THE TEXACO STAR

FALL 1961

NAVY HUNTER-KILLER ON THE ALERT

THERE'S STILL NO PLACE LIKE HOME

Texaco operates all through the free world, but its major investments and its main sources of income are in the United States — as they always have been. The signs in the photograph point to drilling sites in the Four Corners section of our Southwest where the Company brought in the discovery well, five years ago, in an area that has become one of the country's most important producing regions. Year in and year out, Texaco keeps looking for new domestic reserves, and the Company's exploration and producing activities in this country continue to be its mainstays. Fully

70 per cent of the Company's capital spending last year went into finding new domestic reserves (or developing old ones). And about 85 per cent of the wells drilled in 1960 by Texaco in the Western Hemisphere were drilled right in our own back yard . . . here in the United States of America.

THE TEXACO STAR

CONTENTS OF VOLUME XLVIII • NUMBER 3 • FALL 1961

THE COVER: Within minutes after landing on the flight deck of carrier *Essex*, a Navy search plane is refueled and ready to go up again. The plane is part of the air group attached to *Essex*, whose anti-submarine mission is described in "Atlantic Eyes," beginning on Page 4.

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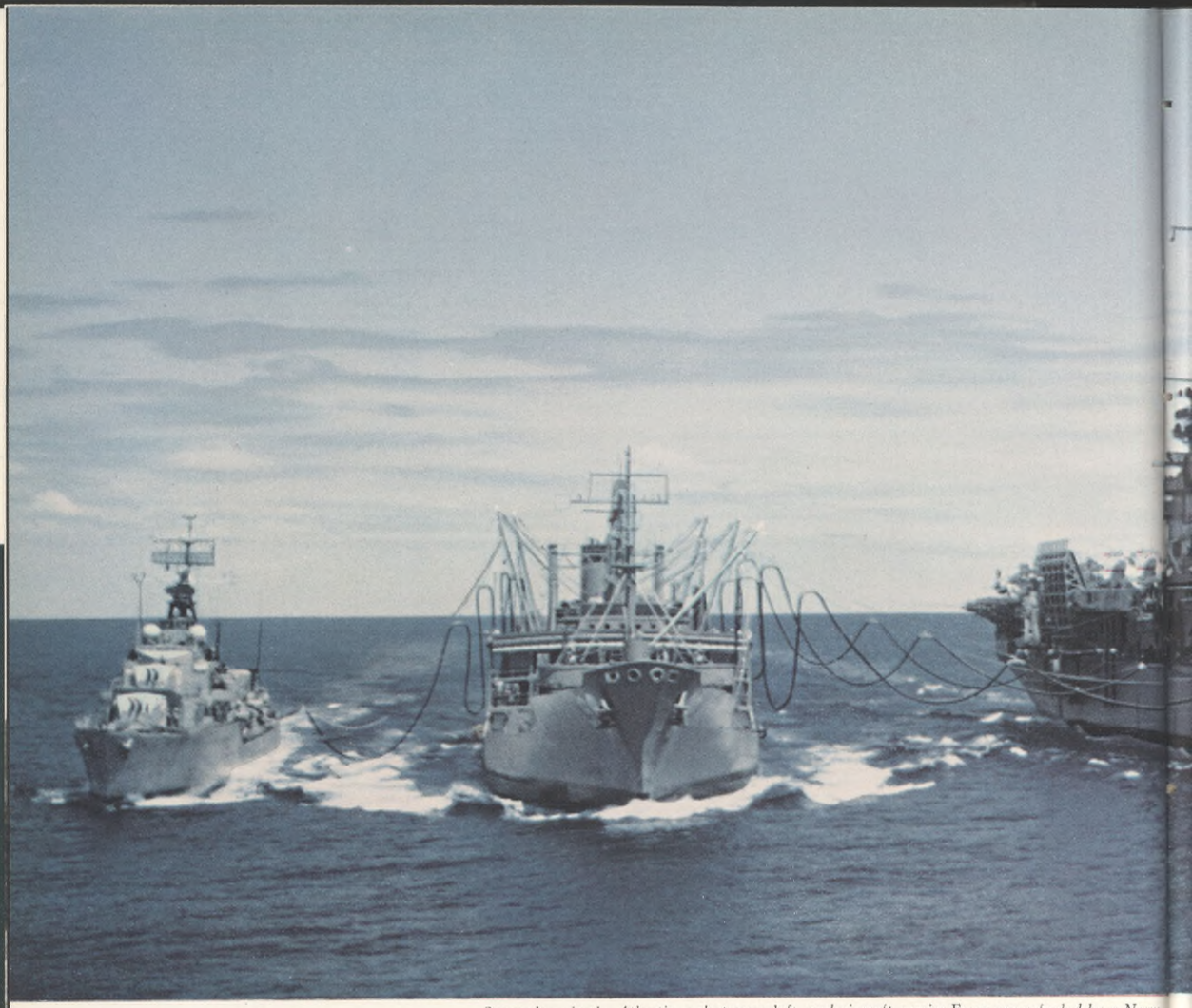
SHOULD OUR GOVERNMENT NOW AID FOREIGN MONOPOLIES?

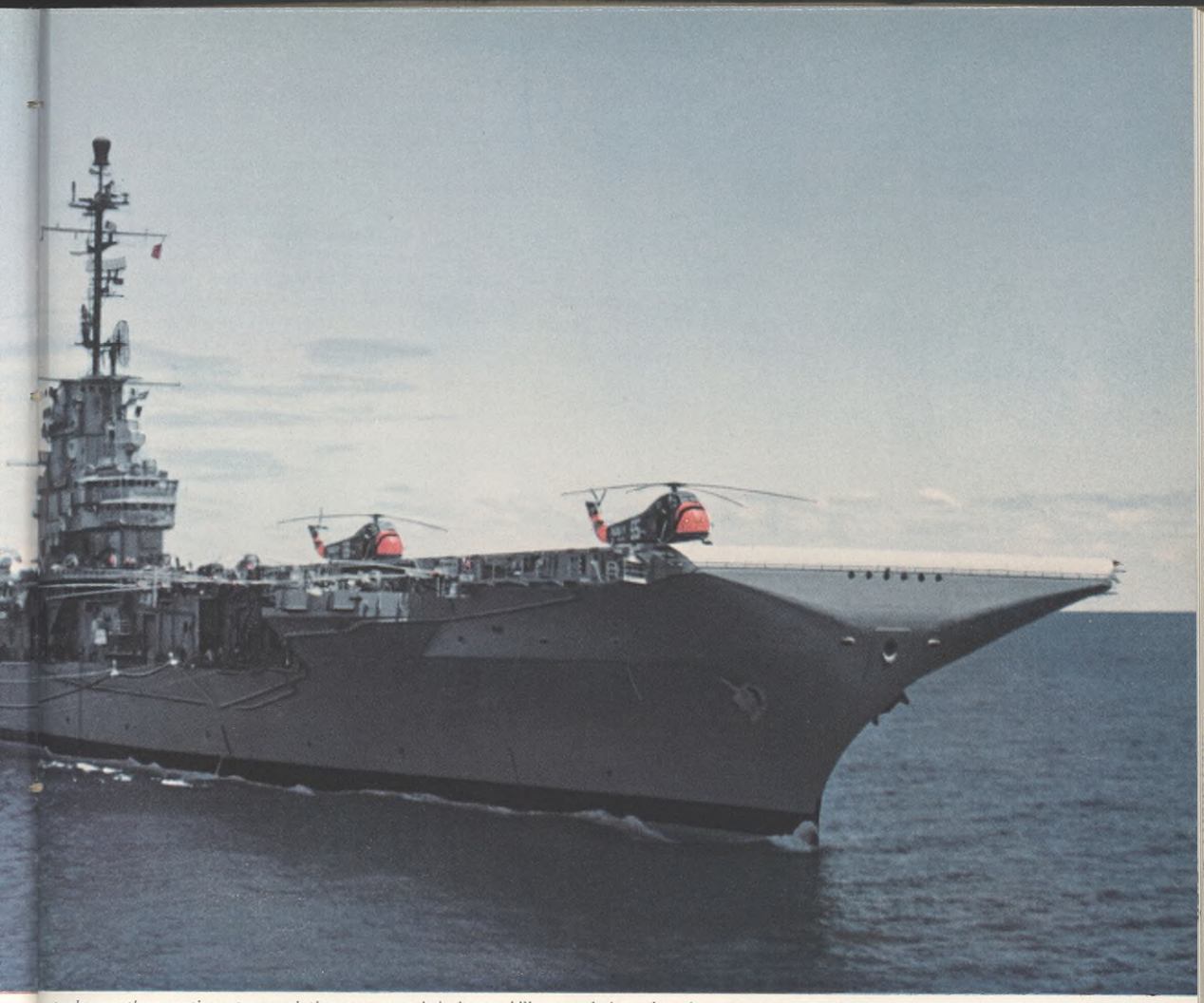
FOR MANY YEARS our Government has followed the principle of not providing foreign aid funds for purposes for which private capital is available. This would seem to be the only course to follow for a nation whose strength has been largely developed through individual initiative and freedom of competition. It is also consistent with the efforts our Government has made to encourage American businesses to go abroad and develop the resources of other lands. ▪ It, therefore, came as something of a surprise when, on March 24, 1961, the Federal Government announced it would undertake financing and guarantees for equipment sold by American manufacturers to foreign government oil monopolies. Such action will have the effect of almost completely barring private American oil companies from any branch of the oil business in any of the countries where state-owned oil monopolies are thus promoted. ▪ This change in policy is not only at variance with the principles of our American system of free enterprise as we have known it in the past, but is completely unnecessary. Privately owned oil companies are ready and willing to finance petroleum operations on a reasonable basis almost anywhere in the free world. In fact, in the last nine years alone, American oil companies have invested approximately $7,000,000,000 abroad. ▪ The only excuse advanced by our Government for this action is that it will provide a market for certain American equipment manufacturers. However, it is obvious that the market for such equipment would be at least as good if the prospective purchasers were American oil companies doing business in the country, rather than state-owned monopolies. ▪ Our American economic system is based on the freedom to compete. This is one of the freedoms we are striving to preserve in our struggle with Russian communism. It has stimulated American businessmen to develop the resources of our own country. It has encouraged them to do the same abroad. It has brought expanded trade, employment, and wealth to all those lands where it has been allowed to operate. ▪ This new policy of our Government represents a serious threat to American-owned operations, domestic as well as foreign. Over the long run, it will impair the capacity of American companies to buy equipment from the very manufacturers the change in policy is professedly intended to favor. Instead of promoting American free enterprise, it promotes monopoly, government ownership, and state socialism. In addition, it further complicates our country's balance-of-payments problem. It is very shortsighted indeed. ▪



Somewhere in the Atlantic, a destroyer, left, *and aircraft carrier* Essex *are refueled by a Navy*

ATLANTIC EYES

IF, AS YOU READ THIS, you are sitting in any American city east of the Mississippi, you are the potential victim of a submarine attack launched from the Atlantic. From an enemy sub lying several hundred miles out at sea, Polaris-type missiles could be hurtled with fearful accuracy at your home town, carrying with them such destructive power that



tanker as they continue to prowl the ocean on their hunter-killer search for submarines.

what happened when they hit would make the rubble of Conventry look like the hurried work of schoolboy vandals by comparison. Your city would be destroyed. Not just bombed out. Utterly destroyed.

The United States Navy does not take the threat of attack by submarine lightly. The work of Task Group 83.3, one unit of the Navy's Atlantic Fleet antisubmarine warfare forces, proves that.

Task Group 83.3 patrols a patch of the Atlantic running north and south from the Carolinas to Quonset Point, Rhode Island, and from the coast several hundred miles out to sea. It is a hunter-killer group; its wartime mission would be to seek out the enemy and destroy him.

Right now, since America is at peace, when Task Group 83.3 comes upon an unidentified sub it simply reports the contact to Second Fleet headquarters at Norfolk, Virginia. Its job is that of a roving lookout in the Atlantic. Any day, however, the job could become far grimmer, and the outfit stays ready for that day with constant exercises at sea that keep its crews expert and its equipment in top condition.

Headquarters, mobile air base, and logistics support ship for Task Group 83.3 is the carrier *Essex;* and unless she is in port for one of her periodic maintenance checkups at this moment, she very likely is steaming through the Atlantic, a couple of hundred miles out, in a formation of ships that includes a squadron of destroyers and two submarines. She is a massive ship, imposing even in the sea's vastness.

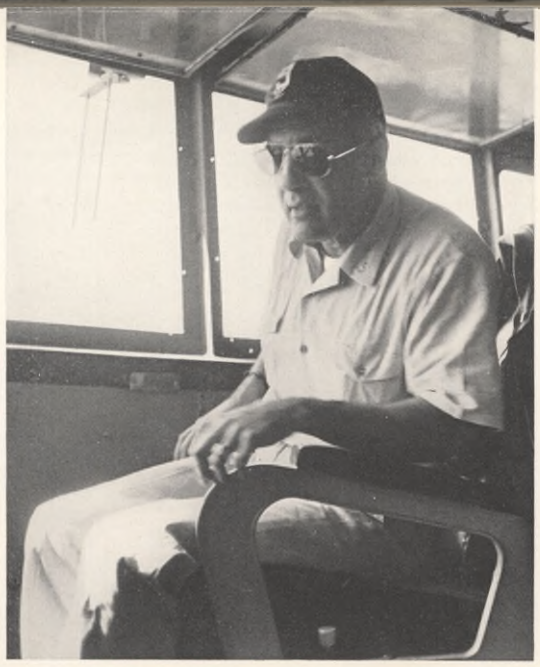
The flight deck of the *Essex* is just short of 890 feet long. It is the airfield for the pilots of the 22 search-attack aircraft, 14 helicopters, and four fighters, converted for patrol

work by the installation of huge radar domes in their bellies, that make up the air group based aboard her. Some part of this air group is in flight almost always, using sonar, radar, and other electronic search equipment to patrol that part of the Atlantic that has become its "beat."

Aircraft, destroyers, and subs work together in the search work—receiving their instructions from *Essex* and reporting their findings to her. Each has its own special capabilities, and on a search mission these are combined with those of the others. The two subs, for example, can take much more accurate readings of suspect engine noises under water than destroyers can from the surface (a destroyer's own screws, and the bubbles in its wake, often create a confusing garble that makes it impossible for sonar operators to learn much with their equipment). The aircraft can see much farther with their radar than the ships—from 5,000 feet, the planes' radar scans an area about 200 miles in diameter, and from 25,000 feet the radar view is about 400 miles across.

While its planes and ships are on the prowl, *Essex* moves through the ocean at speeds from 10 to 30 knots, making plans for rendezvous, keeping track of her units, preparing to recover flights that soon will be heading home to her flight deck. Except in the heaviest seas, she rides as smoothly as an iron over linen, and in good weather it is nearly impossible for anyone below decks to tell whether she is moving at all. But she is, and her 2,800-man crew is plenty busy keeping

As much as anything else, the carrier is a floating service station; one of her main jobs is fueling the other units in her task group



On the bridge, above, *the carrier's captain keeps a close watch on fueling operations. So does the ship's "oil king," below decks,* bottom center. *The men at far left are part of the ship's aircraft fuel team; their job is to refuel the planes as they return from search missions. At top center part of the ship's crew tussles with the "high line" during refueling, and below men race to put lines and chocks on a plane that has just pulled into position on the big carrier's flight deck.*

her running and preparing to replenish, at sea, the other units in the group that depend largely on her for their fuel (one of her main jobs is providing fuel to the other ships). She is a mammoth plant, afloat, with electrical generators that could serve a town of 10,000; a galley that bakes 3,000 pies and makes 1,800 gallons of soup each week and buys its meat in 145,000-pound lots. She has her own barber shop, laundry, cobbler shop, clothing store, soda fountain. She has 10 decks, and when the engineering officer lays up to the bridge, he climbs the equivalent of an eight-story staircase.

Aside from her job as control center and home base, probably the most important chore *Essex* performs is the refueling at sea of the destroyers accompanying her (refueling of her aircraft is done aboard ship, immediately after a flight lands, and the air group uses about 10,000 gallons of aviation gasoline daily). The *Essex* has a fuel capacity of more than two million gallons, most of it Navy Standard Fuel Oil, and what she does not need she feeds to the smaller ships in the task group.

Refueling at sea has been called by World War II Chief of Naval Operations Chester Nimitz "a logistic technique that helped bring America victory on the sea in two World Wars and that today is a vital part of our cold war defenses." Although refueling under way has been standard Navy practice since the first World War, and has become routine to such a degree that it hardly makes a stirring spectacle for an old salt, it does create an exciting sight for anyone watching it for the first time.

One of the trickier aspects of a refueling mission is the maintaining, by the ship being refueled, of its proper station in relation to the ship supplying the fuel. The normal practice is for the ship that is to be fueled to come alongside the carrier, about 100 feet to starboard, and slow down to a speed matching the carrier's—usually around 12 knots. Keeping the proper station and the correct speed takes skill any time. In heavy weather it becomes a real feat, and more than one fuel line has snapped when huge waves have crashed in between ships, slamming them off course.

When the ship to be refueled has come alongside and is in position, a light line is shot onto its decks from the carrier. Usually this is done by a seaman using a shotgun that fires a plastic float to which the line is attached; but sometimes the float and line are flung from a giant slingshot. The light line is spliced to a succession of heavier ones that ultimately attach to the fuel lines, and these are hauled aboard the receiving ship by working parties of seamen directed by a bosun. On both ships, the crews wear life jackets, and a rescue helicopter hovers at the stern of the carrier during the two or three hours the refueling takes. Routine or not, the job holds its hazards. And routine or not, every refueling job is watched carefully by the captains of both ships from their bridges. Neither captain leaves his bridge until the work is done, the lines have been hauled in, and the fueled ship has pulled away. The "smoking lamp" is out during refueling, naturally; and in the areas on both ships where fuel lines are connected, an elaborate assortment of fire-fighting equipment is available. Fueling stations on the *Essex* are on the hangar deck, and that entire deck can be filled in seconds with a chemical fog that snuffs fire out instantly.

Last year, the *Essex* refueled 115 destroyers—delivering more than five million gallons of fuel oil to them. She also received, from Navy tankers at sea and from barges while she was in port, over 18 million gallons of fuel oil, aviation gasoline, jet fuel, diesel fuel, and lubricants. It takes huge amounts of petroleum products to keep a ship her size operating, and to keep her tanks always full enough to replenish her destroyer squadron. In a typical week she will complete three refueling missions; in an average year she will be refueled about 30 times.

One of the intriguing sidelights to every refueling mission is the use of the "high line." This is the line everyone has seen in newsreels or on television, used to transfer men, movie film, mail, food, and just about anything else from one ship to the other while under way. It is shot from the carrier in the same way fuel lines are, and works on a pulley arrangement in about the same way a clothesline might. In the carrier's hangar bay, as many as 70 seamen wrestle with the hawser—slacking off or tautening in a giant tug-of-war fought to hold the line at just the right tension to keep it out of the sea. Allowing an enlisted man being transferred to get wet is bad form; dunking an officer is really serious; ruining a can of movie film with sea water is disaster. Anyone who has taken the ride between ships on the "high line" in foul weather can dismiss the wildest amusement park attraction with a shrug.

The Navy's fundamental mission, in peace or war, is to keep the sea routes of supply open for our use. But sending ships to sea is only the first step necessary to accomplish this mission: once our ships are at sea they must be able to stay there for considerable stretches, well-stocked and ready for action. Refueling and replenishing under way make this possible, and are an important part of modern naval practice. For Task Group 83.3, which in war would be at sea almost constantly, it is absolutely vital. •

At dusk, Essex *moves through the sea ready to recover a patrol flight that had taken off earlier in the day.*

Its continuing efforts to

conserve the nation's resources

show the oil industry has

A RESPECT FOR NATURE

MORE THAN 650 YEARS AGO, Edward I issued a proclamation prohibiting the use of soft coal in London upon penalty of "great fines and ransomes," because of the dense smoke and soot coal created.

Edward's idea of a king's ransom would look like small potatoes next to the amounts American industry spends today to control air pollution; and keeping the air reasonably clean is only one of a special set of problems industry in general has taken on, as a matter of good citizenship, in recent years. The elimination of water pollution, the preservation of wildlife, the carefully controlled production of our mineral deposits are some others. All aim at the conservation of the country's natural resources, and all concern the oil industry at least as much as any other.

To begin at the beginning, in the oil industry's case, one must consider the oilman's interest in the sensible production of his commodity. Oil taken from the earth cannot be replaced, and wasting it is woeful foolishness. Yet when the American petroleum industry was born in Pennsylvania a little more than a century ago, the hunger for quick cash sometimes overwhelmed logic—and it was common to drill recklessly, whether or not one had proper storage facilities and a market, once one brought in a well. Oil was allowed to flow into pits and ditches, or was dammed up in dry creek beds. There were huge losses of crude oil through evaporation and seepage, disastrous fires, widespread pollution of both underground and surface waters.

That was a century ago. Things are vastly different now. Oilmen have learned to set proper production rates; learned that the proper spacing of wells will give them the largest possible recovery from a field (remember the old photos showing an oil field as a jungle of wooden derricks?); have developed strict safety practices that make oil well blowouts and fires more and more rare. The industry, over the years, has matured.

With this maturity in the handling of its operational affairs, the petroleum business also came to realize a long time ago that its responsibilities had grown beyond the oil field and the refinery. Refineries were using enormous amounts

Proper spacing of wells is a basic conservation technique that has been developed to insure the maximum recovery of petroleum resources.

of water from lakes and rivers, and it had become the oilman's responsibility to make sure those waters were returned to their sources free of pollution. His exploration teams and his drilling crews often moved into areas full of wildlife, and there was a clear responsibility to leave that life as undisturbed as possible.

One of the earliest industry-wide moves to cooperate in the conservation of our resources was the establishment by the American Petroleum Institute in the late 1920's of a Committee on Disposal of Refinery Wastes. Through the years, this committee has given a great deal of aid to Federal, state, and municipal authorities who have turned to it for help in meeting pollution problems. It has established standards, recommended procedures, and become an immensely important source of information. It has developed designs for refinery equipment, established methods for eliminating oil in refinery effluents, and worked out ways of neutralizing stream-pollutant acids and alkalies.

Individual companies in the industry have done important antipollution work on their own, too.

Texaco has spent more than $4 million over the last five years on the control of water pollution alone. At its Puget Sound Plant, the Company cooperated with the University of Washington in a study of the effect on marine life, particularly oysters, of refinery waste, before the refinery was built. The study, and the special antipollutant equipment installed as a result, cost nearly $2 million—and what the Company is doing has been adopted as a model plan by other companies in the Puget Sound refinery complex.

At Texaco's Port Arthur, Texas, refinery, there has been a continuing and substantial expenditure over the years for the control of water pollution. Right now, a long-range project that is expected to cost several million dollars over a six-to-eight-year period is under way. And in Tulsa, for several years, Texaco has contributed to research being done by Oklahoma State University to develop new ways of controlling water pollution, and to establish standards for improvement.

At every Company refinery, of course, special equipment is used to control both water and air pollution. Treatment of waste water to remove harmful chemicals, and the removal of oil from water being discharged from the refineries, are two measures taken to help make sure the water returned to lakes or rivers will be as pure as possible. In many cases, the Company has taken steps to correct potential pollution problems before it has been asked to by community agencies; and without exception has gone well beyond legal requirements in its handling of pollution problems. As a matter of fact, the legal requirements have always been considerably less exacting than Texaco's own. People in a refinery community are both neighbors and potential customers; the Company tries to make sure it offends neither.

As its exploration and drilling crews have spread across the country, the petroleum industry has taken on still another conservation responsibility—and gladly. This is the preservation of wildlife.

Hunters and fishermen share understandable pessimism about petroleum's compatibility with nature. They tend to picture spoiled streams, injured and homeless animals, birds frightened away from their nesting grounds. Actually, however, oil is one of the most conservation-conscious industries in America, and it does everything it can to prevent such things. A few examples make this clear.

In Texas, one oil company recently canceled test drilling when it learned that the almost-extinct whooping crane might be panicked from his nearby nesting grounds by the sound of drilling. The company changed its plans, at a good deal of expense, to leave the birds undisturbed. Later, a natural gas transmission company changed the route of its pipe line for the same reason.

When oil production began on Alaska's Kenai Moose Range, some wildlife conservationists were alarmed and made no bones about it. What would happen, they asked, when trucks and derricks began invading moose country? Would the animals be frightened? Would their food supply be in danger?

The answers came quickly. Moose and man took to each other, and the moose herds have grown. What's more, their food supply actually has increased. When oil crews discovered that dense spruce thickets on the range were limiting the growth of secondary vegetation, which is the prime food source of the animal, they cleared the thickets. As a result,

the herds are eating better than ever before. Other moves have been made by oilmen on Kenai peninsula, to preserve its beauty: wells have been widely spaced, and derricks are removed as soon as the wells are completed.

One of the most unusual conservation efforts made recently was carried out by an oil company in California. As part of its conservation program, it worked with the state's Department of Fish and Game to create an artificial reef off the Pacific coast. To build the reef, 120 old autos, lashed together with steel cable in bundles of five, were piled on the ocean floor. Aquatic plants soon attached themselves to the jalopies, attracting thousands of fish never before seen in that part of the ocean. Buoy markers now guide eager fishermen to the structure, which has taken on the appearance of a natural reef.

Important as the control of air and water pollution, and the protection of wildlife, are to the nation—and much as they concern the oil industry—the oilman's basic interest necessarily continues to be the judicious production of crude oil and natural gas. Over the years he has developed methods that permit him to keep oil and gas fields "alive" and productive much longer than in the early days of the oil business. Just a few decades ago only 20 per cent of the oil in any reservoir could be recovered. Now the figure is closer to 60 per cent and should be higher in the future as new methods and techniques are developed.

One of the most important techniques used to extend the life of an oil field is secondary recovery.

Secondary recovery first came into fairly widespread use in the 1930's. But its methods were applied only after a field's natural flow had stopped or it had failed to respond to pumping. Now oilmen use the techniques of secondary recovery as soon as possible after a new field is first tapped. As a result they are able to conserve and maintain the natural pressures in the reservoir from the start.

Putting these techniques into practice is a complex affair that calls for the skills of highly trained petroleum engineers and other experts.

Oil is trapped in porous rock under the ground. The tiny spaces in the rock formation are interconnected so that it is possible for the production people to drain the oil from the pool or reservoir.

Usually, when a well is brought in, nature supplies the force to make the oil flow. This push-force consists of gas or water or both. The gas is either dissolved in the oil or lies on top of it like a cap. Water, on the other hand, either flanks the oil reservoir or lies beneath it. With the gas or water pressing against the oil, the oil is under tremendous pressure to flow and naturally seeks an outlet. Such an outlet is provided by the well drilled into the reservoir. When this happens, the gas or water then pushes the oil into and up through the well.

Eventually, the natural pressure provided by the gas and oil begins to drop. At that point or sooner the modern producer calls on his specialists to determine the shape and size of the reservoir and whether it is responsive to gas or water pressure or both. Conditions in an oil field can vary to the point where they are entirely different in separate parts of the same field. Engineers are able to analyze the characteristics of the field by studying core samples of the oil-bearing formations, simulating reservoir conditions with laboratory apparatus, and by other means.

Also highly important in the conservation of the nation's petroleum reserves is the practice of unitization—developing a reservoir as a single unit rather than as several separate operations drawing from the same source. Unitization affords landowners and oil companies an opportunity to cooperate in an orderly joint development of a field under one sound engineering plan and share proportionately in the production of the field. The end results are highly important from a conservation standpoint: more oil—ultimately—and fewer wells.

Well spacing contributes to conservation in a similar way. The first step in modern conservation practices is planned well spacing. Derrick next to derrick is a thing of the past . . . one of the unwise practices the oil industry corrected early in its development. Today, there may be only one well to every 10, 20, 40, or 80 acres in an oil field—in many gas fields, the spacing may be as great as 640 acres.

Secondary recovery, unitization, and the careful spacing of wells probably are the three most basic, and most important, methods oil producers have developed to make sure the most possible oil or gas is recovered from our nation's reserves; but other steps contribute importantly to that aim, too. The reduction of well fires, through rigid safety rules, has meant a great saving of oil and gas. Tremendous amounts of oil can burn in a matter of hours, at a well, and anything that prevents well fires means substantial gains for the petroleum consumer. Realizing this, every major producer maintains strict safety procedures and insists every man working on a rig follow them.

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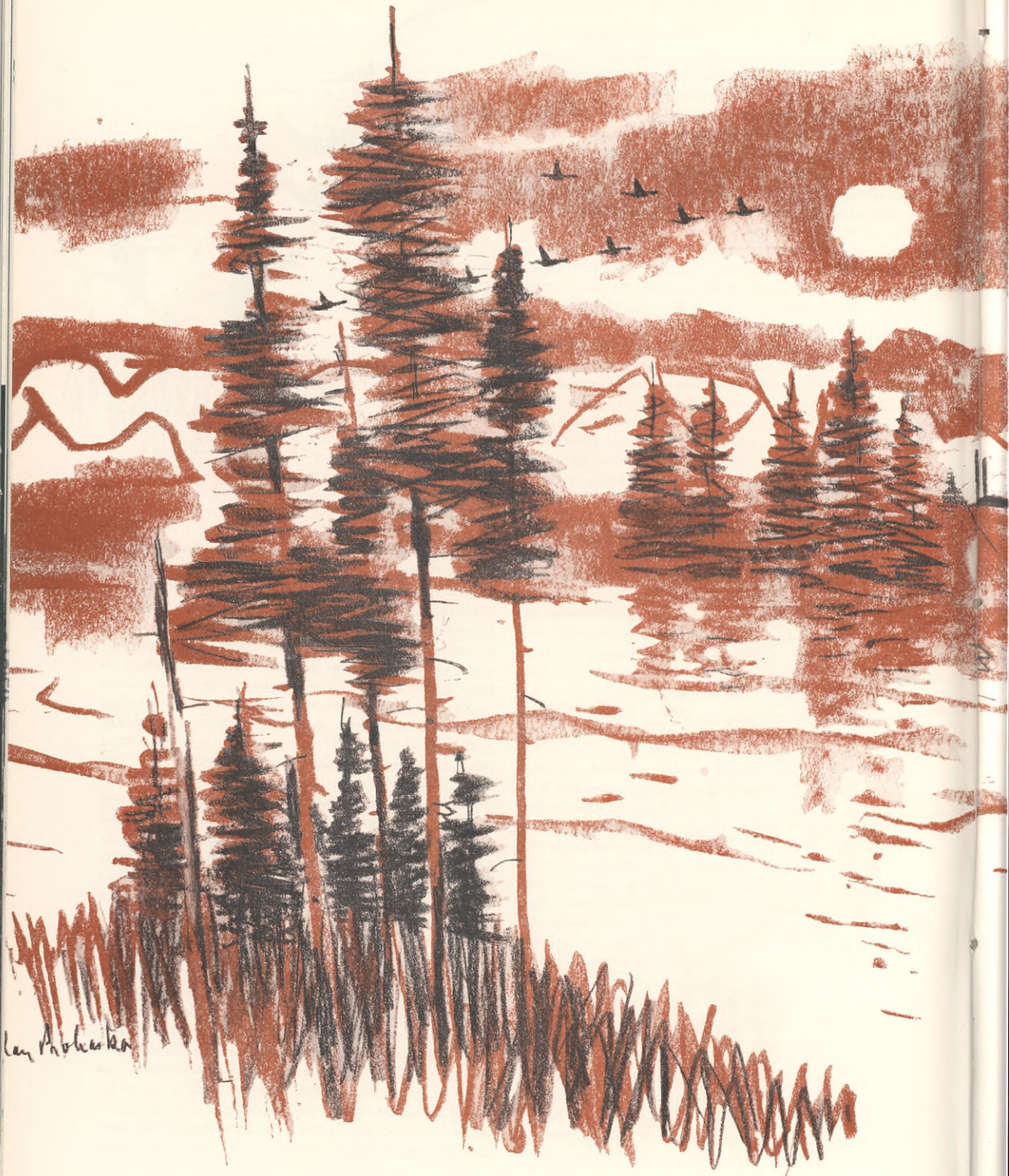


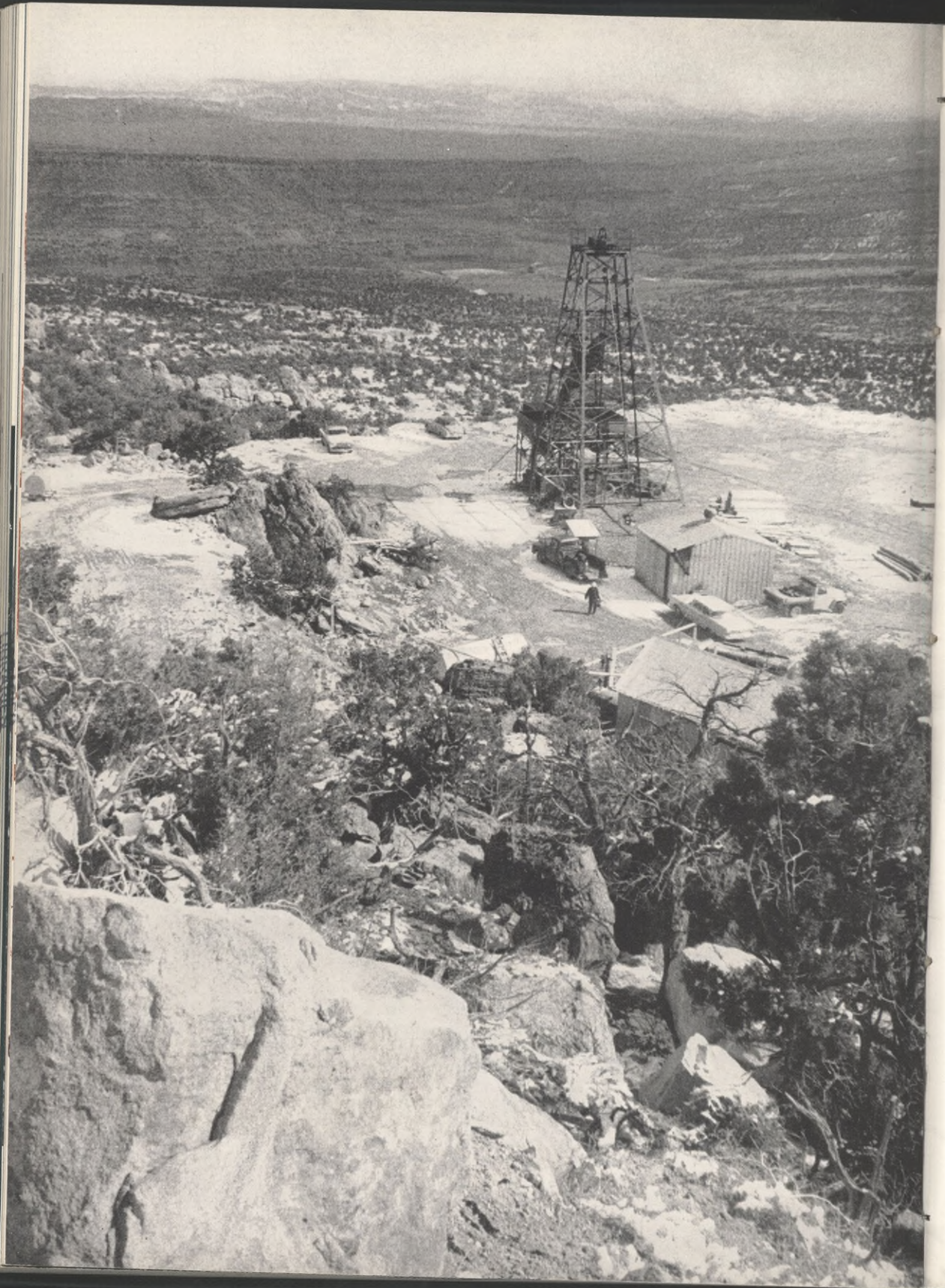
Preservation of natural resources and the beauty of nature is a prime concern of the American petroleum industry

Though water pollution generally is the concern of the refinery, production crews also deal with one important water pollution problem—and in this case, nature herself is the villain.

Nearly all crude oil is produced with at least some brine; and collectively, oil wells in the United States produce more than six billion barrels of salt water a year. If this were allowed to drain off into fields and streams, the effect on both agriculture and fish life could be ruinous. But oilmen have developed, at considerable expense, techniques for treating the brine, removing its clogging and corrosive elements, then pumping it back into underground formations where it can do no harm. Crops near drilling sites are kept safe from salt water damage, and streams are kept pure.

Recently, the American Petroleum Institute (of which Texaco is a member) issued a statement of policy on conservation of natural resources. The statement reflects the industry's concern with the subject, and it says, in part: "The rise to world leadership of the United States with attendant expansion in its social and economic needs, imposes ever-increasing demands on the nation's land and other natural resources. The satisfaction of these demands can be accomplished only by the intelligent and proper use of [these] resources . . . the Institute supports enactment and enforcement of appropriate statutes and regulations necessary to assure that in the orderly development of petroleum and other natural resources on public lands, these lands be protected from pollution, and from damage to wildlife, wildlife habitat and other natural values."

In his 102-year history, the American oilman has learned to use good judgment in the ways he goes about producing oil or gas. He also has become one of the most considerate of citizens in his treatment of the other natural resources with which he comes in contact. •



"Stop Loss" at Slick Rock

NAVAJOS AND UTES who roamed the Great Colorado Plateau years ago painted their bodies with brilliant red and yellow war paints. The more ferocious they looked the more powerful they felt. What they couldn't know was that the ore from which they made those paints held power beyond belief. It contained uranium, the source material for atomic energy.

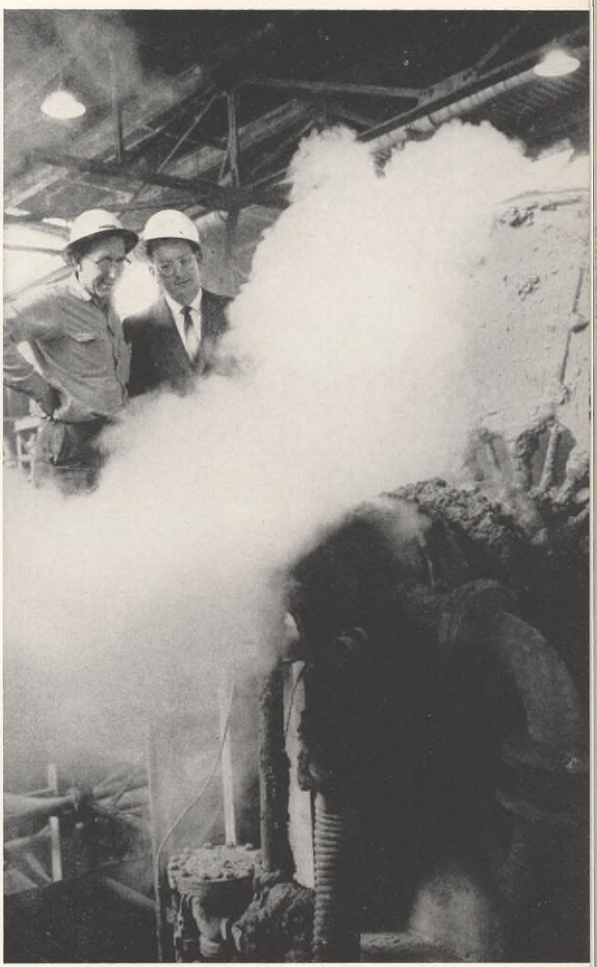
Today in the Plateau (it covers about 180,000 square miles and reaches through five Western states) more than $100 million a year is spent to mine and refine uranium. Most of this money goes into an area near the Four Corners, where the borders of New Mexico, Utah, Arizona, and Colorado come together.

All operations involving uranium in the United States are under the control of the Atomic Energy Commission; but many private companies cooperate with the Commission in the mining and milling of the ore. One of the largest of these is Union Carbide Nuclear Company, a division of Union Carbide Corporation.

At its Slick Rock, Colorado, mill, Union Carbide receives ore from nearby mines and chemically upgrades it. Milling equipment is exposed to a hot, dusty atmosphere that makes extreme demands on lubricants. Texaco products have been able to meet these demands.

It takes care to recover uranium from its ores. A mill must process hundreds of tons daily: each ton yields just a few pounds of uranium. At the mill, the ore is crushed and screened to small particles. Next, chemicals are added to separate the uranium from other solids in the ore. Even the settling sands are combed for any metal remaining after the leaching process. The dried uranium-bearing concentrate from Slick Rock is shipped to another plant where, after additional processing, a bright clay-like material called "yellow cake" is produced. This is uranium concentrate. It is the end product.

After it has been dried, the concentrate is packed in steel



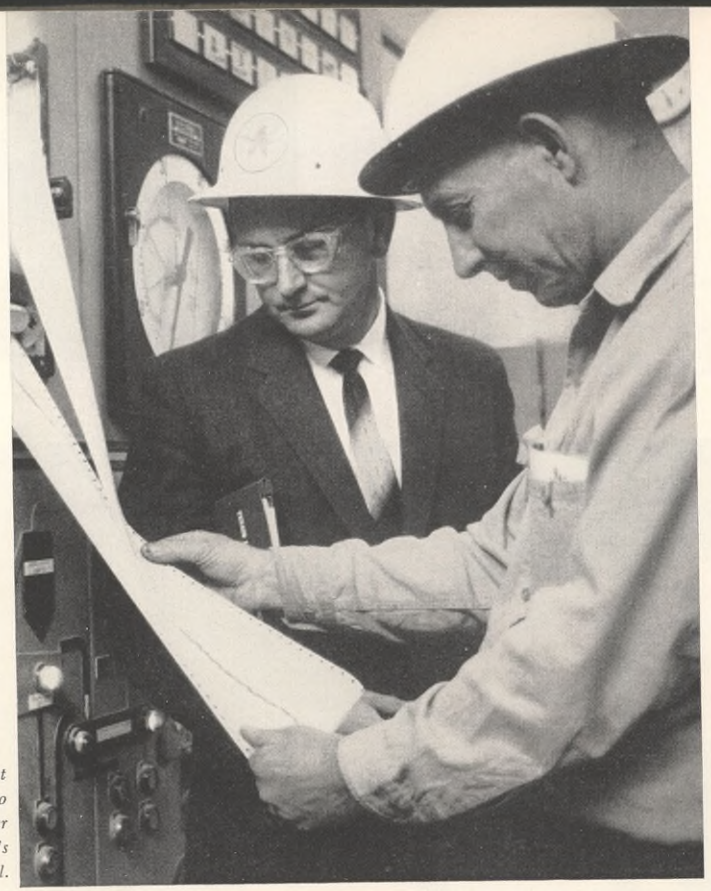
From mine, left, *deep in old Indian territory, ore is trucked to Slick Rock mill. At right, plant supervisor and Texaco salesman inspect filtering machinery that once was maintenance headache.*

drums and goes to the AEC. Ultimately it goes on to various plants where it is converted into feed materials used in the final steps of producing fissionable materials.

If there is an exotic ring to "fissionable materials," there is nothing particularly exotic about the work at Slick Rock. The grinding and filtering jobs are tough, gritty ones involving gears as large as 14 feet, and the dust and clays can play hob with lubricating greases. They did, in fact, until last year, when a Texaco representative began working with Slick Rock management to improve its machinery's efficiency and reduce maintenance costs. He made suggestions about lubricant changes, and provided the mill with a plan for organized lubrication (a customed adaptation of Texaco's "Stop Loss" programs, described in the Summer, 1960, STAR). His recommendations worked, and today at least part of this country's uranium store is started on its way in machinery lubricated by Texaco.

The experience at Slick Rock is not the only one Texaco has had with uranium. Since 1956, it has been a partner in Texas-Zinc Minerals Corporation, which operates a mine and mill near Medicine Hat, Utah. Texaco has learned from its own operations there about the particular problems of lubricating machinery in the uranium business. What Texaco knows should be very helpful to the entire industry. •

Minerals in the finely ground ore are dissolved with acid, then separated from clays and other solids in vats like one shown at left.



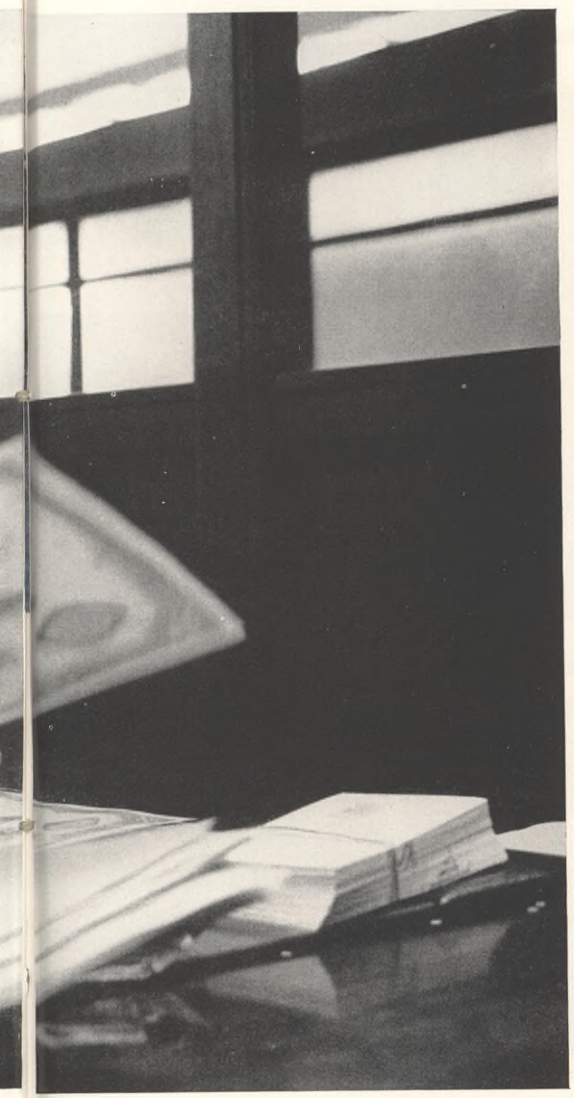
At right, Slick Rock plant supervisor and Texaco representative check power consumption graph at mill's central control panel.

Conveyor belt, left, *carries ore into the mill. After crushing, dye is assayed to determine uranium and vanadium content, which establishes market value.*

At the New York Stock Exchange booth where Texaco stock is traded, right, *transactions are conducted between specialists in the Company stock and brokers handling buy-and-sell orders for their clients.* Below, *two retired Texaco employes work on issuing of new certificates to Company stockholders.*

The recent stock split reflects Texaco's continuing growth

TWO FOR ONE FOR TX



THERE ARE TWO STREETS in this nation everyone knows about. One is Main Street, the other is Wall. Main Street can be anywhere in America; as a matter of fact, it is everywhere. It *is* America. Wall Street runs for only a few blocks through downtown Manhattan; but it is uniquely American, too.

What happens on Wall Street affects everyone on Main Street, and the news from Main Street is of great importance to the men on Wall.

When Texaco recently announced a two-for-one stock split accompanied by an increase in the cash dividend, thousands of Americans on Main Street across the country were affected. So was "the street." For some families who had invested in Texaco, it meant more income against the time the children are ready for college. For people in retirement, it meant more income in the immediate future. To the Wall Street community, the announcement was further confirmation of Texaco's continuing growth and meant that in the months ahead many more Americans will become Texaco stockholders.

Probably only a fraction of Texaco's shareowners ever have seen the floor of the New York Stock Exchange, which is the central point at which Company stock is traded and where Texaco is known as "TX." For that matter, surprisingly few New Yorkers have, even though it is open to the public every weekday and visitors are quite welcome.

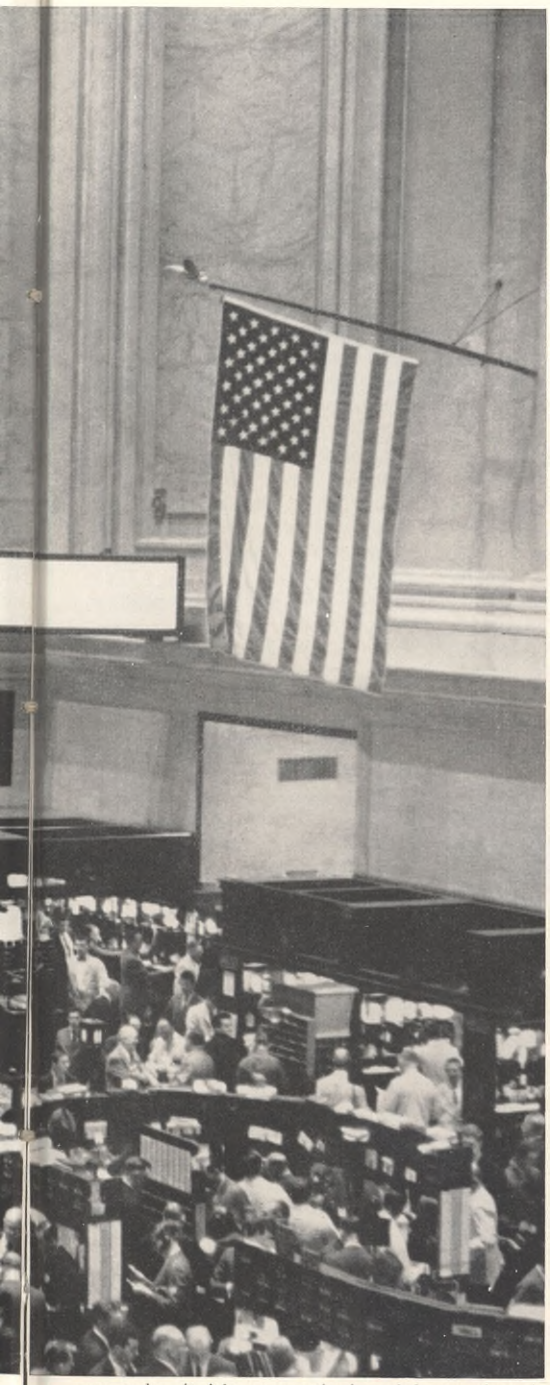
For the first-time visitor the floor is a bemusing eyeful. During an average trading day, nearly 50,000 buy-and-sell orders are handled on it, and there are more than 2,000 men on the floor during trading hours—hustling back and forth in a noisy melee that sounds as much like a camel bazaar as anything. But what seems like madness really is highly specialized method.

The Exchange is one of the few examples of a true auction market. Competing buyers and competing sellers are represented by their brokers who balance bids against offers for a stock at ever-changing quotations.

There are about 40 miles of pneumatic tubes under the floor, connecting each trading post with telephone booths around the walls. Orders and reports, recorded on slips of paper, can be relayed through these tubes between the posts and the booths. Exchange runners also are constantly scurrying across the floor with order slips, and they create a good part of the apparent bedlam the visitor sees.

In Texaco's New York offices the stock split meant a

Though it's noisy and appears disorganized, the trading floor functions efficiently, handling some four million shares on an



average day. At right, a transaction is carried out on the curb.

Handling of a split internally allows valuable contact with the stockholders

great deal of activity, too. The Company's Stock Transfer Division temporarily added 64 people, many of them retired employes with valued experience and training, to assist with the complex task of issuing 62 million shares of stock to almost 148,000 shareholders.

Working into the night, seven days a week for three weeks, Stock Transfer prepared and mailed 351,000 certificates. The Company could have had the job completed by an outside transfer agent such as a bank, and many companies do. But Texaco prefers to handle its own stock transfer operations because this opportunity to maintain personal contact with shareholders of the Company is highly valued.

This latest stock split is the third in the past 10 years—an indication that the Company has grown steadily in the last decade in spite of several business recessions. Another indication of Texaco's soundness is that the Company has never failed to pay a dividend in its 59 years of operations—not even during the depression of the 1930's.

Little wonder Texaco today is one of the two most favored stocks among leading mutual funds, and a very profitable investment and source of income for many thousands of individual shareholders. •

NEW TEXACO FILM READIED FOR THEATERS

Late this Fall, movie audiences around the country will begin seeing a new 10-minute color film called *Science in Action,* adapted from Texaco's educational motion picture *The Story of a Star*. That 30-minute film has been shown with great success during the last five years to Company employes, civic groups, service clubs, and others, including television audiences. The new version has been edited to make it attractive to movie distributors as a short subject, and will be offered to them free of charge. Its title and story line have been changed to capitalize on the growing interest in scientific endeavor. *Science in Action* is a colorful, fast-paced explanation of how oil is found, produced, refined, and distributed.

WHY FLAGS OF NECESSITY?

For many years, Texaco and other American oil companies have operated ocean-going tankers under both the United States and foreign flags.

Tankers under the American flag are operated almost exclusively in coastwise trade. The wages paid, and other conditions of employment on these ships, are the best in the world. The employes are represented by the National Maritime Union or other American unions for collective bargaining purposes.

Texaco has tankers under the flags of Great Britain, Norway, Panama, and Liberia. Another country under whose flag some companies operate tankers is Honduras. For the past several years, the vessels operating under the flags of Panama, Honduras, and Liberia have been referred to as "flags of necessity" ships. They are used almost exclusively for moving petroleum and petroleum products from one foreign port to another. They rarely touch an American port. Employes on these ships almost always are citizens of foreign countries. They are paid wages normal for those countries and substantially the same as those paid by the foreign owners of ships with which they compete. Otherwise they sail under conditions comparable to those on American flag ships.

The reason for operating two groups of vessels—one under the American flag and one under a foreign flag—is economic necessity. Because of the higher wages on American ships, no American flag vessel can, without a Government subsidy, compete with a foreign flag vessel in foreign trade. Wages on an American flag ship are about four times those of a Norwegian or German ship, and almost four times those of a British ship. The daily cost of operating an American flag ship is more than twice that of a British, Norwegian, or German flag ship. Our tankers have no Government subsidy, and it is economically impossible for our flag ships, operated by American seamen, to compete successfully with foreign flag ships in foreign trade. To attempt it would be suicidal.

The result is that if American companies are to own or control tankers operating in foreign trade, they must do so under a foreign flag. This is a basic economic fact. It is well-known in shipping, and well-known in Government circles.

Texaco believes it is highly important to the security of the United States that Americans continue to have control of the tankers that may be needed by our Navy in war. In past emergencies American-owned ships under the flags of friendly foreign nations have been promptly and fully available to our Government. But if American companies should be forced to pay the same wages on their foreign flag ships they pay on American flag ships, they will not be able to compete in the foreign trade and will be compelled to dispose of their foreign flag ships to foreign owners. The American Government will lose the power it has had to control such ships in an emergency.

Until now, American labor unions have never represented any foreign employes working on American-owned foreign flag tankers. It would seem improper for them even to attempt to—but that is exactly what the unions demanded in the recent maritime dispute. They originally asked that they be allowed to represent all foreign employes on foreign flag tankers as a condition to further bargaining.

If the tanker owners had agreed to such a demand, it would have been followed by further demands that the wages on foreign flag ships be raised to the American level. This would inevitably lead to the death of our American-controlled fleet of foreign flag tankers.

This issue is important to every American. It not only involves the right of American ship owners to compete on an economic basis with foreign ship owners in international commerce, but vitally affects the security of the United States.

Fortunately the major unions agreed to a settlement whereby the Secretary of Labor will appoint a public committee to investigate the "problem" of foreign flag vessels.

This committee will hear statements from representatives of industry, labor, and the Government and will not have the power to make binding recommendations.

Texaco feels confident that when all the facts are in, it will be clear that all seagoing employes, both foreign and domestic, are well-paid and are working under very favorable conditions. The Company also is confident that the facts will support its contention that foreign flag vessels *are* sailing under flags of necessity.

HUNTLEY-BRINKLEY SPONSORSHIP SHARED

Since July 3, the National Broadcasting Company's "Huntley-Brinkley Report," which for more than a year was sponsored solely by the Company, has been under the joint sponsorship of Texaco and R. J. Reynolds Tobacco Company. Under the current schedule, Texaco sponsors the newscasts three nights one week and two the next, then three nights again the following week and so on. The tobacco company is sponsor on those nights Texaco is not. Reason for the change: rising costs of television make it uneconomical to assume the full burden of sponsorship.

FIFTY YEARS OF SERVICE

For 50 years, a Texaco publication with a circulation second only to that of THE TEXACO STAR has quietly served industrial and technical people all over the world.

The magazine is *Lubrication*. It is a technical journal, circulated monthly to over 100,000, in six languages and eight editions. One of *Lubrication's* unique aspects is that, except for its covers, it is completely devoid of Texaco identification. If it sells, it sells through service. Even unique developments fostered by Texaco are referred to as the work of "an oil company laboratory."

During its 50 years *Lubrication* has had six editors but never an editorial staff. Articles are written by Texaco research scientists and engineers who are experts in their fields. The magazine is used as a supplementary textbook in many colleges and trade schools, and its authority in the field is unquestioned.

Lubrication's aim is to keep its subject matter technical, impersonal, authoritative. It has carried articles on everything from turbojet engine oils to glass-making machinery, from outboard motors to compact cars. More than 100 libraries in the United States have collected and bound copies of the magazine.

AUTOMATED LUBRICANT PLANT OPENS

Texaco recently opened the nation's first lubricating-oil plant to be operated by fully automated electronic blending controls. Located at River Rouge, Michigan, the plant will blend and compound more than 40 types of consumer and industrial oils for the Midwest market.

The new facility was built to the increasingly stringent lubrication demands of the automotive industry, with its emphasis on rapid and complex formulation. This is achieved through an electronic control console that enables a Texaco technician to mix, automatically, as many as six additives and base oils simultaneously.

Formerly, Texaco served Detroit and the Midwest area by rail with finished products from Port Arthur, Texas, and Bayonne, New Jersey. Now, however, the new plant — which has tankage capable of holding 302,940 barrels of liquids—can receive large tanker shipments of base oils and additives from which the finished products are blended and compounded. The tankers, moving from Port Arthur and Bayonne via the St. Lawrence Seaway and the Great Lakes, can deliver their cargoes to the River Rouge plant at a considerable saving.

The new plant also assures greater operating efficiency, flexibility, and the advantage of a strengthened engineering staff to satisfy the requirements of the Company's growing volume of business in this heavily industrialized section of the country.

Central feature of Texaco's newly opened River Rouge, Michigan, lubricating-oil blending plant is an electronic control console, above, *that enables a technician to mix as many as six additives and base oils at a time. The multimillion-dollar, high-speed plant will blend and compound for industrial and automotive uses more than 40 types of Texaco products, including Havoline and Texaco Motor Oils, and Texamatic Fluids.*

NO, VIRGINIA, IT ISN'T REALLY

THE *S.S. NORTH DAKOTA*

It is an impressively realistic plastic model, 27 inches long, that runs on flashlight batteries.* It would make a memorable Christmas present for your brother, and Dad can pick up a mail-in coupon for one just like it this Fall at any Texaco service station. It costs only $3.98 when he buys eight gallons of Fire Chief or Sky Chief gasoline, and it is worth three times as much. Our model *North Dakota* sails beautifully. It has wheels, too, so on stay-indoors days it can be rolled around the playroom. Some people who have seen it say they would like one just to put on the mantel—it is that good-looking. You and Dad can see for yourselves that it is, at most Texaco stations across the country, early in October.

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Permit No. 15221

C/S

*The real **S.S. Texaco North Dakota,** one of the fleet of 91 ocean-going vessels that Texaco operates throughout the world, is 565 feet in length. Her deadweight tonnage is 19,000, and she carries Texaco petroleum products from Texaco's Port Arthur, Texas, refinery to terminals on the East and West Coasts.