smaller than the period at the end of this sentence. These particles are held in suspension and prevented from massing until it's time to drain the oil. It is as though each particle is enveloped in a microscopic film that keeps the dirt from coming in contact with delicate metal parts. The particles of sludge that build up in stop-and-go driving are trapped in tiny cells; they don't gang up to block oil lines and clog screens and vital engine parts.

Convincing proof that New Havoline is the finest motor oil sold for long-distance driving, and far and away the finest available for protection from the problems of stop-and-go driving, was developed when Texaco road-tested the new product earlier this year.

Steamboat Springs, Colorado, high in the Rockies, is one of Texaco's test areas; in the winter below-zero weather is common here. Last winter 14 identical new cars were put on the snowy roads in a mountain run to test New Havoline.

Into the crankcases of some went the New Havoline; others used motor oils sold by five of Texaco's competitors.

To simulate stop-and-go driving, the cars were driven three miles at 35 miles an hour, then were cooled off with their hoods up for 45 minutes. In the sub-zero weather, their engines got as cold in 45 minutes as most motorists' would in several hours.

After cooling, the cars were taken another three miles at 35, cooled again, driven, cooled, driven, cooled—day and night. At scheduled intervals, to simulate the occasional thruway trips most of us make, they were taken for a 70-mile spin at 50 miles an hour. The ratio was about 80 percent stop-and-go driving to 20 percent thruway driving. The test took three months to complete.

While one test crew shivered in the Rockies, another was at work on the Texas plain, near Uvalde. The fleet at Uvalde, like the one at Steamboat Springs, was divided into New Havoline users and users of competitive motor oils. The Uvalde crew also used 14 identical new cars (the same make driven at Steamboat Springs), but it drove them under much different conditions. Uvalde's test track is eight-and-a-half miles around, and hour after hour the cars spun along in the high-speed lane at 70 miles an hour true speed. Every day, two shifts of drivers put 1,000 miles on every car. The weather was warm. The engines were hot. And for 25,000 miles they had little chance to cool off.

Before either test started, each of the 28 engines had been disassembled and the parts carefully measured and weighed. At the end of the tests, all the engines were again removed and disassembled. Again their parts were weighed and measured, and thoroughly examined by Texaco researchers.

At the end of the Uvalde high-speed test, the engines looked about the way research people had expected they would. Uninterrupted long-distance driving is easy on en-

gines, and all were quite clean after 25,000 miles. Although there was clear evidence, even from this run, that New Havoline excelled (a competitive oil allowed varnish to form on pistons, for example, while Havoline did not), the really telling results showed at the end of the Steamboat Springs trials.

When the engines from the stop-and-go test were drained of oil and torn down, to see the difference between New Havoline protection and the others was to believe that Texaco had unquestionably come up with something special. Part by part, as the engines were stripped, the evidence piled up.

In the valve chambers of those engines not protected by New Havoline, heavy loads of sludge were found. Havoline had held the sludge suspended and carried it off with the drained oil, leaving valve chambers clean. In the timing gear chambers, heavy sludge was left by competitive oils. The same parts, protected by Havoline, were almost entirely free of sludge. In crankcases that had contained competitive oils, sludge was thick enough to spoon. Crankcases filled with Havoline were nearly free of sludge, An examination of cylinder heads showed the same.

How does New Havoline produce such results? The answer lies in chemistry, and the chemistry involved is a secret the Company naturally intends to keep.

But the results of that chemistry are clear and demonstrable. When a Havoline user gets an oil change—and he is wise to get one every 2,000 miles at the outside—he can be sure the Havoline drained out will take harmful contaminants with it, leaving his engine clean. And between changes, even in constant stop-and-go driving, his engine will have the finest protection available from a motor oil.

THE OTHER NEW TEXACO PRODUCT available to motorists this fall is New Texaco Anti-Freeze.

In the last few years, there has been a growing use of aluminum in automotive cooling system components, and aluminum engines have entered the market in the "compact" field. In all probability, aluminum will be used increasingly in automobile power plants and their accessories. Whatever else this trend may bring, it has already caused problems for some antifreeze marketers. Most glycol-based antifreezes (and ethylene glycol is the recognized basic ingredient in all premium antifreezes) do not provide effective protection against aluminum corrosion.

For years, Texaco's PT Anti-Freeze has provided trouble-free service, but the anticipated use of aluminum in engines started Company researchers working, several years ago, on a new product that would do everything PT Anti-Freeze did and also provide protection for engines using that metal. New Texaco Anti-Freeze is the result.

The new antifreeze, which like New Havoline has been thoroughly tested both in the laboratory and on the road, contains a carefully balanced combination of eight different materials. The combination was developed in Company laboratories; it is available only in New Texaco Anti-Freeze.

New Texaco Anti-Freeze also contains a special additive developed by Texaco that acts upon metal surfaces to form a tough, lasting, impenetrable rust-preventing film. No other antirust material known approaches its effectiveness in a cooling system. Unlike the protective films contained in some competitive products, the Texaco material is absolutely unaffected by the washing action of water or other corrosive materials that may contact it.

One of the main functions of additives used in an antifreeze is keeping the solution from becoming acid. During normal use, antifreeze tends to combine with oxygen and change chemically into acidic by-products. These acidic materials are the basic cause of all rusting and corrosion.

New Texaco Anti-Freeze contains a large reserve of acid-fighting properties designed to ward off potential corrosion trouble, and extensive road tests conducted by an independent testing organization have shown they do.

At the end of one such test, over thousands of miles, the new Texaco product had four times more reserve alkalinity than the competing brand with which it was matched. As a matter of fact, the Texaco antifreeze had lost less than 20 percent of its reserve strength. The other brand had lost a dangerous 80 percent.

An antifreeze that foams not only suffers a loss in volume but is unable to perform its primary function—maintaining proper engine temperature. Five leading competitive antifreezes were comparison-tested with New Texaco Anti-Freeze for antifoam qualities. Even when it was mixed with distilled water, one of the competitive brands foamed excessively while the Texaco product showed absolutely no foam. And even when powerful foam producing agents were added, Texaco's antifoam additive stopped foam completely.

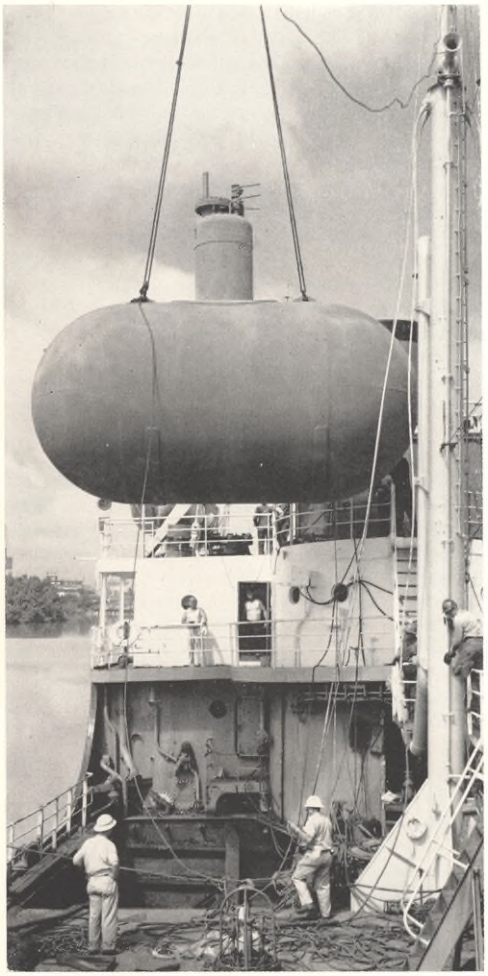
Interestingly, foaming in competitive products was eliminated by mixing them in a 50-50 solution with New Texaco Anti-Freeze.

The introduction of an entirely new premium gasoline, a new motor oil specifically designed to protect engines in the stop-and-go driving motorists increasingly do, and a new antifreeze that gives lasting protection whether an auto contains aluminum engine components or not, has made 1962 a big year indeed in Texaco product development. And a great year for Texaco motorists. •

WITH GASOLINES—NAME YOUR BRAND

Sky Chief and *Fire Chief* are among the best known brand names in America, and their national recognition gives Texaco a real advantage in its gasoline marketing. To strengthen that advantage, the Company has launched a campaign aimed at getting all motorists to ask for *Sky Chief* and *Fire Chief* by name — rather than asking for "premium" or "regular." Texaco dealers are making it a point to use the brand names when they serve customers, and the Company's employes have been asked to name these brands when they discuss Texaco gasolines as well as when they buy them. Since brand recognition and loyalty are important aids to sales, it can be a good investment for the Company's stockholders to join in the campaign. Ask for *Sky Chief* or *Fire Chief*, every time.

NEW CARGO FOR THE TEXACO CRISTOBAL



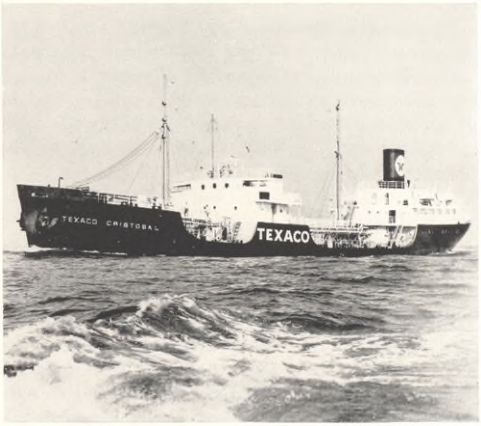
THE OBJECT that looks something like a bathyscaphe being lowered into a compartment of Texaco tanker *M. V. Texaco Cristobal* in the photograph at right is specially designed to carry liquefied petroleum gas (LPG). It was one of two 17,000-gallon "bottles" installed in the *Cristobal* this summer to provide a more efficient way of serving Texaco LPG users in the Caribbean islands of Barbados and Antigua.

Until July of this year the *Cristobal* had been carrying aviation gasoline, kerosine, white oils, and other refined products from Texaco Trinidad's Pointe-à-Pierre refinery (which is the Company's second largest) to Texaco terminals in the Windward and Leeward Islands, the Guianas, Martinique, and Guadeloupe. She was bought from the United States Navy in 1948, and had seen wartime service as a T-1 type tanker. Because of her shallow draft, she is well-suited for Caribbean harbors. Her capacity is 4,147 deadweight tons.

In recent months, the demand for LPG in Barbados and Antigua has grown considerably. Shipment of the product in 20- and 100-pound cylinders, by schooner and other small craft, no longer is economical — though that is how LPG still is delivered to other Caribbean ports.

So Texaco has added LPG storage tanks at its bulk terminals in Barbados and Antigua, and earlier this year took the *Cristobal* out of service long enough to remove the deck plates over two wing tank compartments and install the LPG vessels and their associated piping. The conversion took three weeks, and the *Cristobal* now is back on her run through the islands carrying LPG as well as the other products she has been handling. In the coming months, Texaco hopes to see the LPG market grow in other Caribbean ports, notably Martinique and Guadeloupe, to the point where bulk shipments to those places will be feasible, too.

The LPG is shipped, stored, and sold as a liquid, under pressure, and becomes a gas when it is used. It is popular throughout the Caribbean as a home and institutional heating and cooking fuel. •



Saudi Arab member of Aramco prospecting party reels in recording instrument line after seismic shot in Rub' al-Khali, the Empty Quarter.

SAUDI ARABIA NOW

The Arab culture is one of the oldest known and, until just before World War II, one of the least affected by change.

Long after most of the rest of the world had learned to depend on the automobile and the machine tool, Saudi Arabs were crossing the desert on camels; and until 25 years ago, the Saudi Arabian economy was based almost wholly on farming and shepherding, except for a centuries-old pearl diving trade on the Persian Gulf. The Kingdom of Saudi Arabia was a country apparently barren of natural resources. Then, in 1938, oil was discovered in commer-

Worldwide marketing of Saudi Arabian oil has created sweeping social and economic advances in the Kingdom

cial quantities in the Dammam Dome on the east coast.

Since that discovery, changes in Saudi Arabian life have been more profound than those that took place in the lives of Americans and Europeans between the American Revolution and the Twentieth Century.

Social and economic advances have swept across the desert to alter, drastically, patterns of living that for centuries seemed irrevocably fixed. Highways now follow routes once passable only for the camel caravans. A countrywide school system has been established. Modern hospitals and medical services have been inaugurated. New industries flourish, and a growing middle class has come into being. In what was open desert, modern cities gleam.

To say oil has made all this possible is true, but it is also a vast oversimplification. Crude oil, like any other commodity, is worthless until it finds a market; and it has been a combination of the producing *and* marketing facilities and the know-how of private American enterprise, shared with the Saudi Arab government, that has made Saudi Arabia's tremendous progress over the last three decades possible.

A company 50 percent owned by Texaco made the Dammam discovery. Since then, a string of other important oil finds have turned Saudi Arabia into one of the world's largest producers of petroleum, and the original corporation organized to operate in that country has become the Arabian American Oil Company (Aramco), in which Texaco presently has a 30 percent interest.

Aramco's technical knowledge has made the desert search for oil successful. Equally important, the marketing and distribution skills of its owner companies (in addition to Texaco, Standard Oil Company [California] and Standard Oil Company [New Jersey], each 30 percent, and Socony Mobil Oil Company, 10 percent) have made it possible to funnel Saudi Arab oil to outlets around the world.

Even in periods of petroleum oversupply—the industry has been going through such a period for the last several years—Aramco has been able to match a steadily increasing production in Saudi Arabia with steadily building sales by its owner companies to the rest of the world.

The effects of these coordinated efforts on Saudi Arabian life have been dramatic. For the government, they have meant enormous revenues. For the people, nearly 11,000 of whom are Aramco employes, they have brought both social and economic opportunities that would have been unthinkable three decades ago. Health, education, and transportation all have been improved hugely in a cooperative effort by the Saudi Arab government and Aramco that represents one of the most successful examples in international business of private enterprise contributing to the public welfare.

The progress that has been made can be illustrated, in one

Dammam, on the east coast, gleams with many new homes.

A wide variety of crops now is produced by Saudi Arab farmers.

Studies of mosquito larvae aid successful battle against malaria.

From Ras Tanura, tankers carry Saudi Arab oil to world markets.

Government railroad from Dammam to Riyadh uses diesel engines.

New schools have been built for the government by Aramco.

Highways cross desert stretches once used as camel routes.

way, by describing a typical Arab employe of Aramco today.

His parents are farmers in the Hofuf Oasis not far from Dhahran, Aramco's Saudi Arabian headquarters in the Dammam field. He is 35, and undoubtedly would be farming in the Oasis, as generations of his family have, if it were not for the new technology of oil production that has come to his land. As it is, he is a field maintenance machinist in Aramco's Dhahran headquarters.

He started with the company 11 years ago as a laborer, took a lively interest in the machines he saw around him, and was chosen to attend general industrial training classes that were the forerunners of the company's industrial training centers and industrial training shops. For three hours every workday afternoon, he studied basic Arabic, English, and shop mathematics.

Later he was assigned to shop and maintenance work in Dhahran as a trainee, and gradually he worked his way up to the job he now has.

This Aramco employe's income is well above the average in the Middle East for his work. He lives with his family near Dhahran in a new five-room house. Like some 3,300 other employes he built his home through the company's Home Ownership Program. He was given the lot by the government and financed his home's construction through an interest-free company loan. He may have television, and if he does he and the family regularly watch programs offering readings from the Koran, Arabic-English instruction, travelogues, health and child care counsel, and home economics tips—along with sports and other entertainment broadcast daily in Arabic by Aramco's television station.

The typical Aramco employe puts 10 percent of his salary into the Aramco Thrift Plan, and is a member of the company pension plan. When he retires, he will retire on a monthly pension. He also will receive in severance pay and from his Thrift Plan account an amount about equal to eight years' pay.

He is protected by sickness, disability, and termination benefits. He and his family receive free medical care. They are healthier, better educated, live more comfortably, and have more to look forward to than members of any generation in Saudi Arab history . . . immeasurably more than the very last generation, for that matter.

Aramco is not only the largest single employer in Saudi Arabia; it also is the largest single purchaser of services and supplies, and its needs have created a whole new business community that has brought forward a middle class of merchants, wholesalers, and equipment suppliers who have provided work for thousands more of their people.

Ever since exploration began in eastern Saudi Arabia in the early '30s Aramco has been slowly putting itself out of the many peripheral businesses that were at first necessary for its activity, in order to concentrate on the oil business. At the beginning, it found that in order to do its main job in this distant part of the world, it also had to do many others. It became a grocer, road builder, druggist, chef, dry cleaner, community planner. It became involved in around-the-world purchasing. At one time Aramco even operated the world's largest private air fleet.

But the company looked forward to the day when it could go out of business as grocer, druggist, air service, and the rest. The best way out, it believed, was to encourage the gradual development of a sound Saudi Arabian economy by helping the Saudi Arabs get into these businesses themselves.

An explicit company policy was developed that aimed to stimulate Saudi Arab industrial, mercantile, and agricultural progress. Enterprises that would serve Saudi Arab consumers, actual and potential, as well as Aramco were emphasized.

An Arab Industrial Development Department was organized, and its program was based on cautious realism. Aramco made advice available to anyone interested in developing a business in much the same way a small town banker might advise a man with modest capital to invest.

By 1961, Aramco purchases from Saudi Arabian businesses amounted to more than $11 million (its total expenditures channeled more than $75 million into the country) and Aramco purchasing people now place orders with more than 200 vendors throughout the Kingdom. Within five years, Aramco management estimates, nearly half of the purchases the company makes will be from Saudi Arab businessmen.

The results of this impetus to the national economy show up in the number of television sets now owned by Saudi Arabs (about 12,000) and, much more significantly, in the fact that Saudi Arabs themselves now are fairly substantial users of petroleum products — a sure sign of economic growth. Last year, nearly four million barrels of oil products were used in Saudi Arabia, for an increase of nearly 17 percent in consumption over 1960.

While the economy of Saudi Arabia has moved forward social conditions have steadily improved.

Some of the most gratifying advances have been in education. Aramco has built 11 elementary schools, and last year completed two intermediate schools. These are built by the company and maintained by it, and funds for teachers' salaries come from Aramco. The schools are operated by the Saudi government, however.

Since 1954, scores of students have been awarded company scholarships to colleges and universities outside the Kingdom. In the 1961-62 academic year alone, 53 youngsters began college-level studies under these scholarship programs.

Aramco's training programs have prepared nearly 500 nationals as foremen or supervisors, and have given thousands of others the basic skills they needed for industrial work. A training program has been worked out for each employe, designed to give him thorough grounding in some phase of the oil industry, or in modern business techniques, teaching, or public health education. Employes have received intensive courses in Arabic and English, to qualify them for college. They have studied drilling technology, hospital administration, agriculture, journalism, firefighting. Some of these employes have worked in the United States with oil companies and equipment manufacturers.

Aramco also has worked closely with the Saudi Arabian government on public health programs.

One of its moves in this field was the establishment of clinics to treat Arabs infected by trachoma, a disease of the eyes. Since 1955 Harvard scientists and Aramco specialists, working in laboratories in the United States and Dhahran, have been searching for the cause of this disease and for an

Last year, 56 new service stations were opened in Saudi Arabia, raising the total to 358. The use of all petroleum products in the Kingdom during 1961 increased 16.9 percent over 1960.

effective way to prevent it. An original five-year study was financed by an Aramco grant of half a million dollars, and in 1960 another $585,000 was granted by the company.

The trachoma studies have led to important gains. Last year, in fact, a possible breakthrough was announced. A vaccine, already tested in several areas outside Saudi Arabia, has shown encouraging results. A vaccination campaign using the new vaccine began this year in villages of Saudi Arabia's Eastern Province.

Much progress has been made, too, in other preventive medicine and in family and general health education.

Last year, for the first year since 1955, no case of smallpox was diagnosed in an Aramco medical facility. Employes suffered only 21 cases of typhoid—a 43 percent drop from the average of the previous five years. Under a continuing immunization program against these and other diseases, more than 200,000 immunizations were provided to employes and dependents during 1961. Company health centers last year provided hospital treatment for almost 5,500 patients and handled more than 360,000 clinic visits.

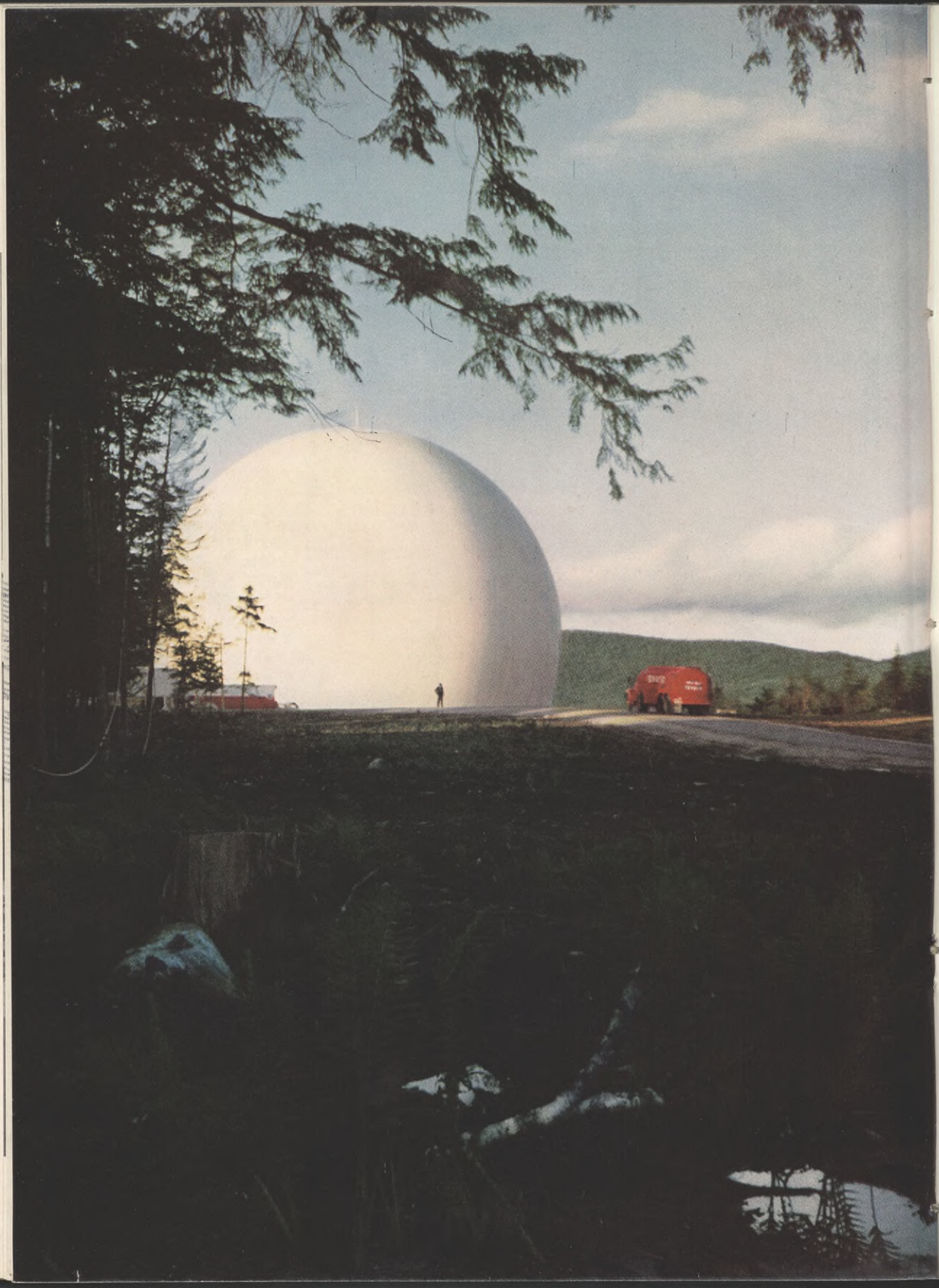
Aramco has helped many Saudi Arab farmers improve their crops (and buys about a quarter of their total production), has made interest-free loans to municipalities that wanted to install water and sewer systems, has helped with problems of soil erosion, has helped fight the locust scourge.

That oil has meant a great deal to Saudi Arabia is clear enough. It has become one of the world's most important oil producing countries, and last year Aramco set a new production record of 508,269,201 barrels for a daily average of more than a million-and-a-third barrels. As a part of the Middle East, Saudi Arabia is in an area where roughly 70 percent of the free world's proved oil reserves are deposited.

The oil Aramco brings out of the ground means a very great deal to the rest of the world as well. Saudi Arabia's immense oil resources supplied much of the energy needed for the postwar recovery and growth of the free European nations, and continue to provide much of free Europe's petroleum needs. Every day tankers from the Middle East deliver 2.5 million barrels of oil to the refineries of Western Europe. In fact, large parts of the free world would now be severely handicapped if the oil resources of the Middle East had not been developed. Western Europe's particular dependence on Middle East oil was inescapably demonstrated when the Suez Canal was closed in 1956.

Because Middle East oil *is* so important, that part of the world has in the last decade become a primary target for political maneuverings by the Communists.

That the Aramco operation has worked so well as a free enterprise surely has provided one potent bulwark against a successful Communist campaign in the Middle East. That free enterprise really works is a lesson few Saudi Arabs or their neighbors can have altogether ignored. •



TEXACO ON SPACE HILL

At the Andover, Maine, Telstar tracking station, oil plays a quietly important role

THE WORLD SHRANK just a little bit more this past July, while millions of television viewers on both sides of the Atlantic watched.

In a stunning demonstration of intercontinental television, signals were sent into space from Andover, Maine, relayed by the Telstar satellite, and picked up loud and clear in England and France. The next evening, Americans were fascinated by broadcasts originating from Pleumeur-Bodou in Brittany and Goonhilly Downs in southwest England, and received at Andover. Again the transmissions were clear, and when they were over, Andover had been added to the list of places Americans link with scientific drama. A new era in worldwide communications had opened.

The success of Telstar meant contributions by hundreds of specialists in many fields, including oil. And Texaco, as supplying oil company at the Andover site, currently serves the project in three ways: heating the tracking station's huge inflated dome to a constant 40 degrees to keep snow from collecting on it; lubricating the machinery that drives the giant hornlike antenna within the dome; and providing fuel for a generator system that assures uninterrupted electrical power for the station.

The inflated Dacron and synthetic rubber radome at Andover sits puffed on a plateau local people have begun calling "Space Hill." Its air pressure is maintained by blowers set in the dome's concrete foundation. Put up to keep the big horn safe from wind stress, icing, and rapid temperature changes, the radome is the world's largest inflated structure. Yet its skin is only 1/16th of an inch thick and heavy snow piling up on it could cause costly damage.

Paragon Oil Company, a Texaco subsidiary, supplies the

Model shows Andover antenna tracking satellite in space.

After delivering fuel oil to Andover "earth station," a Texaco tank truck passes 13-story radome as it leaves site.

Inside the radome, Texaco products provide heat, lubrication, power

fuel oil used to keep the 13-story skin just warm enough to melt snow as it hits. Some of the fuel oil also is used to keep work areas inside the dome comfortable. During the bitter cold months of a Maine winter, the 60,000-gallon fuel storage tank built near the dome probably will have to be refilled about every two weeks.

Two fair-size houses, containing transmitter and receiver equipment, have been built into the mammoth antenna that serves as the Andover station's voice and ears. As it tracks the Telstar satellite, this antenna plucks a billionth-watt signal from space. According to Bell Telephone Laboratories —which built the Telstar system with its own money and paid the Government to launch the satellite from Cape Canaveral—the antenna has imposed requirements more exacting than those for any other structure of its size.

It must track its tiny target smoothly and continuously, to an accuracy of better than 1/50th of a degree. Design engineers had to consider that the weight of the antenna itself would introduce bending, and a different amount of bending for every position it takes. So it has been built as rigidly as possible and with the exquisite accuracy of a fine watch. A 70-foot rotating ring gear, for example, is machined to a tolerance of less than 1/32nd of an inch.

In its incredibily sensitive tracking job, Bell's antenna employs hydraulic systems that use Texaco hydraulic oil, and other Texaco products are working at lubrication points throughout the antenna machinery. The selection was based on a survey of lubrication requirements made by a Company representative as part of Texaco's technical service.

Although the Andover station normally depends on public lines for its electrical supply, it uses auxiliary power while tracking Telstar. Two large diesel generators in the control building a quarter of a mile from the radome are turned on two-and-a-half hours before a satellite pass. During a pass, when line fluctuations cannot be risked, they routinely handle all the station's exacting technical power requirements. In the event of a public power interruption, they can take over the station's full load in seven seconds, running everything from lights and air conditioning to the radome air blowers and the big horn itself.

The fuel for the generators also is supplied by Paragon and, like the heating oil, is stored nearby. Enough is kept in storage to last about a month, at full load.

The July demonstrations of Telstar's possibilities, dazzling as they were, represented only the early experiments with a communications system that one day could include orbital post offices, orbital newspapers, completely mobile person-to-person telephone facilities. So far, the potentials have only been hinted at. No matter how they develop, however, it is likely petroleum will continue to make its contributions. •

In the tracking mechanism, a Texaco lubrication engineer and a Telstar project technician review lubrication procedures for the pumping units on the antenna's hydraulic power systems.

Huge as it is, Telstar's horn antenna is machined with clockwork care and requires precise lubrication.

Charles F. Teichmann

Peter L. Paull

APPOINTED CHIEF PATENT COUNSEL

Charles F. Teichmann, formerly Executive Vice President of Texaco Development Corporation, was appointed Chief Patent Counsel of Texaco Inc. effective September 1. He will head a Patent and Trademark Division in Texaco's Legal Department, performing patent and trademark protection functions that were formerly handled by Texaco Development Corporation.

Mr. Teichmann, who holds degrees from Columbia University and St. Lawrence University Law School, joined Texaco as a Chemical Engineer in 1928. After serving in various technical capacities and as a patent attorney, he was transferred to Texaco Development in 1939, becoming Executive Vice President in 1954.

NAMED HEAD OF TEXACO SUBSIDIARY

Peter L. Paull, formerly Vice President and Process Division Manager of Texaco Development Corporation, was elected President of that organization effective September 1. Texaco Development is a subsidiary that is engaged in the sales and purchases of patent licenses.

Mr. Paull was graduated from Yale University in 1935. After serving in technical and managerial capacities at refineries of two other oil companies, he joined Texaco Development in 1948 as technical assistant. He was made Assistant Manager of the Process Division in 1955 and in 1960 became Vice President and Process Division Manager.

ELECTED TO M.I.T. CORPORATION

Theodore A. Mangelsdorf, Texaco Senior Vice President in charge of worldwide refining activities, recently was elected a member of the Massachusetts Institute of Technology Corporation. This is the governing body of the institute. Mr. Mangelsdorf, who also is Chairman of the Board of Texaco Development Corporation and a Director of Texaco Trinidad, Inc., and Regent Refining Company, Ltd., received his Bachelor of Science degree from M.I.T. in 1926 and his master's degree in 1929. The Texaco executive also served on the M.I.T. faculty from 1926 to 1933 before joining the Company.

TEXACO OPERA SPONSORSHIP IN 23RD YEAR

Beginning in December, for the 23rd consecutive year Texaco will sponsor Saturday broadcasts of Metropolitan Opera performances for opera enthusiasts throughout the United States and Canada.

Two years ago the Company established its own nationwide network for the opera programs to allow listeners to hear them "live" in a number of localities that had been receiving rebroadcast performances.

Over the years, the Saturday broadcasts have become one of the most welcome events on radio to millions of music lovers; they have also become one of the most widely applauded public service programs on any broadcast medium.

OIL SEARCH STARTED IN EAST AUSTRALIA

Last spring, American Overseas Petroleum Limited, a producing affiliate of Texaco, commenced oil exploration in Eastern Australia.

Amoseas is acting as operator for two joint ventures in which Texaco Overseas Petroleum Company (a subsidiary of Texaco) is a participant.

The search is being carried out in the Great Artesian Basin of Queensland and New South Wales in Eastern Australia.

The areas it is investigating are west of a recent discovery at Moonie. The Moonie discovery has touched off wide new interest in Australia's petroleum potential.

Currently, Australia imports all the oil it uses, and crude oil is the country's largest import. Caltex Oil (Australia) Pty. is a major marketer, with more than 2,400 retail service stations. For years it has also been a leading supplier of diesel fuel for the country's diesel-electric locomotives, and of gas-

oline and lubricants to meet the nation's military requirements.

Texaco Overseas Petroleum Company has also maintained an interest in a joint exploration venture in Western Australia for several years.

EXPANSION AT TWO TERMINALS BEGUN

A major expansion program at its St. Paul, Minnesota, sales terminal was begun this July by Texaco. Storage capacity of the terminal was expanded by 40 percent with the construction of four new tanks with a total capacity of 261,000 barrels.

The new tanks will allow the Company to maintain adequate supplies of petroleum products during the winter months when weather prevents shipments to the terminal by Mississippi River barges. In addition to the new tankage, Texaco is installing equipment for receiving bulk shipments of many grades of lubricating oils.

At its Port Arthur, Texas, marine terminal the Company also has expanded facilities.

The new Port Arthur installation, which is a bunkering terminal, supplies deep-sea vessels with a complete line of bunker fuels. Its facilities include a modern precision fuel blending unit and a new and improved pipe line delivery assembly. These permit simultaneous loading of cargo and fuel, which saves time and money for vessels being serviced.

The new bunkering facilities at Port Arthur should be particularly valuable to the international shipping companies that use the port facilities in the area.

NEW TEXACO TUG IN NEW YORK HARBOR

The tugboat *Texaco Sky Chief,* a powerful new vessel with an engine rated at 1,600 brake horsepower, was added to Texaco's worldwide fleet recently and now is working in the New York Harbor area. She is based at the Company's Bayonne, New Jersey, terminal and assists in the docking and undocking of large tankers and in barge-towing operations.

The all-welded steel tug was built at Port Arthur, Texas. She measures 100 feet in length and is equipped with all modern navigation devices, including radar and radiotelephone. The *Texaco Sky Chief* normally carries an eight-man crew.

NEW TECHNICAL SERVICES OFFICE OPENS IN DENVER

A new Texaco technical services office was opened this past July in Denver, Colorado.

The new Denver office will make Texaco's research and technical services more readily available to industries throughout the eastern Rocky Mountain area and the Plains States.

Texaco has maintained nationwide technical services to help solve the lubrication and fuel problems of all types of industries for many years. The Company's first technical services office was opened in Houston, Texas, in 1922. Regional offices are also located in Atlanta; Beacon, New York; Chicago; and Los Angeles; with Texaco technical representatives at Detroit and Pittsburgh.

POST-MEETING REPORT RECEIVES AN "OSCAR"

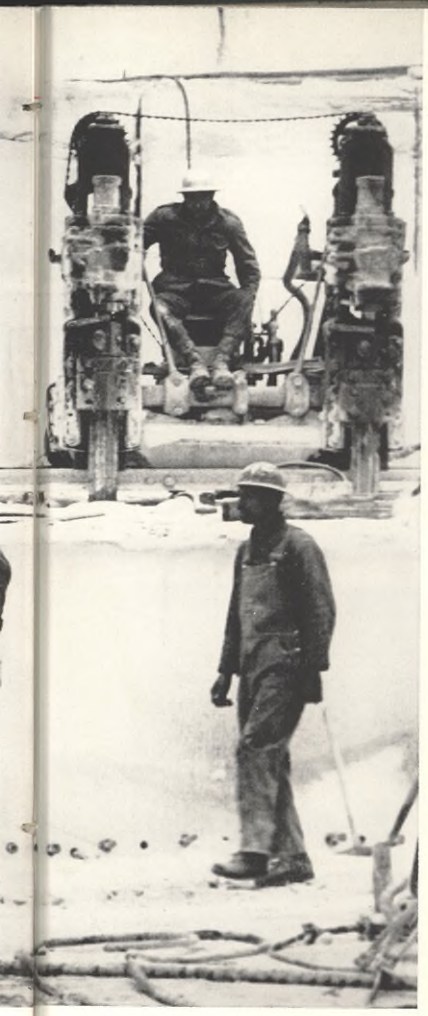
The magazine *Financial World* announced early this fall that Texaco had been selected for a first-place award in its 22nd Annual Report Survey. For having issued the best 1962 annual meeting report in the petroleum products classification Texaco was awarded a bronze Oscar-of-Industry trophy, one of six given for post-meeting reports.

Texaco also won a third-place certificate in the petroleum (assets over $100 million) category for its 1961 Annual Report.

Judging of the reports is on the basis of editorial and statistical content, format, and typography. About 5,000 companies in all areas of commerce and industry submitted entries to the competition.

Powerful tug, Texaco Sky Chief, *aids Company shipping in New York Harbor.*

Channeling machines, above, *cut 30-ton blocks of marble from the sides of a North Georgia quarry.* Below, *a Texaco lubrication engineer makes a service call at quarry bottom 100 feet down.*



Sanders, left, *buff a column for U. S. Capitol while deep in a tunnel,* below, *a shovel scoops up shattered marble for waiting truck. Both jobs create dust, and special lubrication problems.*

THE QUARRIERS

MARBLES IS A CHILD'S GAME, but marble is a man's business and a big one that takes big equipment.

In marble quarries, workers use diesel-powered shovels able to scoop up the rock in three-quarter-ton chunks. Huge derricks hoist blocks weighing as much as 150,000 pounds from deep open pits. In marble mills, gang saws big as freight cars whip into the rock, cutting it into rough shapes that are turned on lathes and polished to a high gloss.

The Georgia Marble Company, whose headquarters are in Atlanta and whose quarries are in Alabama, Tennessee, Missouri, Virginia, Massachusetts, and Vermont, as well as Georgia, is one of the world's largest marble producers. It also is a good Texaco customer: the fuels, greases, oils, and other petroleum products it uses are Texaco's.

Georgia Marble needs plenty of fuels and lubricants to operate its fleets of trucks and automobiles, and to keep its diesel locomotives, power shovels, cranes, derricks, lathes, and saws working at top efficiency. But just as much as it needs fine petroleum products, Georgia Marble requires expert service—and it was Texaco service that induced the company, last year, to begin using Texaco products exclusively.

Texaco's basic job at Georgia Marble *is* service. A Texaco lubrication engineer originally made a full study of the lubrication requirements, then developed a program that would allow Georgia Marble to operate efficiently with a minimum number of petroleum supplies. His recommendations were part of the overall "Stop Loss Program" Texaco makes available to industrial management (see "Texaco's 'Stop Loss' Program," Summer, 1960, STAR). They have been adopted in three Georgia mills, and are being put into effect throughout the seven-state organization.

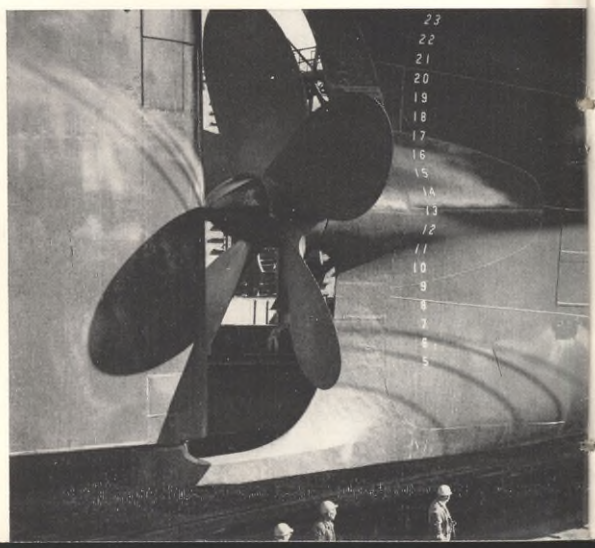
Like petroleum, marble turns up in a surprising variety of products. Shattered marble is wet-ground into a powder finer than baking soda and goes into chicken feed, toothpaste, paints and enamels, roof coverings, welding rods. It is even used sometimes in bubble gum, as an extender and an alkalizer.

But marble dust can be a problem as well as a profit maker. In a quarry cut deep into a mountainside the air is white with fine dust that coats every piece of equipment. The dust is very abrasive, and if it works its way into moving machine parts it can play hob. It did, at Georgia Marble, until the Texaco representative recommended Marfak greases to seal out dust and keep the machinery running.

In open-pit quarries, too, contamination was a major problem but was greatly reduced when Texaco recommended a variety of Crater greases that are specially blended to give adhesion and good water resistance.

Georgia Marble reckons there is enough marble in just one of its open quarries alone to keep its mills busy, at their present production rate, for about 30 centuries. This makes the customer, potentially, one of the longest-lasting Texaco has ever looked forward to serving. The photographs here show it using Texaco products today, as it goes about its work. •

TWO MILLION MILES TO GO



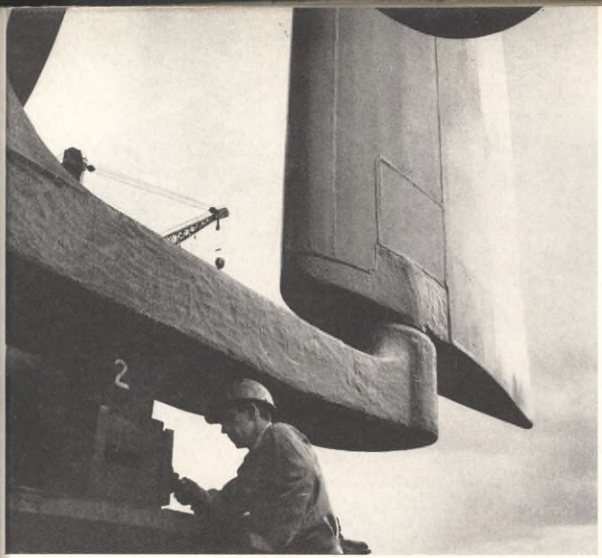
As the coastwise tanker *S. S. Texaco Massachusetts* slipped down the ways in the brisk fall air at Sparrows Point, Maryland, late in September, she had more than two million sea miles of voyaging ahead of her. Texaco's Marine Department estimates she will make her way through 2,200,000 miles of sea over the 20 years she is expected to serve.

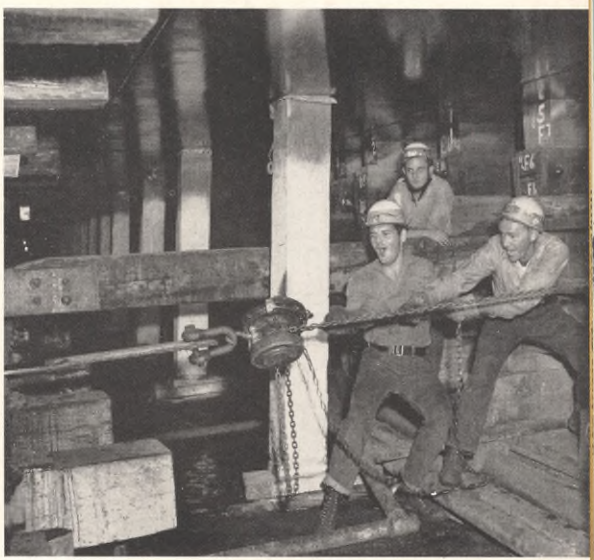
Texaco Massachusetts is the first of five new coastwise vessels the Company will add to its tanker fleet in the next three years.

She and her sister ships will be used to transport petroleum products from Texaco's Port Arthur, Texas, refinery to East Coast ports north of Cape Hatteras. First, though, the *Texaco Massachusetts* must be outfitted and put through sea trials. She will be commissioned for service in January, 1963. She will be able to carry more than 8,900,000 gallons of products.

Plans call for a second ship to be delivered next year, two more in 1964, and the fifth to take to sea in 1965.

Sponsor at the Sparrows Point launching was Mrs. Kerryn King, wife of Texaco's Vice President and Assistant to the Chairman of the Board of Directors. Pictured at right are scenes of activity during the 24 hours before the launching at 1:30 PM, EDT, September 20, 1962. •





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WITH A SIREN!

It's a safe bet that for at least one week of his life, some time between his fifth and his 12th birthdays, nearly every normal American male has made up his mind to be a fireman. For lots of reasons, most men find themselves in some other line of work when they grow up. But they still get a thrill out of a fire truck and so do their sons □ Man and boy are in for a treat when they stop at their Texaco service station this fall: for $3.98 and purchase, they can drive out with a shiny Texaco Fire Chief toy fire engine like the one in the photograph. It's 25 inches long, made of steel, with a "deluge gun" that attaches to the garden hose for four-alarm work outdoors. Scale-modeled after a real Class A Pumper, Texaco's falltime premium looks real as can be. Sounds real, too—it comes with a handcranked siren. Stop, look, and listen next time you're near your neighborhood Texaco dealer's station.