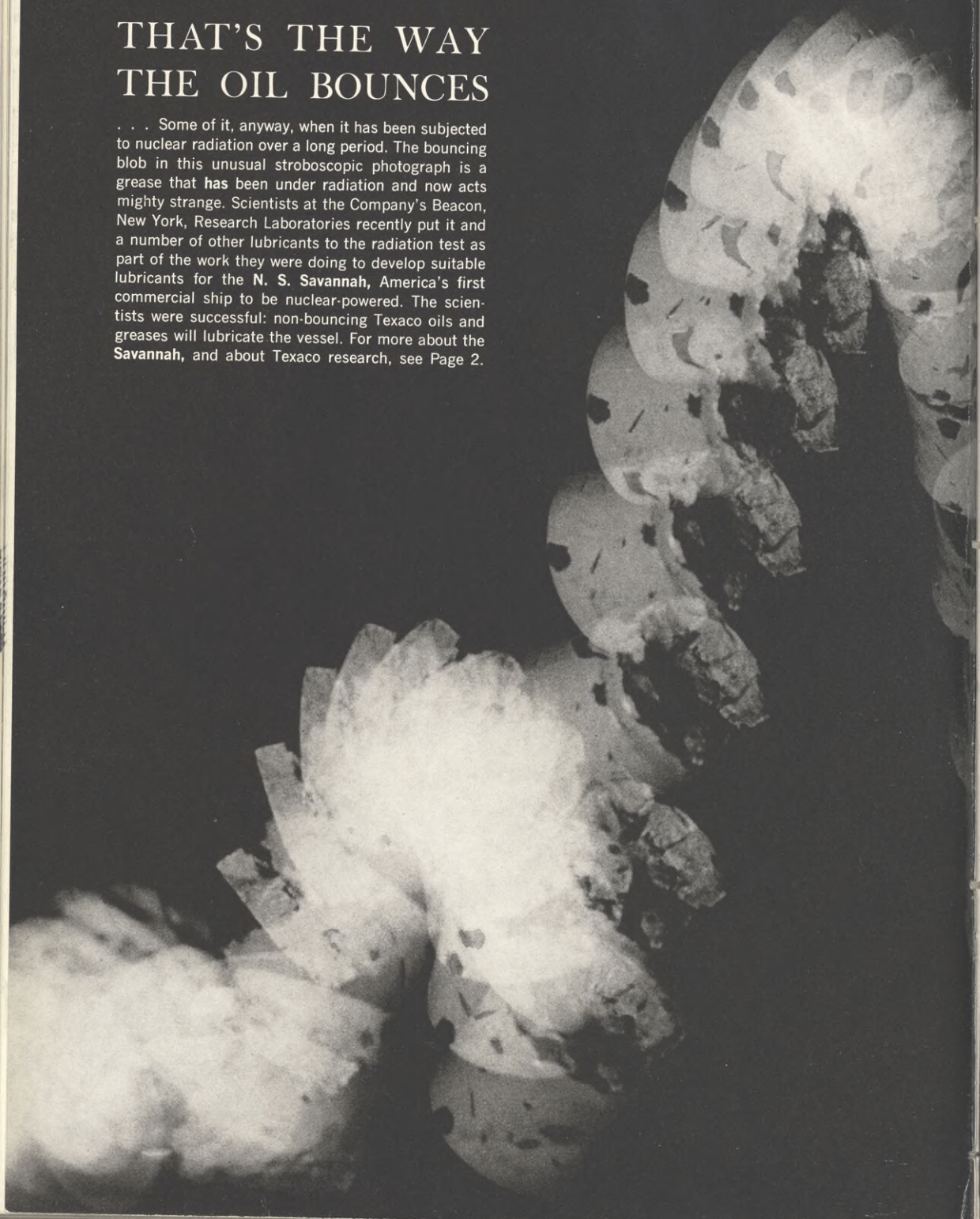
THE TEXACO STAR

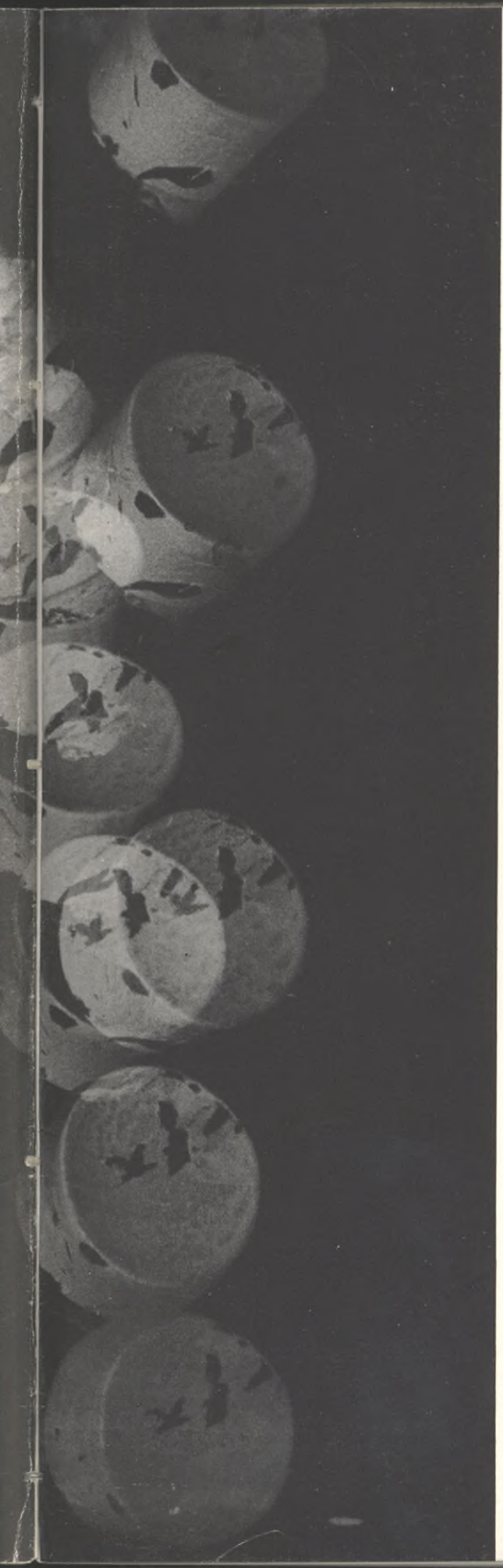
SUMMER 1961

PATTERNS
OF
PLEASURE

THAT'S THE WAY THE OIL BOUNCES

. . . Some of it, anyway, when it has been subjected to nuclear radiation over a long period. The bouncing blob in this unusual stroboscopic photograph is a grease that **has** been under radiation and now acts mighty strange. Scientists at the Company's Beacon, New York, Research Laboratories recently put it and a number of other lubricants to the radiation test as part of the work they were doing to develop suitable lubricants for the **N. S. Savannah,** America's first commercial ship to be nuclear-powered. The scientists were successful: non-bouncing Texaco oils and greases will lubricate the vessel. For more about the **Savannah,** and about Texaco research, see Page 2.





THE TEXACO STAR

CONTENTS OF VOLUME XLVIII • NUMBER 2 • SUMMER 1961

THE COVER: Aerial reconnaissance of the Summer sea shows us a sports cruiser and its tag-along dinghy scuffing the profound blue of channel waters near an American coast. Scouting higher, we find on Page 4 an emerald bay washing to glass green over the suave forms of shoal and sand bar, and flawed with the busyness of small craft. On Page 7, in a banking turn, we glimpse a square-sailed Viking longship, new-built to lead blithe pleasure squadrons across a goldsmith's ocean.

THE TEXACO STAR

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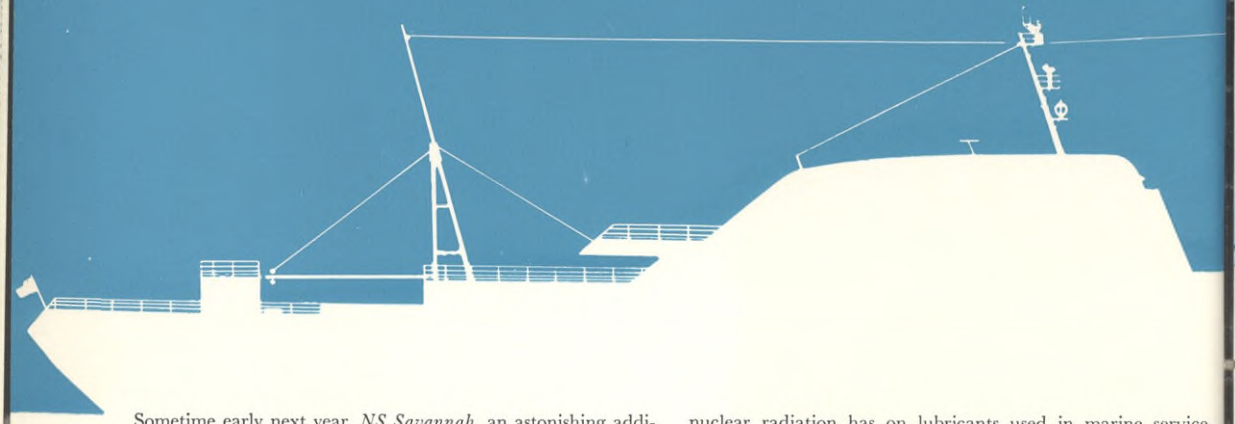
TEXACO LUBRICATES THE



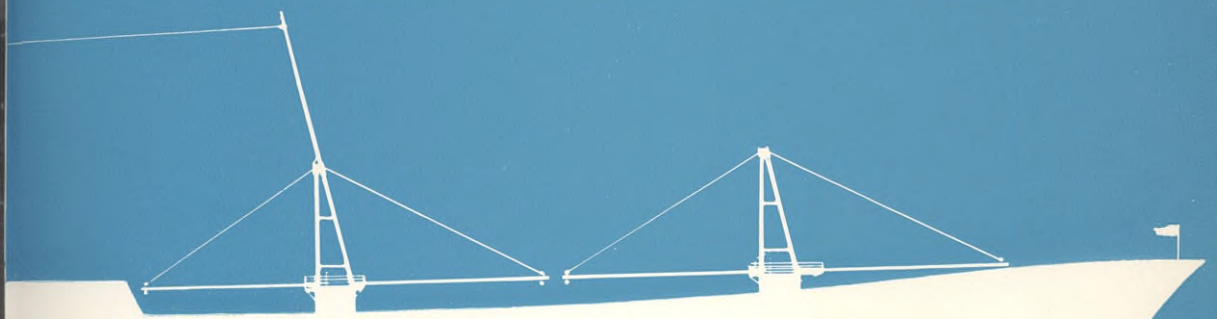
Sometime early next year, *NS Savannah,* an astonishing addition to our merchant fleet, will put out to sea. *NS* does not stand for *no smoke,* but it could: the *Savannah* needs no stack. She runs on nuclear power. Her unique power plant is lubricated by Texaco.

When the *Savannah* does go to sea, she'll introduce the first merchant marine use of the atom, and that is exactly what she was built for. Constructed as part of the Government's "Atoms-for-Peace" program, the $42.5 million cargo-passenger ship will be a floating laboratory used to study the practicality of commercial employment for nuclear-powered ships. All her life the *Savannah* will be on a shakedown cruise. An important part of what she shakes down will be new information on the effect nuclear radiation has on lubricants used in marine service.

Thirty-four lubricants, all of them standard in Texaco's line of marine products, will be used on the *Savannah.* Fourteen greases and oils will be sealed in the ship's reactor containment vessel and in the reactor compartment enclosed by secondary shielding, and will be exposed to varying degrees of radiation that would exclude some lubricants. At the Texaco Research Center—Beacon, New York, the principal lubricant used within the reactor containment was subjected to radiation that simulated 38 years of service, and held up satisfactorily. All 14 Texaco products have been screened for radiation resistance in Beacon's million-dollar radiation laboratory.

So sleek she looks more like a yacht than a working ship, *NS*

SAVANNAH



Savannah is 595 feet long and will carry 60 passengers and 10,000 tons of cargo. She is named after a ship that sailed from Savannah, Georgia, to Liverpool in 1819 to make the first ocean voyage under steam power. The original ship was a 320-ton wooden vessel that carried only enough coal and wood for 89 hours of steaming; she sailed most of the way. The new *Savannah* can cruise three years without refueling.

Savannah's reactor core is a five-foot cube containing uranium dioxide enriched with U-235. Fuel pellets are packed into stainless steel tubes—164 tubes or "pins" in each of the 32 fuel elements. Separating the fuel elements are boron stainless steel control rods that are inserted or withdrawn to control neutron bombardment and fission. The control rods will be worked automatically during normal operation. They absorb the excess neutrons in the core. Withdrawal of the rods permits more neutrons to reach the fuel. When a hurtling neutron collides with a uranium U-235 nucleus, the nucleus fissions, or splits. But the fragments weigh less than they did as a whole. The missing mass has been converted into energy, which in this case is a stupendous release of heat—and heat is what makes the ship go. Heat fed to water to make steam, that is. The steam drives huge turbines that transfer energy to the screw through a double-reduction gear, and the result is 20,000 shaft horsepower.

But no matter where it gets its power, no machinery moves for long without proper lubrication. Texaco will provide the very finest for the *Savannah*.

PATTERNS OF PLEASURE

To a small boy or girl a big part of Summer fun is the way a frankfurter, cooked out of doors and slathered with mustard, peeks from a toasted roll; the way hot charcoal shimmers and glows at a beach barbecue; the kiddish way parents kick their way through the surf as they come shivering from the sea, racing for the warm beach. ▪ Part of the pleasure for adults is the pattern a billowing spinnaker makes as it balloons in a following breeze to put the family sailboat under way; the inviting grassiness of a roadside stretch bordering a thruway; even the tousled abstraction of jeans and T-shirts thrown over midget-sized chairs in a darkened child's room at the end of a busy Summer day. ▪ To photographer David Drew Zingg, the patterns of Summer pleasure along our coastlines create visual excitement that can be caught in two memorable ways by the camera: from high in the air, over the stretches of beach and water that are the American's playground; and close-to, watching a toddler fill his pail with sand and sea water to make a gritty mush that's fun just to dribble around. (Down another kid's back is a fine place to dribble.) ▪ To get to their fun, Americans all over the country pack into the family car and head for the highways that take them to the beaches and marinas lining the nearby shores of lakes and oceans. And on their

way, they find a Texaco service station is the best place to stop for gasoline and a stretch. ▪ Perhaps the most fascinating patterns found along the coasts are those made by nature. The surf piling in on a stretch of deserted beach, bellying far up on the moist sand and then draining back into the sea—leaving a spry little fiddler crab crazily scampering into his hole—provides matchless refreshment. The salt grass, the aimless straggles of driftwood, the soft dunes. Lie there in the sun for a while and take them in; your psyche soars. ▪ Even so simple a pleasure as lolling in a rowboat in a quiet bay, watching clammers dig into the shallow bottom with their rakes, can make a Summer day. And ask any fisherman who's done it how it feels, standing out in the surf, to have a big striped bass running with the line. Almost everything associated with the sea and the shore makes pleasant patterns: sails, sand, fishing trawlers chunky and businesslike on the horizon, a surf-caster silhouetted at sunset. An ocean squall, when you're watching it move across the sky from a snug beach house, becomes a minor work of art. A real storm is a masterpiece —when you're safe inside, looking out. ▪ But it's the sun you're there for. It feels good on your back, makes jewelry out of the sea. Sun and sea are what David Zingg has combined in the photos on these pages.

Wherever oil is found by American companies, the host country gains economic benefits

IN A TINY VILLAGE some 80 miles southeast of Djakarta, Java, capital of Indonesia, two hens' eggs recently fascinated a group of local farmers who had come to town to look at them. One egg was nearly twice as large as the other —and a Texaco affiliate had almost as much right to be proud of its size as the hen who laid it.

Caltex Pacific Oil Company, which operates in Central Sumatra, employs several thousand people—mostly nationals —living in widely scattered camps. They eat about 5,000 eggs every day, one way or another.

But Indonesian poultry farmers are not as advanced, technically, as this country's; and the eggs they sold Caltex commissaries when its crews first moved into Sumatra were not nearly as large, or as nourishing, or as plentiful, as they might have been. Seeing this, the company began a program aimed at improving local egg production. Brood eggs and medicines were brought in to foster better flocks, hens were put on a scientifically balanced diet. Now the birds eat better and so do the Caltex crews. Most importantly, all Indonesians stand to benefit from better nourishment as the Caltex suppliers' new knowledge of poultry farming spreads.

The most *obvious* benefit to an oil-producing country is the revenue its government collects from royalties, fees, taxes, and other payments made by the oil companies. In some countries these represent most of the total national revenue, and they allow the governments to do things for their citizens that never could have been accomplished otherwise. But often as not, what the oil companies have done on their own has vastly improved conditions for everyone. Sometimes what is done is done for purely practical reasons, sometimes the motive is pure altruism. Either way, the host country gains. Evidence of this is abundant, and examples are easily found. Venezuela—where Texaco operates through its wholly owned subsidiary, Texas Petroleum Company—makes an almost-perfect case in point. Second largest oil-producing country in the free world, it supplies more than 15 per cent of the free world's total output. In 20 years oil has come to represent more than 90 per cent of the value of Venezuela's total exports.

Old Venezuelan hands will tell you that when they first went into the country there were virtually no roads connecting the major cities with the countryside.

Look at a road map of Venezuela today, and you will see that it is crisscrossed with good roads. A great many of them were built by oil companies, frequently as service roads leading to drilling operations, refineries, or alongside pipe lines. Whatever the original reasons, Venezuela today enjoys a modern network of roadways wherever oil companies have been, and most of these were built by oil companies.

The same is true of airports and harbors. Thirty years ago, Venezuela had no airport of significance; today it has a dozen-odd, many of them originally set up by oil companies and later turned over to the government for public use. Thirty years ago Puerto La Cruz was a forlorn fishing settlement; today it is an important international seaport at which tankers dock daily. There is a big difference between "fishing settlement" and "international seaport," and oil has made the difference.

When the first oilmen moved into Venezuela, there was virtually no middle class as we in America know it. One was either extremely rich or desperately poor. Now there *is* a middle class, and it is growing as the number of Venezuelans who have established small businesses, often as not to supply the oil companies, has grown.

Roads, airports, harbors, are the big things in a country's economic development. There are many smaller ones that don't turn up on economists' charts but still mean a great deal to a nation. In Venezuela, for instance, poor sanitation and lack of medical facilities in outlying areas is a chronic problem. Serums and vaccines have been donated; a dozen or more hospitals, open to workers and their families, have been established. None of the hospitals makes money. All of them make friends. This is not to imply that making friends is as simple as doing favors. South Americans are proud people, as one Yankee food processor learned to his sorrow recently. Latin housewives spend a great deal of time in their kitchens, but they're not particularly keen on heat-and-eat foods. The South American woman who uses an instant meal is tagged *perezosa*—lazy—and the American company was losing sales of its dehydrated soup until it labeled its product a "soup base" to which fresh ingredients had to be added. Almost no one in the world wants a handout, and handouts are not what the oil companies provide. They do make possible the chance for a better life for the person willing to work for it.

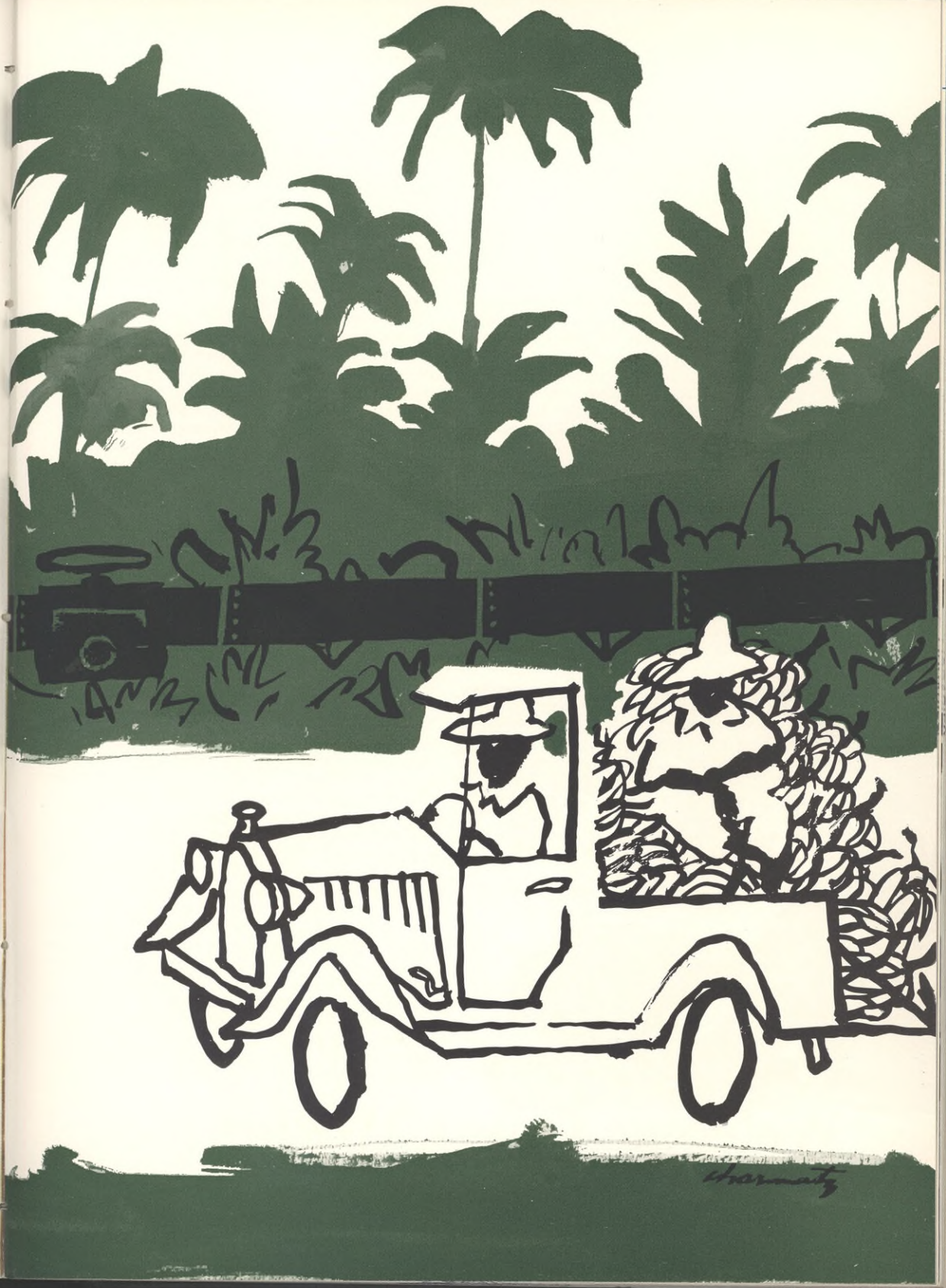
In education, too, oil has played a big part. All through the oil country, company-built schools have been set up for employes and their families. Apprentice-training courses that teach skills like machining and welding have been conducted for years. Thousands of Venezuelans have benefited from oil, and in the future thousands more are bound to.

It is axiomatic that industry develops industry—and in Venezuela the axiom holds up very well. With a successful oil industry as its base, Venezuela has seen the growth of a great many others that supply and service oilmen, and offer goods and services to the Venezuelan people. The country as a whole has prospered. Its government has built hundreds of miles of fine roads, has opened airports, harbors, schools, hospitals, irrigation systems. Both the Venezuelan government and the oil companies have played their parts, and the living standard of the average Venezuelan has risen appreciably in the last 20 years as a result.

In Colombia, Venezuela's neighbor to the West, oil has not had as great an impact as in Venezuela; yet it has made a notable difference in that country's economy. For one thing, revenues from oil account for nearly 30 per cent of the

Welcome Guest, Worldwide

In South America, farmers never before able to get to market now travel on roads built when pipe lines were laid.



nation's revenue, and that is a considerable slice: in dollars it comes to about $100 million a year.

Vast areas of the Colombian jungle have been opened by oilmen, to make farming and homesteading possible where it had not been before. As in Venezuela, a number of airports have been built by oil companies. All these are public utilities by government decree, although all are maintained by the companies that built them. Texaco operates a tree nursery in Colombia, and sells seedlings to farmers at low cost as a way of encouraging land conservation through a continuing rebuilding of timber land that has been depleted by lumbering. (The Company has a business interest in the forestation project, too; it needs lumber for housing, rig timbers, bridge building, and other construction work—and would rather buy locally than ship wood into Colombia.)

As in Venezuela, oil companies have contributed heavily to education and hygiene. Also, some have housing plans under which workers can borrow money to build homes and pay off mortgages that are underwritten by their employers. A few years ago this would have been unthinkable: most Colombians had never heard of mortgage payments, never had hoped to own their own homes.

Fruit-farming and cattle-raising both have become substantial businesses because of the great volume of fruit and beef that oil companies buy locally. Right now petroleum is Colombia's largest employer.

On the other side of the world, in Bahrain, an island sheikdom in the Persian Gulf, no one questions the effect oil has had on the people. Oil is that country's biggest single industry. The Bahrain Petroleum Company Limited, another Texaco affiliate, buys a large part of its paint, tires, drill pipe, and almost everything else it needs from more than 200 local merchants. Its purchases approach $3.5 million each year, and in many cases its needs have been responsible for putting a local citizen in business. Until recently, for instance, Bapco operated a laundry in Bahrain. But a year or so ago, a Bahraini set up his own laundry and with Bapco's help and encouragement developed a very efficient operation. Now he does Bapco's laundry as an independent businessman.

Training classes held by oil companies have taught many foreign nationals valuable new skills.

Bapco has been in Bahrain more than 25 years, and during that time it has made great contributions to the country's health. Perhaps its most dramatic contribution was its cooperation with the government in a fight to stamp out malaria. Today the debilitating disease is practically eradicated. A few years ago, Bapco donated a mobile dispensary to the government, and this tours the island—taking supplies and medical knowledge to people who otherwise would be without them. The company has also made less direct contributions to public health: largely because of oil revenues, Bahrain has fine hospitals and clinics.

For many years, Bapco has held training courses for its employes that teach subjects like welding, driving, and pipefitting. In 1947, it made academic training available, and today it offers Bahrainis such advanced courses as chemistry, physics, and higher mathematics. Many Bahraini children cannot go on with their educations after finishing primary school in their villages, because their parents cannot afford to send them into the towns where the government's secondary schools are. Hundreds of these youngsters have been given apprentice training by Bapco. They are put on the company's payroll while they learn, and are allowed to pick the technical specialty that most interests them. The apprenticeships last four years, but they may leave at any time and are not at all obligated to remain with the company if they stick it out and graduate.

In the first five-and-a-half years of this program, more than 600 employes were taught and more than 85 per cent of them went on to permanent jobs with Bapco. Every so often, a particularly bright child is spotted, and a number of these have been sent to England for higher-level education.

In Trinidad, the oil industry accounts for almost 50 per cent of total government revenues and for over 80 per cent of the total value of exports. Oilmen have been working in Trinidad for more than 50 years, and there is little doubt that oil is largely responsible for the fact that Trinidadians enjoy the highest per capita income of any group of people in the West Indies.

Texaco Trinidad, Inc., alone is responsible for almost one half of the island's oil production, and employs about 8,000 people—in producing fields and at its huge Pointe-à-Pierre refinery (the Company's second largest). And as in other countries, much more than just a job is provided.

Many of Texaco Trinidad's employes now live in trim new homes, thanks to the company's housing plans. Under one of these, the company has bulldozed and cleared a large parcel of land it owns, and has started a unique housing development for its employes. The workers build their own homes on this tract, after taking out long-term leases on nominal terms with the company. Part of the plan is a feature called "Aided Self-Help," and what this means is that a whole group of employes works on a row of homes in

its spare time. The person who puts in the most time gets first choice of the completed houses.

In Indonesia, remember, there was a problem with eggs. In Trinidad for some time milk—getting enough of it—was the problem. So Texaco Trinidad established a complete dairy at Pointe-à-Pierre to make good, rich milk available to its employes.

Veterinarians were called down from the States, grass seed was imported to start better pastures. Visits to American dairies were made by Trinidad's management people. The ultimate aim of the program is to provide the company's workers and their families with all the milk they want at reasonable prices.

One of the most sensational oil finds in the industry's history was made in Saudi Arabia, in 1938. And if that find was important to the industry, it has been at least equally important to Saudi Arabs.

Today thousands of Saudi Arabia's citizens have become skilled workers living a comfortable life their grandparents never dreamed of.

The principal company operating in Saudi Arabia is the Arabian American Oil Company (Aramco), which is 30 per cent-owned by Texaco. Aramco at the end of last year had over 11,000 Saudi Arab employes, and about 76 per cent held semiskilled, skilled, supervisory, or professional jobs.

Today's Saudi Arab definitely has a future.

FOR ONE THING, if he is an Aramco employe, he looks forward to a pensioned retirement. There are disability benefits. There is a home ownership plan, under which nearly 3,000 Aramco workers already have obtained homes of their own. Aramco gives interest-free loans to employes, but does not undertake construction of homes. Each participant chooses whether to buy a completed house or to have one built to his own plans by a private contractor (most elect to build, in order to satisfy particular family requirements).

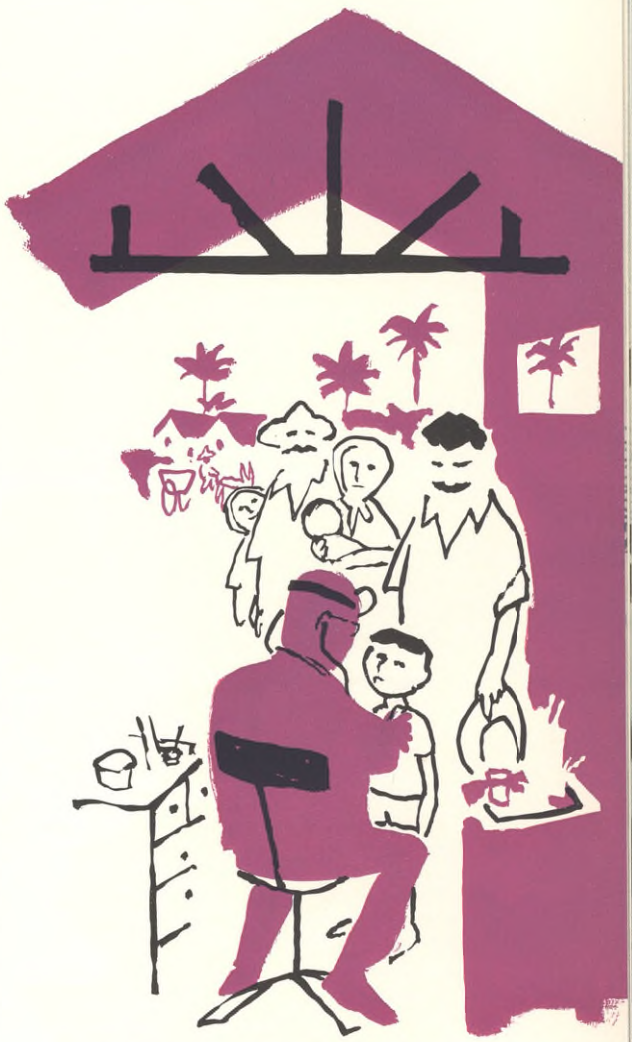
In the 1960-61 academic year, Aramco sent 29 Saudi Arab employes to colleges and universities outside the Kingdom for advanced, specialized training. Enrollment of employes in classes during working hours at Aramco's industrial training centers averaged more than 4,500 each trimester during 1960.

The 11th elementary school built by Aramco was completed last year. So far the company has designed and built schools for 3,300 boys of elementary school age in Saudi Arabia's Eastern Province. Aramco maintains these schools and reimburses the government for the cost of their operation, including teachers' salaries.

Perhaps the most important contributions Aramco has made to the Saudi Arab lie in the field of public health. When oilmen first arrived, a dismaying percentage of the country's population suffered from trachoma—a very serious disease of the eyes that can lead to blindness. Aramco promptly set up clinics to treat the infected Arabs, and still is working on a long-range research program to wipe out the disease. Today the incidence of trachoma is decidedly lower. As its activities have grown in Saudi Arabia, so have Aramco's medical programs, and last year at Aramco health centers almost 6,000 patients were treated. Clinic visits totaled 409,433.

In preventive medicine, a program of periodic and routine immunization of employes and their families against smallpox, typhoid, paratyphoid, tetanus, diphtheria, and—for children—whooping cough and polio was begun in 1960.

The list of foreign countries that have benefited, or stand to, from American oil operations would fill a good-sized gazetteer. Sumatra has gained much more than grown-up eggs; Libya already feels the economic impact exploration work can make (*see* "Libya," *Page 16*). All over the world, the American oil producer has been as much benefactor as businessman. He's a welcome guest, worldwide. •

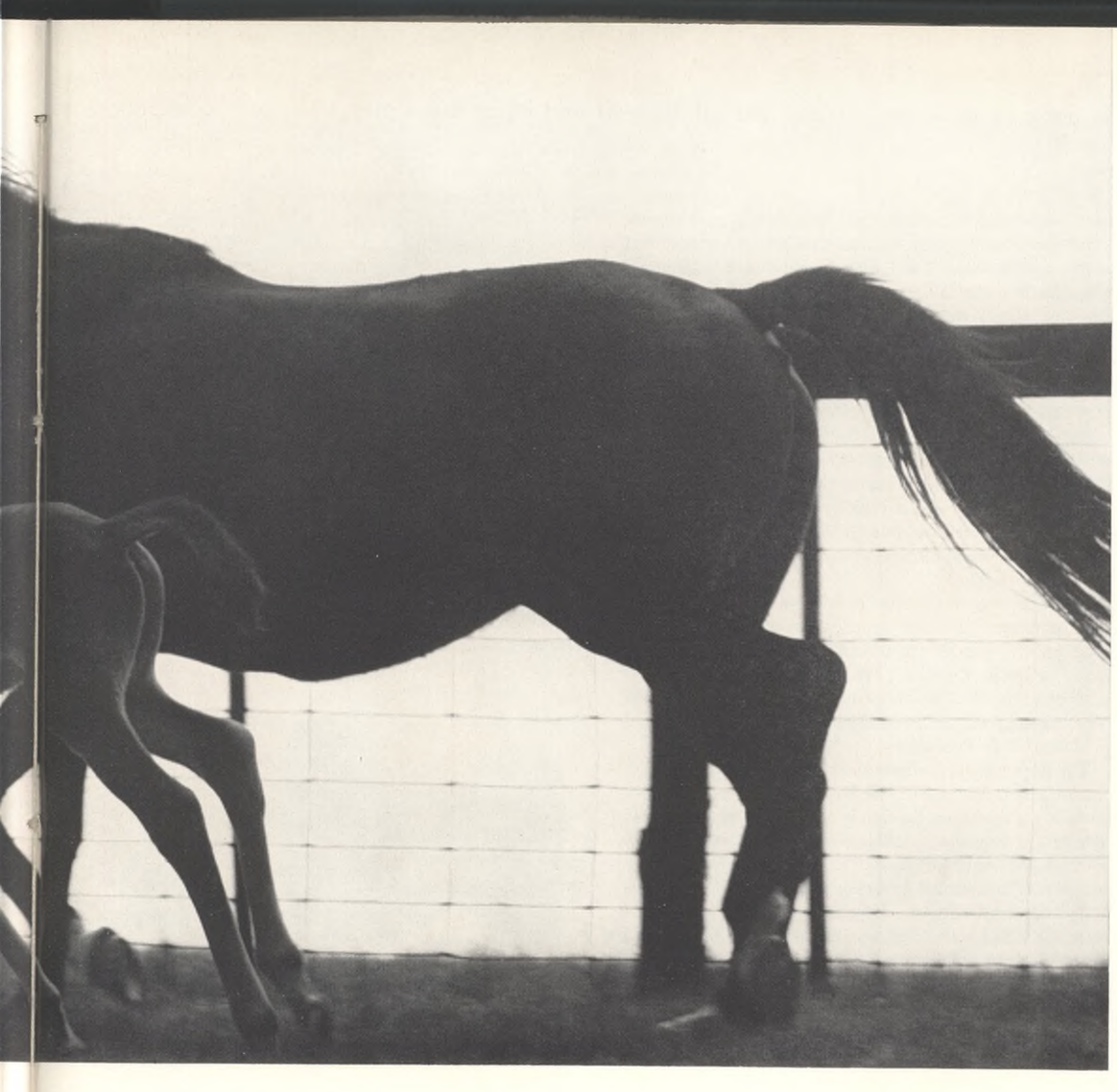


In company clinics and hospitals, those who before enjoyed no medical care now get the best.

Where racehorses

At Claiborne, visitors follow a narrow blacktop lane along the sycamore-lined creek back to the little red brick farm headquarters. Across the neat fences they see rolling fields carpeted with lush green grass. Inside the fences some of the world's most valuable Thoroughbreds graze. It is one of the most peaceful rural scenes anywhere, so peaceful, in fact, that visitors seldom realize what it takes to keep the horses running.

But go to the back fields, to the farm shop, or to one of the 40 big black barns scattered across this 2,900-acre horse kingdom near Paris, Kentucky. You'll find people growing corn, clipping pastures, making hay, grinding feed, build-



start

ing fences, keeping records, feeding horses, and driving trucks. Arthur B. Hancock, Jr., Claiborne's owner, employs more than 100 people, all of them working toward a single goal—to keep this big Bluegrass farm out in front as a producer of the finest race horses.

To provide the working horsepower at Claiborne, Hancock, who is known around the Bluegrass as "Bull," keeps a dozen hard-working tractors. He also operates six large trucks, four horse vans, a fleet of pickup trucks, and half a dozen radio-equipped cars to keep his foremen in touch with farm headquarters.

One five-man crew does nothing but build and maintain the 65 miles of black wooden fences around Claiborne fields.

What does a horse farm grow besides horses? Hancock, representing the third generation of his family to run the business, also produces 65 acres of corn, 53 acres of tobacco, and 350 head of beef cattle. "We need cattle," says Hancock, "to help keep the pasture in shape because horses cut it up."

But the big crop is horses and anyone acquainted with the world of Thoroughbreds knows how well Hancock has done in his constant efforts to produce the world's very finest race horses. Once a year race horse notables choose a Horse of the Year. Four of the last six came from Claiborne. In 1960, for the sixth consecutive year, horses foaled at this farm

won more than $3 million and established a new record.

Livestock at Claiborne, including some boarders, is valued at about $17 million. The line-up includes such million-dollar animals as the famous Round Table, who commands a breeding fee of $12,500. And for company he has such Thoroughbred royalty as Bold Ruler, Court Martial, Dedicate, Ambiorix, Hill Prince, and Princequillo.

A Thoroughbred may make his reputation in a few minutes' time. Round Table left Claiborne as a two-year-old. At the age of five he was shipped back by air and retired from the track. He had raced a total of one hour, 54 minutes, and six seconds and amassed winnings at the rate of $921,000 an hour for the time spent running in competition. Many another horse reared and trained at equal expense has failed to measure up on the tracks. That's the risk and the challenge of horse racing.

Hancock can't recall when he was too young to be interested in horses. "I never owned a race horse though," he says, "until I was able to buy one for myself." His grandfather, Captain Richard J. Hancock, started the business after returning to Charlottesville, Virginia, from the Civil War. Almost from the beginning he did well with horses and in 1884 won the Preakness.

The Captain had five sons and one of them, Arthur Boyd, followed his father in the horse business. Then in 1913, when Arthur, Jr., was three, the family moved to Paris, Kentucky, and Arthur Hancock, Sr., began importing famous stallions to cross with American lines. The farm has grown steadily since in its importance in racing circles. In 1958 Hancock added the nearby Raceland Farm to Claiborne largely because there had been no horses raised there for 50 years and the land was free of disease. It also gave Hancock more room for pasturing horses. This enabled him to operate part of his farm exclusively for the yearling stock destined to go to their owners or into Hancock's own racing stables.

Catching up with the fast-moving Hancock is no easy task. "I'm supposed to go with Mr. Hancock around the farm this morning," said Bill Taylor, Hancock's farm manager, "and if you want to talk to him, you better come along. Tomorrow he may be out of town."

Hancock drove his radio-equipped car over a maze of county roads several miles southward to the most distant of the Claiborne holdings. "This was my mother's farm," he said. "When my grandfather divided up the farm he thought it was fair to give each child some land close to town and some far out."

There are no lanes through the horse pastures on Claiborne. Hancock drives anywhere over the smooth fields to check the horses. With Taylor, he discussed each mare and her foal in every field. By late morning he had personally checked all the brood mares on the farm.

"This is our busiest season," Hancock explained. "This is the peak of both the breeding season and the foaling season. We had eight new foals last night. The biggest challenge of all," he added, "is to get as many new foals as we

Claiborne's fields allow plenty of room for a frisky morning romp.

In early morning, a visiting expert checks a string of yearlings.

Twice a week, the farm receives deliveries of Texaco products.

can. We would like for each mare to have a foal each year, but if you get 70 percent you've done exceptionally well."

At one farm Hancock stopped to take along the foreman who looks after the brood mares on Claiborne. He drove into a field carpeted with a thick stand of grass so high it scraped audibly against the bottom of his car. "You could take this grass to the pawn shop and get money on it," said the foreman. "Wish it was all like this."

Taylor keeps the daily work proceeding as it should. Within an hour he may discuss corn fertilization with one farm foreman, tractor maintenance with the machinery foreman, Dudley Boyle, and the health of a steer with the farm's full-time veterinarian; then return to his office to look after correspondence.

"Want to go over to the yearling farm with me?" Taylor asked as he stopped where Tilford Burnett, the Texaco distributor in Paris, was pumping heating oil into one of the storage tanks near the farm shop.

Yearlings here are housed each night in three new fireproof concrete buildings paneled with knotty pine. "We could use them for motels," said Taylor, "if we ever go out of the horse business.

Each of the yearling barns has a room for the caretakers and these are heated with Texaco Fuel Chief. "It's clean and easy to use," says Taylor, "but even more important to us is the fact that it is a safe fuel." He added, "Mr. Hancock also heats the big house with fuel oil."

Each morning the grooms turn the yearlings into the pastures for grazing and exercise. Each group of 10 or 11 has a field of 60 to 75 acres in which to run. "They need room to exercise," says Taylor, "because they go from here into training. Some foals are so valuable you want to keep them under glass but you can't pamper them or you have trouble later. They have to develop naturally."

About two o'clock each afternoon the grooms "put up" the yearlings for the night. Meanwhile each individual box stall has been cleaned and crisp clean straw has been spread a foot thick on the floors. Grain has been put into feeders in the corners of each stall. The yearlings are always led to the barn in the same order. There is no confusion, crisscrossing of paths, or hurrying that might get an animal into a situation where he could be injured.

Horse farm managers live in constant fear of accidental injury to their animals. To Bill Taylor, a tin can in the pasture is more than litterbugging; it's a hazard to valuable animals. "Horses are very curious," he says. "They get themselves into dangerous situations unless you are careful all the time."

Fence design around horse farms reflects this watchful attitude. Those paddocks where the most valuable breeding stock get their midday exercise have double fences with no sharp corners. Wood is used for safety and fences are inspected for protruding nails or other hazards.

Not far from the foaling barns is the little white house that serves as the laboratory of Dr. Floyd Sager, a retired Army veterinarian who is responsible for the health of all the Claiborne livestock. If he is needed quickly on any part of the farm it's simple enough to contact him by calling "102" on the farm radio channel.

"The stock looks good right now," Dr. Sager said as he drove along to a field at the back of the farm. "The limestone soil here makes this especially good country for horses. Grows good grass.

"But you can raise horses a lot of places," he added, "if you take care of them. The real reason the best horses are here in Kentucky," he said, "is because they've always been here. The first settlers from Virginia and Maryland brought their horses. The concentration of good horses attracts owners who send their mares in from other places. Some other places might be nearly as good if they had as many horses."

The aim in Thoroughbred circles is to have the foals come as early as possible after January 1 because, regardless of how long he has lived, the record books show him as a year old on the following January 1. The older he actually is within this limit the more time he has had to grow and develop before he begins to race as a two-year-old.

During his first Summer the foal runs with his mother and a group of other mares and young in a 75-to-80-acre pasture until the first of September. It's time then to move him over to the yearling barns and begin his training.

He learns to run, how to come out of a starting gate, and other essentials until he is shipped south to Florida where, in November, trainers teach the beginner such fine points as how to stretch out and take the curves. Hancock maintains 10 or 12 horses in the Claiborne racing stable.

Claiborne has 15 male animals in its breeding line-up, some of them boarded on the farm and others that are owned by syndicates.

Many of the people on this horse-conscious farm never work with horses. The tractor crews, for example, are as much wed to their steel horses as tractor drivers on any other farm. Each man is responsible for his own machine. Every two weeks he drives it up to the farm shop where it gets a regular maintenance inspection including checking of tires, batteries, filters, and air cleaners. If the tractor needs minor repairs, a full-time shop man helps with that. The system works so well that one old Claiborne tractor has been going strong for 14 years.

Arthur Hancock depends heavily on the services of Texaco distributor Tilford Burnett to keep Claiborne in fuel for its machinery and heating needs. Burnett is the only oil distributor who has ever hauled petroleum products to Claiborne.

When he began selling to Claiborne in 1930 Burnett was hauling for the Indian Refining Company of Lawrenceville, Illinois, later acquired by Texaco. That first year he hauled in 2,000 gallons of gasoline for the trucks and 600 gallons of kerosine. He also delivered a single barrel of lubricating oil and 150 pounds of grease.

This wouldn't last long in keeping Claiborne Farms operating today. Twice a week Burnett makes regular trips to the farm. He checks the product inventory at each of nine service stops so Hancock's men never have to worry about it.

Last year Burnett's red truck delivered to Claiborne 32,430 gallons of Sky Chief and Fire Chief gasolines, 12,630 gallons of fuel oils, and 987 gallons of motor oil—plus 1,507 pounds of greases.

It takes more than horses to keep a horse farm going. •

LIBYA

In its vast desert, oilmen have begun an important search for petroleum reserves

LIBYA LIES LIKE A FLAT PLATTER of hot sand and rock on the Mediterranean coast of Africa between Algeria and Egypt, and except for a narrow strip along the sea the whole country is in the Sahara. Most of the land is barren and uninviting, but in the last few years it has become more and more attractive to oilmen. Libya holds oil, and the indications are it contains substantial reserves.

One oil company with a very active interest in Libya's potential as an oil bearer is American Overseas Petroleum Limited, a Texaco affiliate that manages an exploration program in that country.

CONTINUED

Ordinarily pictured as an enormous beach, the Sahara actually is mostly gravel and rock

Through a subsidiary Texaco was granted a half interest in six concessions for exploration by the Libyan government in 1955, and two more in the following two years. The first year in which any oil company was permitted to begin exploratory work was 1955, and during the intervening years 19 have pushed into the desert. At the end of 1960 there were 35 drilling rigs active in the Libyan Sahara, and 10 fields capable of producing oil in substantial quantities had been discovered. One of these fields, at Beda, was an Amoseas discovery in 1959.

AMOSEAS crews are flown into the desert from the company's base at Tripoli, Libya's largest port, and within a few flying hours of headquarters the men find themselves in what must surely be one of the most desolate areas on earth.

Though movies usually picture the Sahara as a sort of vast beach, murderously hot, Amoseas crews have found that the desert—off-camera—has other characteristics to write home about. It is hot all right—during the day temperatures in the Summer often reach 130. But it can also be surprisingly cold. Inland, in the Winter months, skim ice frequently forms on wash basins in the crews' camps at night. And although there are huge stretches of blowing dune-sand, called *ergs,* most of the desert has a relatively compact floor that varies from a hard sand-and-gravel surface to broad rocky areas that chop up truck tires and rupture automobile springs. Large outcroppings of naked rock scattered over the desert create a desolate, nightmarish moonscape.

Apart from the uninviting terrain, which is something most exploration and drilling crews have run into in other places (Saudi Arabia, parts of South America, and the Four Corners in our own Southwest are three), the Sahara holds a unique threat. It still is peppered with thousands of land mines planted during World War II.

One company's seismic team, working in an area where Britain's Montgomery fought Germany's Rommel, spent $20,000 a month on mine clearance for several months before it could safely begin seismic work. Desert vehicles have armorplated floors to guard against mine explosions.

Amoseas crews are supplied by a DC-3 that makes regular deliveries of Stateside newspapers, letters from home, fresh food, and the equipment they need. Field geologists are based in tent camps, but many members of the seismic and drilling crews live and work chiefly in air-conditioned trailer camps. The trailers are specially designed to serve as offices, living quarters, recreation rooms, or commissaries; and they make tiny but effective working communities in the desert's immensity.

The work day for a desert team is a long one. During daylight hours there is field work of all kinds to be done, and after the evening meal there are the day's notes to evaluate and put in order. More than in most jobs, lost time in exploration work is lost money: the main concern of every team is to get the job done and move on.

Moving on can be hazardous, too. There are no roads in the desert and few trails. The Amoseas crews have learned that the two most important things to have with them always are five gallons of water and a signal mirror. The mirror is the simplest and best piece of desert survival equipment there is —its moving glint in the sun's rays can be seen by searchers for many, many miles.

As of January of this year, the tested rate of oil production by all oil companies in Libya, measured in barrels a day, was more than 100,000. There has been no commercial production so far, however, because there are no pipe lines available to move crude from the fields to coastal terminals. One will be completed late this year or early in 1962, and another will be finished during the first half of 1962.

When Libyan oil does begin going to market, it most likely will wind up in Europe, whose expanding economy makes it an eminently logical customer for the nearby North African petroleum production.

The discovery of oil in Libya will make dramatic changes within that country. Already it has made some. Oil companies are pouring about $100 million a year into a nation which, although it is more than twice the size of Texas, contains only 1,177,000 people (Texas' population is over nine million) and whose average per capita income is less than $100 a year. The money being spent by petroleum companies coming into the country from all over the world will generate very substantial benefits; and when production actually begins, payments to the Libyan government will help provide the means for new construction, better housing, improved schools, and other social gains.

Even now, Libyans are aware of a new and unaccustomed prosperity for which the oil search is largely responsible. Some 6,300 nationals now are employed by the oil companies—they represent about two-thirds of the total—and thousands more have found jobs with the service and supply organizations that have sprung up on the margins of the new industry in a country that only a couple of years ago had virtually no industry at all.

There is good reason to believe that the oil discovered by Amoseas and others, beneath the Libyan desert, will before long be the instrument of economic advances that would have been unthinkable less than a decade ago. •

From the air, the tracery of dozens of vehicle tracks fanning from a remote Amoseas camp in the desert spreads in every direction.

Broad-tired trucks carry crews over some of the most desolate terrain found anywhere.

Protected by an outsized umbrella, survey team works on a project in the blistering desert heat.

"Stomper" pounds desert, creates seismic vibrations.

ASSESSING THE OIL IMPORTS PROGRAM

THE CURRENT mandatory import controls on foreign oil represent the Federal Government's efforts to deal with this country's changing petroleum supply situation. Until 1948 the United States was traditionally a net exporter of oil and oil products. In that year, however, this country began importing more oil than it exported, and this has been the case in each succeeding year.

The circumstances that brought about this shift in balance between the nation's imports and exports were anticipated as early as the years immediately following World War I. During that conflict the drain on America's oil reserves had created the threat of a serious shortage, and, looking ahead, the Government realized that the nation's security would some day depend on oil imports from abroad. Obviously this meant that American-owned companies must have access to foreign reserves, and the Government began urging that American oil companies go overseas in search of petroleum deposits. Many did, undergoing the tremendous risks and expense of developing new reserves. Sometimes the effort was successful. More frequently it was not.

After many years substantial volumes of foreign oil were made available to the United States, and the record amply demonstrates the wisdom of the Government's long-term policy in promoting the development of these overseas sources. Together with this country's spare producing capacity, they made it possible for the United States to meet the enormous petroleum requirements of World War II, the Korean War, and the Suez crisis. Their availability to our allies has buttressed the strength of the free world and forestalled aggression. Finally, they have contributed significantly to our normal, day-to-day requirements. When the threatened shortage of 1947-48 was averted only by timely shipments of petroleum from abroad, it became apparent that even in peacetime this nation would in the future rely heavily on foreign oil to supplement its own domestic reserves.

The effect of this development on domestic oil producers has been one of both ready acceptance and of determined opposition, depending on the circumstances. When the country's supply situation has been tight, domestic producers have voiced little or no objection to imports of foreign oil. When there is a substantial surplus in the country's crude producing capacity, however, these same producers quickly appeal to the Government to protect their markets. Thus in 1948, when domestic crude was in short supply, no complaint was heard, but when in the following year there was ample crude to go around, domestic producers demanded that foreign shipments be restricted.

In 1950 the situation was reversed when the demands of the Korean War effort placed heavy strains on the oil industry and foreign supplies spelled the difference between shortage and sufficiency. When hostilities ended, the cry to limit imports was raised again, and in 1955 a special Presidential Cabinet Committee to study the problem issued a report recommending that imports of crude and residual fuel oil be voluntarily held to 1954 ratios to domestic production.

This recommendation reflected the reasoning advanced

by the domestic producers, who argued that growing volumes of foreign oil threatened to crowd domestic crude off the market, disrupt the industry, and leave the country without adequate operating capacity in the event of a national emergency. These spokesmen contended that, in wartime, foreign crude sources might fall into enemy hands, and that in any event there was no guarantee the United States could maintain control of the seas. However, these warnings were and are purely speculative. There is no knowledge that these developments would take place, and in fact there are good reasons to believe they would not. Furthermore, this reasoning overlooks several significant facts. One is that America's sources of supply overseas have already proved to be vital to the defense of our allies. Another is that imports are essential in preventing serious shortages during periods of heavy demand on our own reserves.

In any event, the Government was asked to establish a system for restricting imports. In 1957, for the first time, it assigned specific crude oil quotas to specific companies, calling on them to restrain their importing schedules voluntarily.

While most companies adhered to these voluntary restrictions on crude oil, imports of petroleum products—which were not included in the program—were substantially increased. However, the Government made no attempt to expand the voluntary program to include products. Instead, in March, 1959, it instituted the present mandatory program covering all oil imports.

UNDER THE mandatory program every refiner—whether previously an importer or not—was entitled to a quota based on his runs. The only consideration given to the historic importers was the establishing of minimum quotas, or "floor," calculated as a fraction of these importers' quotas under the voluntary program. As this "floor" was originally set at 80 per cent of their latest level of permitted imports under the voluntary program, the historic importers had to absorb sharp reductions in order to make room for the newcomers.

It should be recalled that this country's inland refiners had not made the investments or taken the risks the international companies had. Many of these—including Texaco—had spent tens of millions of dollars developing production overseas. Now they were being asked to share their oil with companies that had never ventured outside the United States.

Nevertheless, under the Government's program a way had to be found to allow these inland refiners their quotas of foreign crude—even though in most instances that crude could not practically be delivered to them. This problem was met by permitting the practice of "swapping," under which the refiner in effect exchanged his quota of foreign crude for a volume of domestic crude on such terms as to yield him upwards of a dollar a barrel. To all intents and purposes, therefore, the Government is placing the historic importing companies in the position of subsidizing the inland refiners. These refiners, in turn, can apply this windfall profit towards reducing their product prices, often in competition with these same historic importers.

With the inland refiners in a position to dispose of their product at unrealistically low prices, disrupted markets and price wars are inevitable. So the mandatory controls program discriminates not only against the historic importing companies, but in the final analysis against the economic health of the entire industry. Another inequity of the program is its discrimination against the large refiner merely because he is large.

According to the Government formula, the quota of foreign crude that a refiner is allowed is based on the input of his plant. The quota is adjusted according to a sliding scale so that the smaller his refinery runs, the greater the proportion of foreign crude he is allowed. As a result, this formula has the effect of allowing those refiners with small inputs to receive a disproportionately large share of the permitted over-all volume of imports. In this connection it is significant that the average independent inland refiner is smaller than the typical historic importer. In short, the cards are stacked not only in favor of the purely domestic company, but in favor of the small company. The large importer is penalized not only because he is an importer, but because of his size.

This is unfair in itself, but it is not all. Because the quotas for forthcoming allocations of foreign crude are based on current refinery runs, the small refiner has a far greater incentive to increase his runs than does the large refiner. And since every refiner is permitted to share in the total volume of imports, the small refiner with no investment overseas has continued to receive a larger and larger share at the expense of the historic importers.

Viewed on a broader scale, the mandatory controls program could directly affect the security of the entire nation by unnecessarily interfering with the free play of competition in the international petroleum market. The major free-foreign oil-producing nations of the world rely heavily on their petroleum revenues as a basis for their industrial and social progress. In a world divided between communism and democracy, we cannot afford to risk their friendship by imposing unwarranted and artificial barriers to trade.

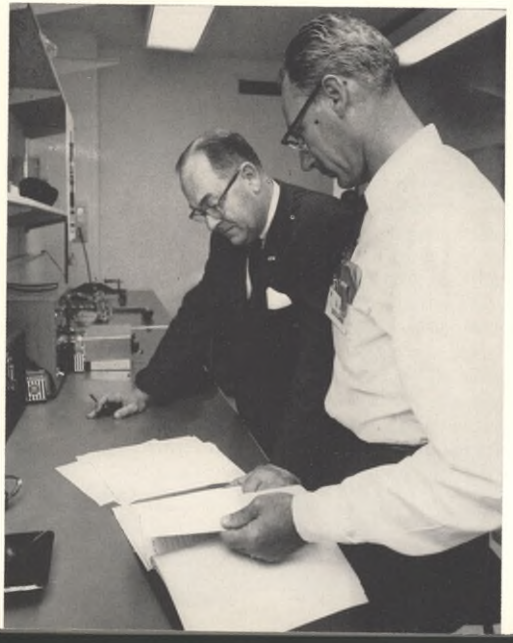
It is Texaco's position that a more desirable solution to the imports problem would be to establish a system of tariffs. A base level of imports could be taxed at one rate, with imports in excess of this level being taxed at a much higher rate. This system would meet the Government's broad objectives while at the same time minimizing the discrimination inherent in the present program. The importing companies would regain full access to the oil they have searched for and discovered overseas, they would no longer be required to subsidize their competitors, and the Government would realize substantial new revenue.

Petroleum is essential to the continued stability and development not only of our own nation, but of the entire free world. The business of providing it to the consuming public cannot be left to makeshift and expedient. In this vital area we can do no less than abide by the dictates of common sense and the discipline of the competitive system. •

Board Tours Southwest Facilities

GEOPHYSICISTS ARE AMUSED by the "doodlebug" tag other oilmen give them. But "doodlebug" suggests someone who goes after oil like a water witch, with secret chants and a forked hazel dowsing rod. Nothing could be further from the truth, of course; and Texaco's Board of Directors was reminded of this recently when it visited the Company's Bellaire, Texas, Research Laboratories, near Houston, as part of an inspection trip that took it through West Texas and into New Mexico.

Bellaire is the arm of the Research and Technical Department that serves Texaco's producing people. Its job is fundamental and applied research aimed at more effective exploration and production. It concerns itself not with witchcraft but with "which way?" Which way to make the most revealing seismic shots? Which way to recover the most oil from a field? Which way to cut drilling costs and lengthen the life of drilling tools? These are some of the questions the sci-



At left, Augustus C. Long discusses a research project with a Bellaire, Texas, Research Laboratories specialist.

The inspection party is pictured here at the Midland, Texas, airport before boarding planes for a flying tour of Texaco's producing operations in the Southwest. From left to right are: Marion J. Epley, Jr., Senior Vice President in charge of worldwide sales activities; Kerryn King, Vice President and Assistant to the Chairman; C. L. McCune, Director; J. Howard Rambin, Jr., Senior Vice President in charge of worldwide producing activities; J. W. Foley, Director and President; James H. Pipkin, Vice President; Augustus C. Long, Chairman of the Board of Directors; E. W. Quinn, Assistant Secretary; Henry U. Harris, Director; T. A. Mangelsdorf, Senior Vice President in charge of worldwide refining activities; W. H. Mitchell, Director; Maurice L. Nee, Secretary; J. S. Leach, Director and former Board Chairman; H. O. Woodruff, General Manager, Domestic Producing Department; Dwight P. Robinson, Jr., Director; C. B. Barrett, Senior Vice President and Chief Executive Officer at Houston, Texas. Company Directors who were not present for the photograph: Oscar John Dorwin, W. S. Gray, G. W. Humphrey, L. J. Norris, Ogden Phipps, and Langbourne M. Williams.

At the Bellaire Laboratories, left, a scattered gamma density logging device is shown to visitors. Pictured, from left, are Director C. B. Barrett (Senior Vice President and Chief Executive Officer at Houston headquarters), Director Oscar John Dorwin (Senior Vice President and General Counsel), Kerryn King (Vice President and Assistant to the Chairman), Director Henry U. Harris, and Texaco Chairman Augustus C. Long.

entists at Bellaire ask themselves . . . with strong expectations of useful answers.

The work being done at Bellaire makes an arresting example of the Company's production research program in practice. A case in point is the experimentation being done here with logging devices.

Over the last few years, research has materially improved the logging equipment used in oil- or gas-well drilling to make measurements of functions related to the nature and fluid content of rock formation. Fundamental research continues to explore this field, and new methods as well as improved approaches to older methods continue to appear. Electric logging, for instance.

The electric logging device explores the entire bore hole, and reveals significant properties of the rocks through which it passes. By studying the electrical curves they obtain, and from their experience, Texaco's geophysicists can make extremely accurate surmises about the type of sediment they are encountering; correlate geologically similar sediments between wells; estimate the percentage of formation filled with water; and forecast the intervals that may be expected to produce oil or gas. A few years ago much of this would have been strictly guesswork. Research of this type carried out at Bellaire has made it possible to replace intuition with information in a great many production steps—and although it's still true that an oilman never knows whether he's going to find oil or gas until he actually drills, science has given him a much sounder basis for drilling.

Research in the recovery of oil and gas from underground reservoirs, both at the laboratory and in the field, is constantly resulting in an improved understanding of the way oil, gas, and water move in underground reservoirs. Many fundamental problems in the flow of fluids through porous media still are a mystery to scientists and engineers in the industry, but studies like those made by the Bellaire staff are helping to clear them up. Aside from the very basic and often very long-range studies Bellaire's specialists make, there is a good deal of effort put into improving Texaco's knowledge of day-to-day operating techniques. Better drilling muds are one of Bellaire's concerns, for example, and so are tougher and more efficient drilling bits.

The Directors' trip, which was arranged in connection with their attendance at the Company's Annual Meeting on April 25 at Houston, Texas, took the group to several other important operating facilities in the Southwest, along with Bellaire. They toured the Midland Division of the Producing Department—a division that includes West Texas, all of New Mexico and Arizona, and portions of Southeastern Utah and Southwestern Colorado. One of the most important production centers in the Division is the Permian Basin in West Texas and Southeast New Mexico—a region that has become one of the principal producing areas in the United States (it now is responsible for about 20 per cent of domestic oil production). They also took a look at operations in the Midland Sales District, in the far western section of Texas; and at pipe line systems in the Southwest.

Inspection trips like this are made by the Board for the same reason Texaco's scientists keep searching for better methods of finding oil, and of developing new and better products from the oil the Company does find. It is just sound business to keep learning—and nothing is more educational than a first-hand look at operations in the field. •

REPEAL IMPENDS FOR DIVIDEND TAX RELIEF

President Kennedy's proposal that Congress repeal the slight relief on the double taxation of dividends enacted in 1954 creates a matter of particular concern to Texaco stockholders. Many Texaco stockholders are aware that, prior to the enactment of the 1954 Internal Revenue Code, dividends were doubly taxed: first, the corporation's profits (in effect, the stockholders' profits) were taxed to the corporation; then, the dividends stockholders received out of those already taxed profits were taxed *again,* as personal income.

Recognizing this as a unique inequity (dividend income is the only form of income subject to two Federal income taxes), Congress, when enacting the 1954 Internal Revenue Code, provided modest relief to the nation's stockholders. Since then investors have been allowed to exclude from income taxes the first $50 of dividends received—$100 in cases of married couples filing a joint return where each receives $50 or more in dividends or where they receive $100 or more from stock owned jointly. Also the stockholder is permitted a credit against his tax equal to four per cent of dividends received in excess of $50.

Since this relief was voted, tax revenues to the Government from dividends have increased greatly—rising from an estimated $1.5 billion in 1953 to $2.2 billion last year. In part, at least, this increase is explained by a near doubling in the number of stockholders in the country during the last seven years; and it seems fair to conclude that this broader stock ownership has been stimulated to some extent by the fairer tax treatment afforded dividend income since the code enactment of 1954.

Broader stock ownership has provided the nation's enterprises with new capital for growth and expansion. It has helped supply the plants, tools, and jobs needed to keep our economy strong and expanding.

Texaco is opposed to the repeal of the existing exclusion of $50 and the four per cent credit for dividends received. Stockholders who agree may want to let their Senators and Representatives know of their views.

GROWN-UP ROCKET SOARS FROM TOYLAND

It is not often, in fact it may be unprecedented, that a child's toy is turned into a piece of essential equipment for grownups; but that is what happened recently in one of the Company's subsidiaries, Texaco Experiment Incorporated. The result is a miniature (about three feet long) rocket called *Cricket* that the armed services and others are showing considerable interest in.

Several years ago a group of TEI scientists, on their own time, developed a toy rocket that could safely be launched by children. Since their daytime work is largely with rockets and rocketry (*see* "A Place in Space," *Fall, 1959,* STAR), they knew what was needed in terms of design and fuel; and in 1958 they put on the market a perfectly safe toy, using baking soda and citric acid as its propellant mixture. Over a million were sold. The principle used in constructing the toy, called *Alpha I,* intrigued the Air Force, since it appeared that "cold fuel" could be applied to a larger functional rocket that could be shot up 3,000 feet to make weather readings, to seed clouds, and handle a variety of other scientific assignments. Because of this interest the *Cricket* (which used acetone and CO_2 as a fuel mixture) was developed, and the Air Force has bought several for study. The other services, as well as the United States Weather Bureau and several universities, also are interested in the rocket's possibilities and have bought *Crickets* for their own studies. Equipped for reconnaissance photography, for instance, it could be used to spot forest fires over an area about a mile in diameter—when it hits altitude, a parachute is released to carry it back to earth. Safe, easily recovered, inexpensive (it costs about six dollars to launch), *Cricket* could be useful for many purposes.

BENZENE PLANT TO LESSEN DEPENDENCE ON IMPORTS

An estimated 30 million gallons of benzene, a major building block of the chemical industry, will be produced yearly at a plant Texaco plans to put on stream at Port Arthur, Texas, early next year. Production from the plant will have considerable international significance, since it will help free American chemical firms from a long-standing reliance on European and Iron Curtain countries for benzene supplies. In 1959, the United States imported over 44 million gallons of benzene from Russia alone, and it is hoped that the availability of high-purity benzene from Texaco's new plant will create a favorable shift on the part of domestic chemical producers to the American source. Texaco itself will use part of the new facility's output to manufacture cumene—an important raw material for the chemical and plastic industries—in a plant it recently constructed at Eagle Point, New Jersey.

In still another area of petrochemicals activity, the Company recently completed construction of new facilities for the increased production of anhydrous ammonia at Texaco's Lockport, Illinois, ammonia plant.

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TWO WEEKS WITH PLAY

There are 52 weeks in the year, sure. But two special weeks mean the most to most of us. Vacation time. The vast majority of us take those two precious weeks off during the Summer—on a lake, in the mountains, at the shore, or maybe right out in the back yard, lazily swaying in a hammock. That last choice sounds inviting, all right, but wouldn't a new scene be a tonic? Texaco makes it easy for vacationers to get up and go at Summertime and all year 'round, by providing tour kits, routing help, and a credit card honored by Texaco dealers in every state of the Union—and all through Canada.