

THE TEXACO STAR

SUMMER 1959

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A new view of research in
OIL'S CENTENNIAL YEAR

THE TEXACO STAR

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THE TEXACO STAR

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THE COVER PHOTO: A glass funnel, pleated filter paper, and pale oil create this sunburst pattern when looked at from directly overhead — the angle photographer Simpson Kalisher chose when he was assigned to do the series of interpretive photos at Texaco's Beacon, New York, Research Center from which those reproduced in *Beyond the Obvious* (beginning on Page 19) were selected. The pale oil is being filtered for subsequent use by Texaco researchers, as a medium in determining the phosphorus content of used engine crankcase oils under test.

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Any appreciation of the American oil industry (and this issue of THE STAR is dedicated to the industry's Centennial this year) must recognize above everything else, in the incredible list of achievements American oilmen have contributed to this nation's well-being and security, the root contribution of low-cost energy—all the nation has needed, in unfailing supply.

The significance of this energy availability can easily be overlooked. It is not spectacular, as many of the contributions of the industry have been (it will be several years, surely, before the excitement of air travel by jet, powered by petroleum-base fuels, begins to subside).

It is not a palpable thing; not something to be held in one's

At the core of American accomplishment...

1859

at the heart of America's future...

1959

energy, low in cost and abundant in supply

hands and be marveled at. It is not something seen, or felt, or reached in any way through the sensory perceptions we use to know most of the things with which we are surrounded.

Yet our abundance of energy is perhaps the single most important thing setting the American economy and the American life apart from any other.

Plentiful energy, much of it drawn from petroleum and its products, keeps strong the hum of the giant industrial complexes which line the rivers of Detroit, Cleveland, and Pittsburgh — the plants from which come our steel, our autos, our dishwashers, and our refrigerators. *It takes energy*, in abundance, to make these things and the thousands of other products Americans are able to

use and enjoy in such astonishing variety that other nations look on in wonder and understandable envy.

On the prodigious farms of the Midwest, gasoline and diesel fuels provide the energy that sends platoons of tractors over the soft Spring earth to work it into condition for planting. At harvest time, they power the teams of mechanized equipment which whirl their way across fields of grain that stretch to the horizon — reaping in hours a heaping storehouse of food it would take days to gather and move without machinery. No other nation has been able to mechanize its food production to the degree seen on American farms, and no other people are blessed with the quality and va-

riety of food which appears on America's dinner tables. *It takes energy* to feed a nation as well as America is fed.

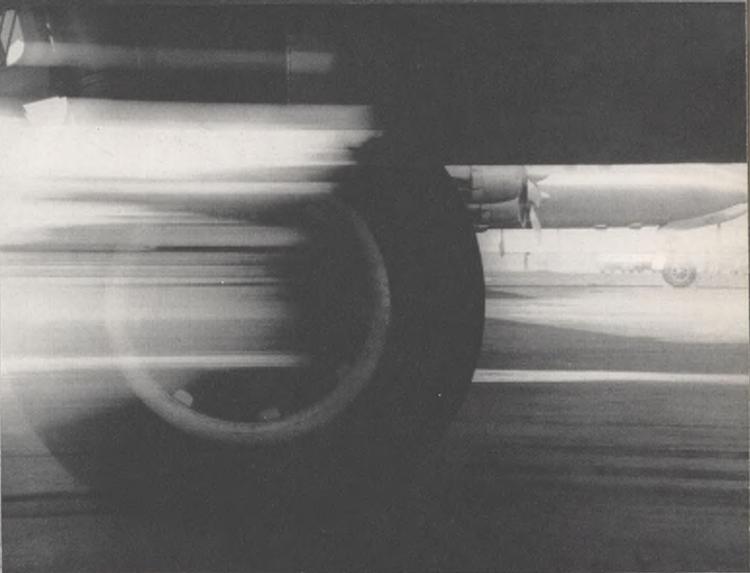
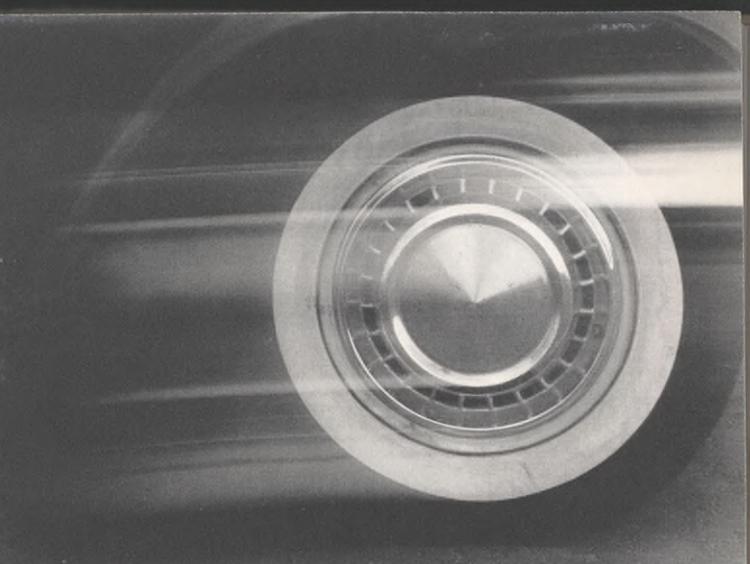
One of the most enviable aspects of American living is the American's ability to make the most of his leisure time. To most of us, the auto is implicit in vacation and week-end plans. In the family car, we get where we want to go for the breather we've come to expect as part of pleasant living. Or we take a plane, or a train or bus. We get around, we are mobile, as no other nation is. *It takes energy* (currently, about nine-and-a-half million barrels of petroleum a day) to sustain this mobility; and over the years the American oil industry has continued to provide better and better fuels to create

the energy that keeps the nation literally going (it has, at the same time, helped make possible our tremendously efficient distribution of goods by highway, rail, water, and air).

Energy, plenty of it at low cost, has been the really basic contribution of the industry born with Colonel Edwin L. Drake's triumph a century ago. It has taken abundant energy to grow with the spectacular speed this country has displayed, over the last 100 years. It has taken ample energy, to do what America has done. It will take still more energy to push open that door ajar called the future, and press forward with the ambitions this generation hopes to turn into the heritage of the next. A huge part of that needed energy will come from petroleum.

Oil, in its amazing diversity of applications, links the American's desires with his achievements. Oil is the link between what we want and what we have, where we are and where we want to go. The documentation is all around us; and from it THE STAR has chosen the examples in this issue, as apt illustrations of oil's continuing contributions to American life.







BACK ROAD SAMARITANS

Reaching patients by auto, public health nurses in rural areas are able to help thousands

Working her way through early morning traffic in downtown Tuscaloosa, Alabama, Mrs. Louise Terry looks as pleasant, and unremarkable, as any other lady driver on the way to the supermarket. But to Public Health Nurse Louise Terry, her car is more than a handy means of getting across town. It is one of the most important instruments she works with, as a back-country nurse.

In a typical month, Louise Terry drives from 800 to 900 miles to make about 85 home visits among the people in her rural nursing district. Her car makes it possible to rush to a sick child, be there when a premature baby is delivered, cover long stretches of country road every day as she makes her rounds. Without her automobile, much of her work and the work of Tuscaloosa County's public health program would be impossible.

Recognition of the automobile's value and importance within the public health nursing program is nationwide. A publication in the field of public health nursing recently stated that "any lack of efficient transportation for nurses in the field is a handicap to the expansion of services and a deterrent to the best use of our available staff."

There were 27,200 public health nurses at the end of 1958, according to the U.S. Department of Health, Education, and Welfare census—making calls from Bar Harbor to San Diego, Seattle to Key West. Each one of these traveling nurses—except those who work in large cities where public transportation facilities are adequate—depends upon a personal automobile to get her job done.

Dedicated to her profession with an unbending pride, Mrs. Terry wears a protective mantle of brisk efficiency to cover the very real and sincere concern she feels for her patients' problems. "I've been with the County Health Clinic in Tuscaloosa for eight years," she says, running her fingers through her gray-flecked hair. "There's nothing glamorous about what I do; it's just plain hard work. But," she adds with a smile, "I wouldn't have it any other way."

Just what, exactly, is the difference between a public health nurse and any other nurse? Additional training, mostly. Beyond basic nursing training, public health nursing requires a great deal of special study and experience. A public health nurse must be prepared to act as teacher, friend, confidante, counselor, community worker, and skilled tech-



Nurse Terry's gentle, experienced hands weigh a tiny infant during a call at one of the Alabama rural homes she visits each month.



"When the phone rings," Nurse Terry tells one of the midwives she supervises, "it's too late to check supplies and equipment."

nician — individually, collectively, or in any combination.

Primarily, Mrs. Terry—whose official title is Public Health Nurse (Generalized)—is in charge of the county's 25 midwives—women trained and equipped to go out on hurried calls. Nature has a way of ignoring geography at critical moments, and in the rural areas around Tuscaloosa home deliveries are common.

In addition, she prepares adult instruction and demonstrations in child care and bedside nursing; gives eye and ear tests, and dental care lectures, to school children; sets up field

examination and inoculation clinics; handles a variety of emergencies from premature babies to outbreaks of communicable diseases; helps out at the main clinic. That word "Generalized" in her title covers a multitude of ills.

Nurse Terry first began as a surgical nurse and brought along, in the switch from surgery, "a lot of clinical experience and an ulcer." Now, as one of Alabama's 239 public health nurses (there are almost 4,000 in New York; 3,000 in California; over 1,000 in New Jersey, Illinois, Massachusetts, Ohio, and Texas), she finds herself constantly on the road. To reach her patients in the outlying rural areas, Nurse Terry uses her own car and, of course, receives a gasoline allowance from the county clinic. It's a popular and widely used procedure. In some areas, however, the clinics provide company-owned cars for their nurses, a method familiar among traveling salesmen for years.

The question of which clinic uses what method is usually a matter of individual preference or already established procedures. There are exceptions: a group of nurses in Michigan, for example, successfully outlined a plan for car rental; the state of Virginia offers its nurses a choice between two private and one state car ownership plans. Whatever the plan and wherever the area, there are countless Nurse Terrys on the nation's highways to whom driving is as necessary as a scalpel is to a surgeon.

Mrs. Terry enjoys working outdoors and being on her own most of the time. She has a keen sense of organization and stands for no foolishness; with her schedules, she can't afford to. Because some of her territory in Tuscaloosa County is quite remote, worry-free car operation is highly important to her. After all, she spends as much time behind the wheel of her car as the average secretary does behind a typewriter.



Often roads simply don't go where she wants to go, so she drives as far as she can and hikes the rest of the way: "I learn to expect these things, though; they go along with the job."

The job is an important one—to promote mental and physical health, through health education, and prevent the spread of disease. It is, in a sense, human preventive maintenance. To accomplish this, the Tuscaloosa County Health Department draws on the combined skills of seven public health nurses.

Two of these nurses devote their time exclusively to the city's school clinics. Four others, including Nurse Terry, handle the rest of the county. Actually, this nursing program—tailored to the community's needs and modified by facility and staff limitations—is a job of health supervision. Teaching, demonstrations, group meetings, clinical and school services all help families recognize their health needs.

But recognition is not enough. "The most important part," says Mrs. Terry, "is getting my patients to follow my instructions on their own. Most people recognize the importance of good health, but don't do anything about it because they are afraid or unsure of themselves. A big part of home health care is really just good common sense; that's the best training you can have."

With children, though, Mrs. Terry must drop the role of teacher and become the skilled technician and, above all, the friend. A child's imagination is legendary, and making a youngster wait long minutes in a reception room, especially during inoculation season, is only asking for trouble. So, Mrs. Terry—who has two school-age daughters of her own—just lets the children see her equipment and get to know the clinic as much as possible.

She is a whiz in the county schools, too, where her huge,

cardboard "choppers" and blackboard talks on dental care are familiar items to third, fourth, and fifth graders.

One of her more successful bits of witchcraft, in the clinic, is based on the principle that most children cry because they don't have anything else to do. Mrs. Terry keeps the youngsters so busy holding their noses, puffing up their cheeks, or counting backwards from 10, that they forget all about that needle she's holding until the moment of no return.

"Last year," recalls Nurse Terry, "we gave over 27,000 immunization inoculations, including polio, whooping cough, diphtheria, tetanus, smallpox, and typhoid. Immunization is a vital part of our general child health program and it's almost impossible to estimate what the future benefits will be from such a long-range program. But we sure will have some healthy children."

It is equally impossible to estimate the value of people like Nurse Terry: to her midwives she is a strict but sympathetic and understanding "boss-lady"; to her patients she is the County Health Clinic, the symbol of a profession that enjoys an unequalled respect and confidence; to her rural neighbors she is there when they need her, and they are aware of how often they have said, "Don't worry, everything will be all right. Terry is on the way."

It is a demanding life, at times. But it can be, and very often is, a rewarding one. There are a lot of people in Tuscaloosa County whose lives have been touched by this back road Samaritan. Her quiet, professional manner calms many an anxious parent's fears and, once the crisis of the moment is over, Nurse Terry says, sternly, "Now you give those pills to Lucy like I say, you hear?"

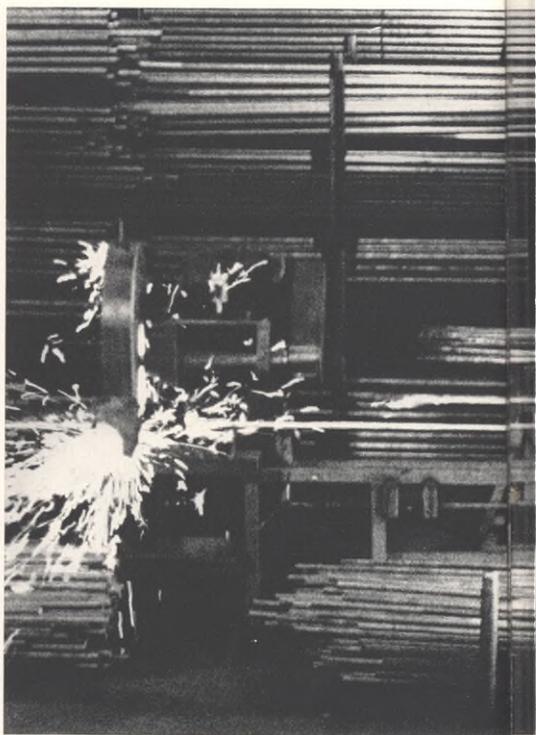
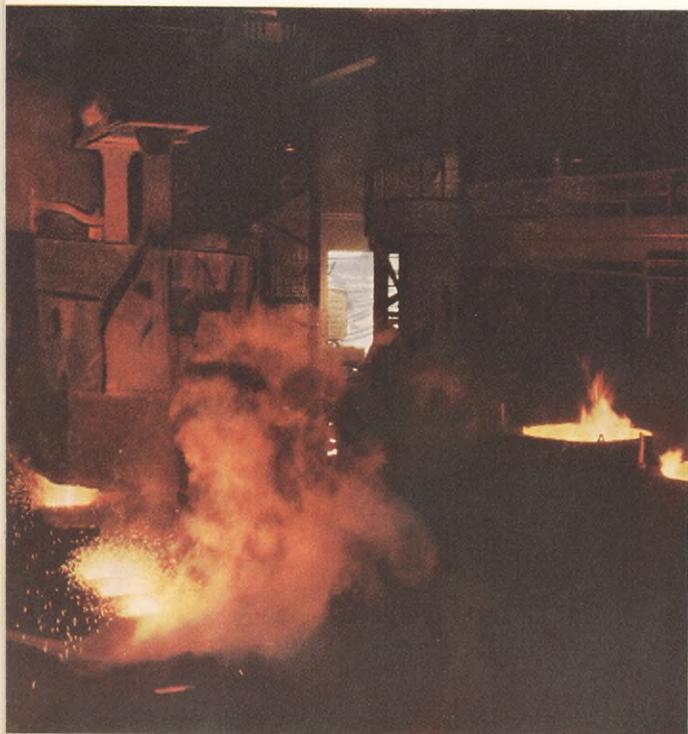
That usually is one of the last things she says as she drives off to her next call.



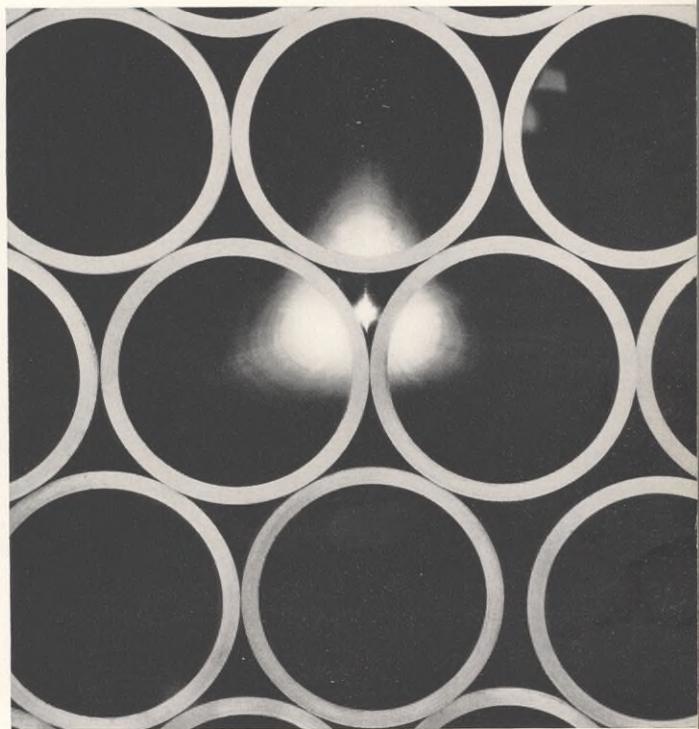
Rural roads offer their own kinds of traffic problems; left, a mule team hauling lumber slows down Nurse Terry's pace. At right, she starts out on a day of rural calls by having her car's tank filled in Tuscaloosa station.



White-hot molten steel, freshly drawn from furnaces, left, is the mill's raw material; after many steps, it emerges as a finished product — steel pipe. Center, a workman shears long pipe strips into specified lengths, stacks them for final inspection and shipment, while ends of pipe, right, create an arresting geometric design.



PETROLEUM: A PARTNER IN PRODUCTION



Steelmen say you almost have to float a steel mill on oil before it will work, and oilmen have been finding new ways to “float” steel mills since the 1880’s, when steel first became available in substantial amounts.

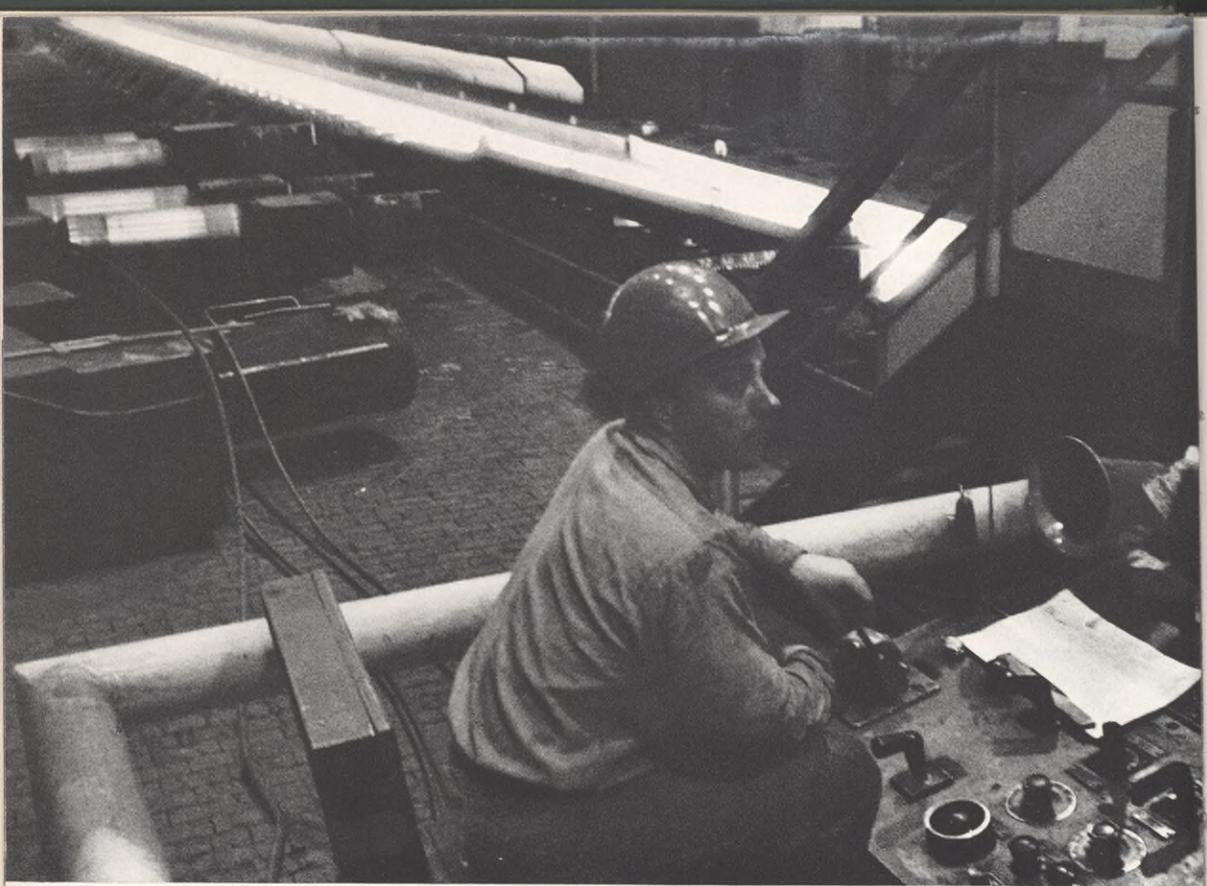
Today, steel and petroleum have become inseparable parts of our economic structure; their products and by-products enormously benefit not only all of industry but also each other. To drill just one oil well may require miles of steel drill pipe; to produce steel, vast amounts of greases and oils are necessary.

Practically every advancement we make requires the use of steel in some form; it has been called the master tool of modern civilization. The bridges, buildings, docks, tunnels, subways, and elevated express highways on Manhattan Island, alone, contain an estimated 28 million tons, and steel in one of the oldest of these structures — Brooklyn Bridge — has been in continuous use for almost 80 years.

Steel becomes part of countless manufactured articles from hypodermic needles to satellite launching rockets. It plays a vital role in the production and distribution of almost every kind of goods found in homes, farms, industry, transportation, and construction. As the basic metal of industry, steel machinery is used to make more steel.

Three years before Colonel Edwin L. Drake brought in his well at Titusville, an Englishman, Sir Henry Bessemer, tried blowing air over molten pig iron and revolutionized the process of making steel. The Bessemer converter, which can produce 15 tons of steel in 20 minutes, made the mass production of steel available to many steelmakers and the boom was under way, spurred by the Industrial Revolution.

After the discovery of the Lake Superior iron ore ranges, great steel mills began building in the coal fields south of the Great Lakes — near the East’s steel consuming industries and the Mississippi and Ohio River transportation systems.



Blazing slab of steel, traveling faster than a man can run, speeds across rollers on its way to the hot strip mill, where it will be squeezed into the size and shape, or "bloom," desired. Operator in the "pulpit," foreground, controls the entire operation.

The special lubricating problems of steelmakers have created many challenges for oil

Just 100 years ago, America's annual production in tons had only run to four figures; but by the turn of the century, production stood at nearly 11 million tons.

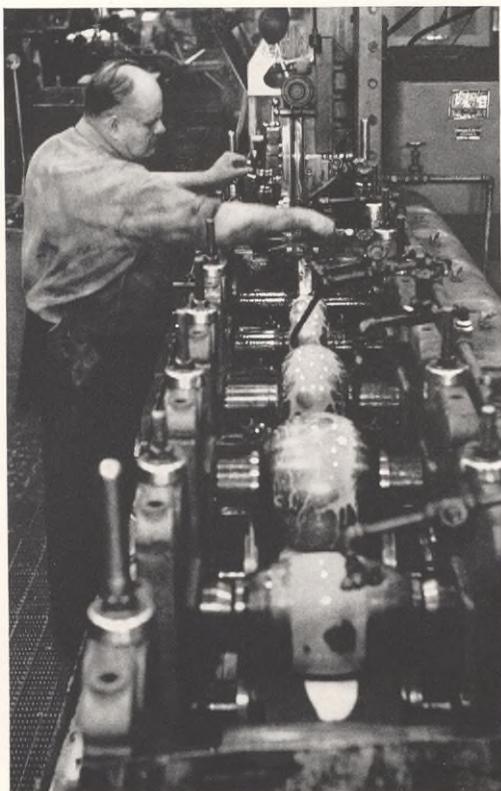
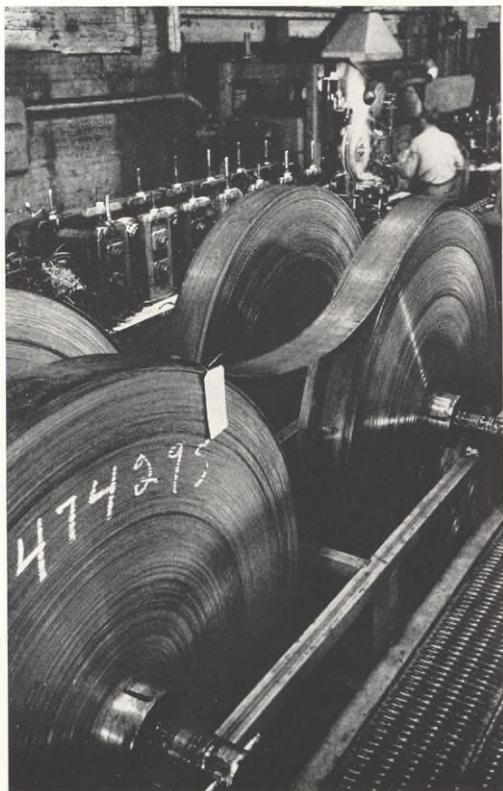
Since then, steel has maintained its position as a vital manufacturing material and, last year, production topped 112 million tons. There are now about 10 tons of steel in use for every man, woman, and child in this country, and, by the time you finish reading this issue of THE STAR, the steel industry's furnaces could have produced as much steel (9,000 tons) as this country produced in an entire year during the Civil War.

The machines used to make steel are of gigantic size; they operate under tremendous pressures and intense heat

and are subjected to terrific shocks. Take, for example, one of the steel industry's huge, continuous hot sheet and strip mills ("mill" is the name steelmakers give these complex machines). It's nearly half a mile long and costs over \$20 million to build.

Starting at one end of the mill, a heated slab goes through numerous rolls and the air is filled with the ear-splitting scream of metal against metal, punctuated by a spectacular shower of sparks. The slab becomes longer and thinner; it travels faster and faster. Finally, it emerges from the last set of rolls as a long, thin ribbon of steel; it's going faster than a man can run and is a long way from where it started.

These automatic assembly line mills have substituted push



Coils of cold steel, left, look like mammoth watch springs; may weigh up to seven tons. These strips of flat steel pass through a series of contouring rollers that gradually form them into tubing. Above, an operator checks the complex automatic lubricating system that coats the rollers with a thin film of oil. Welding apparatus, background, seals the tube's seam to complete the operation.

buttons and control levers for brawn and sweat. At the same time, the improved products that come from these mills have brought substantial manufacturing economies to steel consumers and enables them, in turn, to produce new products.

With so much at stake, very special lubrication is obviously needed, and one knows it better than the steelman.

During the past century, both steel and petroleum have depended heavily on each other's products. The modern petroleum refinery's raw materials (crude oils and condensates) are distilled, separated, broken apart, reassembled, purified, blended, made ready for shipment, and marketed through the products of steel. And, through the years, Texaco has supplied the steel industry with the lubricants it

needs to produce more and better steel. Last year, for example, more than 4,000 barrels of Texaco lubricants — representing many different kinds of oils and greases — were pumped, dripped, ladled, circulated, or sprayed into machines at one large customer's steel plant and pipe mill near Pittsburgh, pictured on these pages.

In addition, Texaco lubricates equipment at three more of this company's plants. Texaco also supplies the steel firm with hydraulic oils and aircraft engine oil; Texaco diesel fuels power the company's barges transporting finished steel products down the Ohio and Mississippi Rivers from Pittsburgh to New Orleans.

The business of lubricant development is a highly tech-

nical and scientific process that involves the whole fascinating spectrum of chemistry and physics.

Specialized Texaco lubricants, often developed originally to solve a particular lubricating problem in a particular plant, are born at Texaco's research laboratories. In these labs, chemists, engineers, and technicians pore over field requests and try to find a new oil or grease that will solve the steelman's problems. Example: the trade-mark of stainless steel — its polished mirror face — is achieved and protected as it comes off the production line by a thin film of adhesive lubricant, such as Texaco's Roltex Oil.

After a lubricant is developed, it undergoes rigid on-the-job tests at steel mills in a variety of locations — a process that may take from six months to three years. Of course, other petroleum companies are also developing new lubricants and the steelman, understandably, is interested in results. So, before a new oil or grease is made available commercially by Texaco, it has been thoroughly tested to make sure it will do the job it was designed for.

Texaco's scientists have met many difficult demands with proven results. Texaco Meropa, an oil designed for machines subjected to extreme pressures, has been improved steadily, and used by steelmakers for over 20 years. Regal Oils, Texmill Greases, Crater Compounds, Rollneck Greases, Rust-proof and Metal Protective Oils, Novatex EP, Drawing and Hot Punch Compounds — all these, and more, have come from the research laboratories.

Recently, two of them — Meropa and Regal Oil — helped solve two lubrication problems, at opposite ends of the steel-making process, and created important industry "firsts": Meropa now lubricates the gears that tilt the world's largest basic oxygen furnace (a converter that utilizes a jet of pure oxygen to activate the smelting process instead of the hot air used in the Bessemer method), and 20,000 gallons of Regal Oil protect rollers in the first strip mill to use fully automatic control. These are just two applications that have grown out of the laboratories' research work.

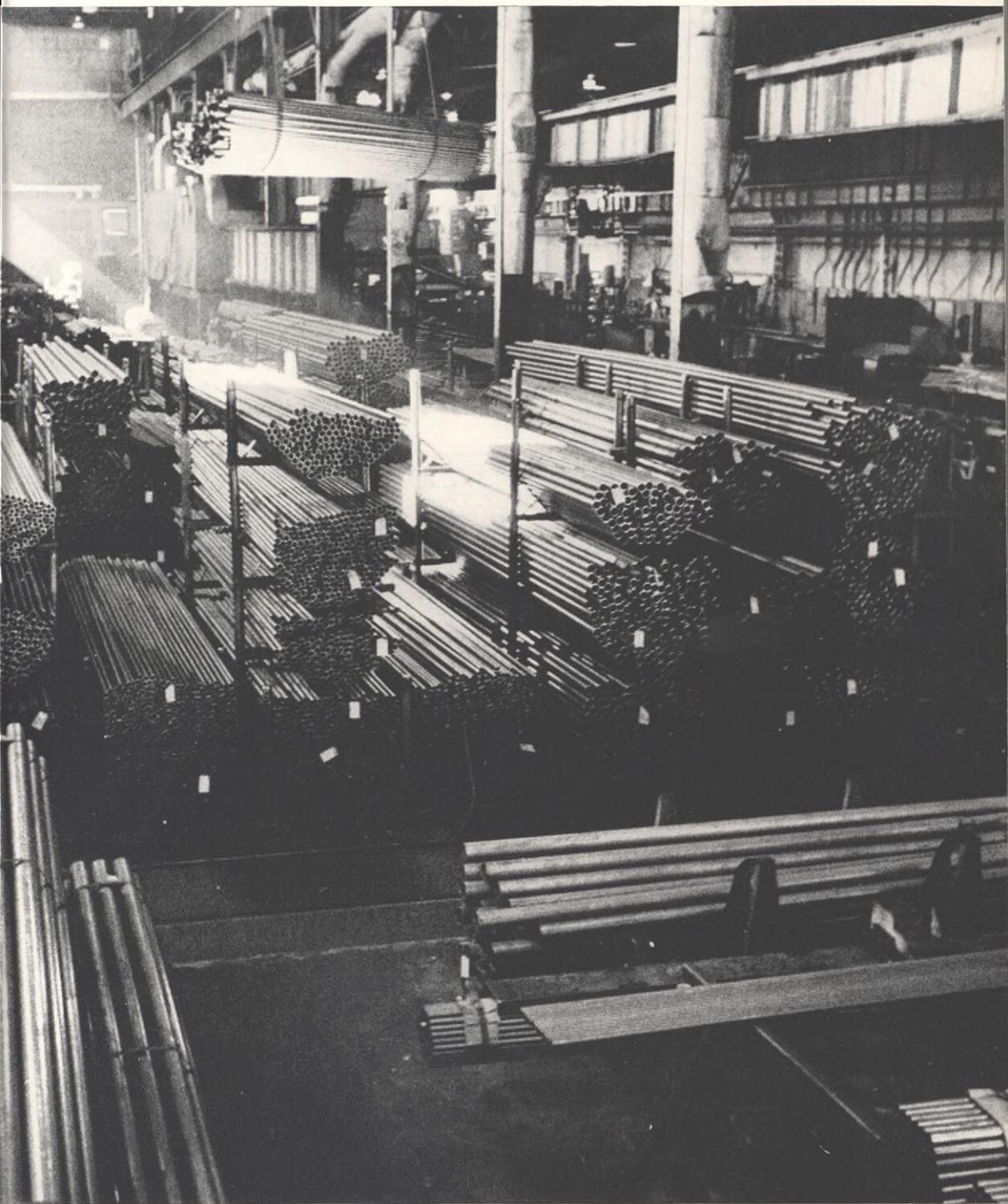
Texaco engineers, working in the field, are involved in another phase of activity. They visit customer plants and check the performance of oils and greases already in use. Samples of used gear oil and greases are sent to the research laboratories for analysis and special testing. Contamination from water is one of the most common, and annoying, problems that technicians must solve. Since water is essential to cool overheated machines, it cannot be eliminated in the steelmaking process. So, petroleum suppliers are called on to provide lubricants that will work *in spite* of operating conditions. It's a tall order, but not an impossible one to fill.

Everything about the business of making steel is big: an integrated iron and steel plant may stretch for miles. Raw materials are scooped, shipped, stored, and used by the tons; a red-hot ingot, the size of an ordinary office desk top, can be squeezed through huge machines into a strip several miles long that travels up to 90 miles an hour. The whole industry is so vast, complex, and diversified that few people have a chance to view the process from beginning to end.

And just one thing more, something steelmen and oilmen have known and respected for over half a century: none of it would run for five minutes without petroleum products.



Sun's slanting rays cut across pipe mill storeroom and spotlight stacks



of steel pipe, tagged and ready for final shipment.



Don and Mary Jones' three youngsters are just toe-dippers now, someday hope to help with sailing their parents' sloop Bon Voyage. At right, Don and Mary plan an afternoon cruise, begin by checking channel marking buoy locations on their chart.

The Great American Week End

Our leisure takes many forms, and boating is becoming one of the most popular

Early every Summer, thousands of week-end sailors swarm out from shore and into Long Island Sound like school children at recess. By Midsummer, Connecticut wits say, you can cross the Sound by jumping from deck to deck.

Pleasure boating has hit America hard, and it has spread right across the country. In little over 12 years, the pastime has created a \$2.5 billion industry. This year, nearly 40 million American families from coast to coast will head, on the week ends, for the nearest spot where land stops and water begins—even if the water's edge is as much as an overnight drive away.

Boating is one pleasant way of spending the week end that has been greatly influenced by the petroleum industry. After World War II, boat manufacturers began setting their sights on a huge, largely untapped market—the middle-income family. Their aim was spectacularly good: the number of boats in use soared from 2.5 million in 1947 to a record 8 million in 1958. Last year, pleasure boats (both auxiliary sailboats and motor craft) took aboard more than 400 million gallons of fuel, and over 22 million gallons of lubricating oil went into pleasure craft crankcases.

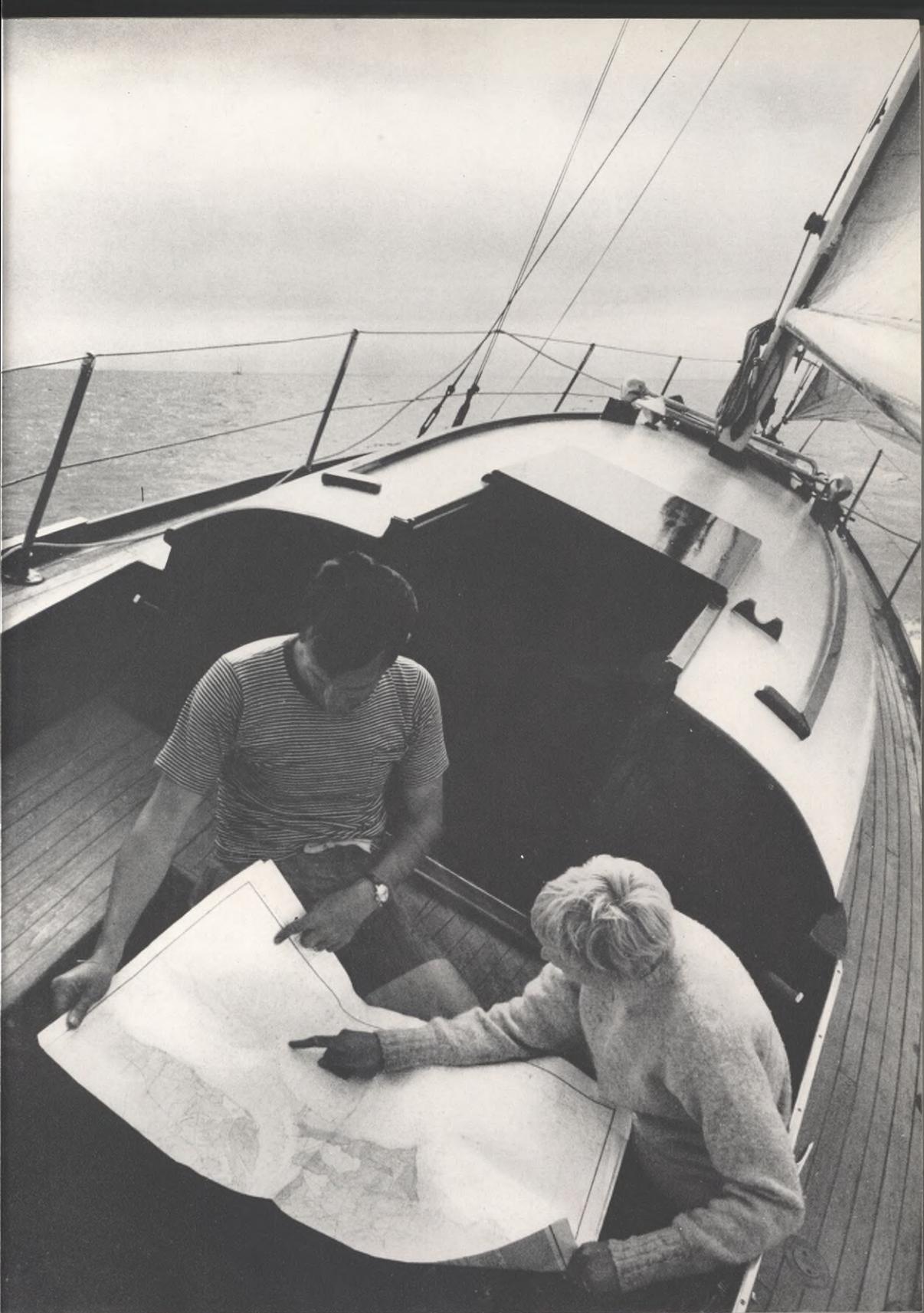
Old-timers remember when most of the pleasure boats on

Long Island Sound were either the ocean-going yachts of the very rich or the rowboats of Sunday fishermen. All that has changed.

Thanks to the automobile, the radius of week-end travel has been pushed far beyond anything attainable in grandpa's day. In turn, mass production advances have made the pleasure boat's availability a strong rival to the second car as a mark of economic achievement. The combination is irresistible. Pleasure boating offers an exhilarating form of recreation that satisfies the American urge to go places and do things.

Typical of many young couples taken with boating fever are Mary and Donald Jones of Greenwich, Connecticut, whose 35-foot auxiliary sloop *Bon Voyage* is moored at Texaco's Old Lyme Marina on the Connecticut River. Only four years old, this marina is one of hundreds dotting the Connecticut and Long Island shores that provide berths and anchorages, accessory showrooms, refueling pumps, and other facilities designed especially to service pleasure craft and cater to the needs and whims of both sail and motor boat owners, crews, and passengers.

A small island offshore makes Old Lyme Marina the only





Motor craft and sailboats in Texaco's Old Lyme, Connecticut, marina boat yard were photographed in early Spring before many had been put in the water. During Summer months, the yard becomes a parking lot for week-end sailors who drive to the water from nearby cities. Below, Joneses make final rigging adjustment.



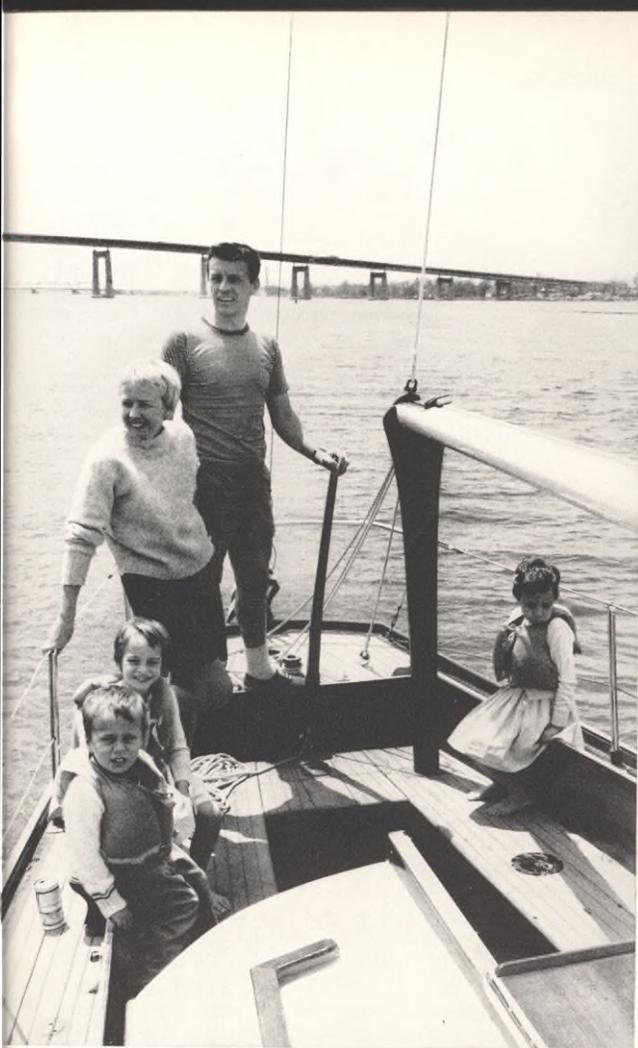
This year, more than 40 million Americans will drive their family cars to the nearest spot where land ends and the boating begins

sheltered anchorage on the entire river. The important advantage of this natural breakwater did not go unnoticed by the marina's two owners: Joe Clinton ("This whole area was the darndest wilderness you ever saw, holy cats"); and Ed Bonelli ("People give up hard; we have boats tooting around here in October"). Today, these men operate a trig new

boathouse; offer expanded dock facilities; service over 60 year-round customers; and also serve a flotilla of transients.

From October to March, the marina's boat yard is filled with craft of all kinds, whose exposed keels and canvas-covered cabins give them a lonely, clumsy look. The annual April and May toll of blisters, bruises, and callouses from painting, scrubbing, sanding, and varnishing changes the forlorn Winter scene; by Memorial Day, most boats are in the water, and life for the sailor begins to be worth living.

The boat yard, too, changes. It becomes a convenient parking lot, where cars from New York City, Albany, Rye, and Hartford stand bumper to bumper with cars from neighboring towns. Interestingly, the automobile is responsible for a great deal of the success that the pleasure boating industry now enjoys. Cars fill a vital and increasingly important gap,



With his crew all present and accounted for, Don Jones takes Bon Voyage up the Connecticut River under power, left, and sets a heading for the marina at Old Lyme, where the 35-foot auxiliary sloop is kept year-round. Often, the Joneses make a day of it on the Sound; both take time out to relax and enjoy a light snack, below.



because boat owners, for the most part, face the same problem: how to get from where they are to where there is water.

Owners usually fall into two categories—those who keep their boats at home and tow them to nearby water sites, and those who keep their boats on the water and commute by car from home to dock. In either case, the car is essential.

Many people will drive from 250 to 300 miles to reach a lake large enough to sail a boat. Sloops and motor cruisers join silos and barns as part of the prairie scene, and the automobile has made possible the claim of Phoenix, Arizona, citizens that they have more boats per capita than any other city in the country.

Don and Mary Jones are relatively new boat owners. Two seasons ago, after an especially good year supplying banks with coin counting equipment through his own company, he

bought the *Bon Voyage*. Don, like many other Long Island Sound sailors, had his first taste of salt water when he served on active duty with the U. S. Navy during World War II. He never got over it.

"Once sailing gets in your blood, you're a fan for life. I never get enough; I keep coming back for more," Don says as he takes the *Bon Voyage* past the lighthouse where the river flows into the Sound. Off to starboard, a bobbing channel buoy's bell rings monotonously. He props one foot on the stern rail and looks up at the billowing sails. "You can't say what sailing is like; it's a feeling, a sensation you can't describe. But you understand it the minute you feel the wind fill the sails and the deck begins to heel."

Mary, a pert blonde with a pixie haircut that is perfect for sailing, treats the water like a young girl on her first date;



After lunch, while a guest mans the tiller and sets a course outward bound, Don and Mary stretch out atop the cabin roof.

flirting outrageously, but a little bit frightened by it all. "This is just my second year as a full-fledged sailor," she says, apologetically. "There is so much I don't know and still have to learn. I'm perfectly happy to go along for the ride and let Don do all the work."

In spite of her modesty, Mary has made the switch from Missus to Mate with exceptional skill. She reads a map and compass very well, handles the tiller; and, when the occasion arises, can negotiate a pitching deck like a veteran. But sometimes she gets into trouble.

On a recent outing, when the photographs on these pages

were taken, Don told her to come about—called "tacking," in nautical terminology. Tacking *sounds* easy; it is merely a method of changing the boat's direction by shifting the sails from one side to the other. Actually, it is an extremely delicate maneuver that requires split-second timing.

Mary has not yet learned the infinite variations of pressure that can be applied to the tiller, so she gaily sang out "Coming about!" and slammed the tiller hard to port. The boom came zipping viciously across the deck and Mary ducked. Don frantically grabbed armfuls of sail; struggled to keep from being tossed overboard. When it was all over, Mary looked at Don sweetly and said, "Now, honey, what did I do wrong that time?"

On the second try, Mary successfully tacked the *Bon Voyage* and all was forgiven. As Don took the tiller and set a course back to Old Lyme, Mary began to talk about their three children—two girls and a boy, ranging from seven to four years old. "Louise and Eliza are the oldest," she said, "and little Duncan is the baby. None of them can swim yet, so Don and I don't like to bring them out when we go sailing. When it gets rough on the Sound, we have enough trouble keeping our own balance and handling the boat. I'd be a nervous wreck if I had to keep an eye on those three, too."

The kids know it's a very special day when Don and Mary bundle them up in life preservers and take them along on a run under power from Old Lyme to other marinas farther up the Connecticut River. From the Sound, the river ribbons 50 miles inland to Hartford—all of it navigable. "Usually, we take a run across to Essex," says Don. "It takes about half an hour each way, and that's just about right for the youngsters. They get restless on longer trips."

The river's strong current and narrow channel make sailing difficult and tedious; sailing craft with auxiliary motors, like Don's, generally do their river traveling under power. During a hot July or August week end, the morning-to-night parade of motor craft and sailboats under power, heading to and from the Sound, is so heavy along the river that the New York, New Haven, and Hartford Railroad bridge drawspan stays up. It lowers from time to time to let trains pass over.

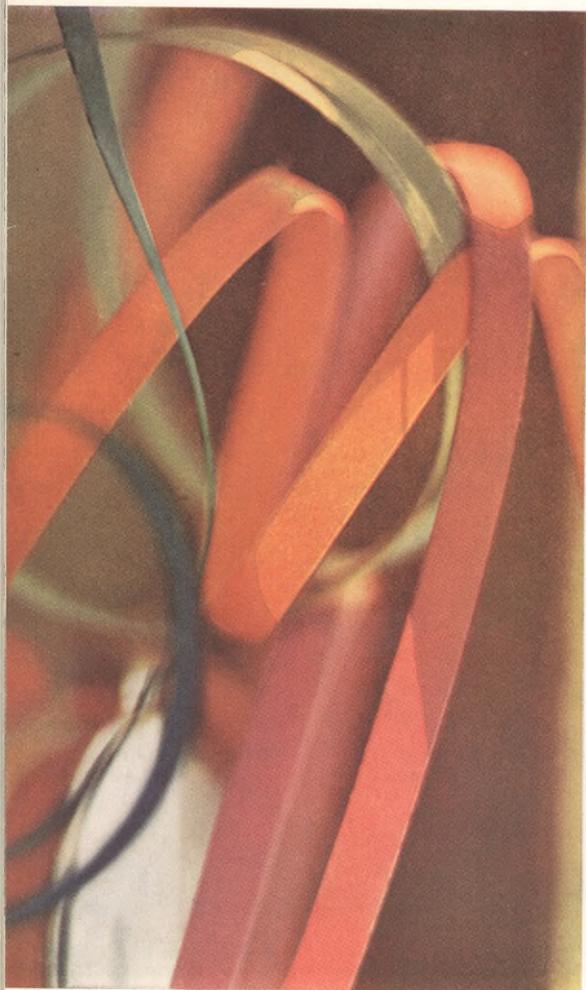
Today's waterways, like highways, need policemen to maintain law and order. The Coast Guard takes care of patrolling the Sound, marking the channels, and enforcing official regulations. Every pleasure boat must be registered with the Coast Guard; there is no charge and the registration is good for the life of the boat. "The greatest danger," Don observes, "comes from the newcomers—the Sunday cowboys—who don't really know what their boat can or can't do." Individual boat owners soon develop a deep respect for the safety laws and courtesies that skippers call "rules of the road."

The call of the sea, after a full Summer of attracting the sailor, still has fascination for an occasional hardy type who follows it into the Winter. For most pleasure boaters, though, Labor Day means the end of the season, and a long wait through cold weather for Spring—time again to begin the scraping and painting every boat owner accepts as part of the price he pays for a Summer of sailing enjoyment. ●

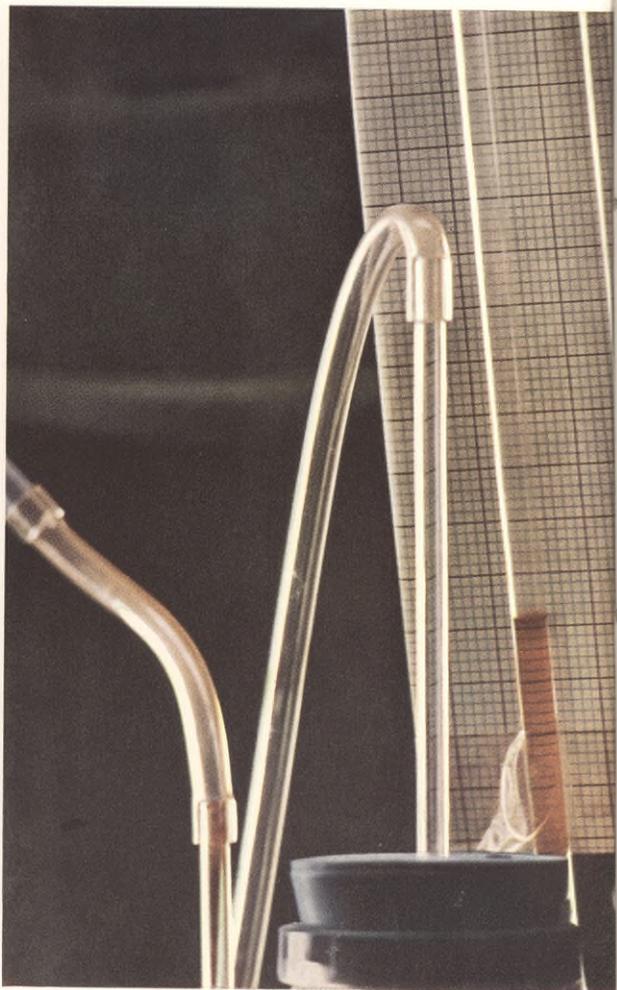
BEYOND THE OBVIOUS

The ability to see and discern, where others only look, distinguishes the successful researcher. In petroleum research, this ability has led to rewards which have enhanced American life in countless ways: more powerful fuels; better lubricants; improved products and processes; an almost magical array of contributions to the good life, coaxed from the oil drum. Few of these rewards have come easily. Almost all have required the determined scientist's willingness to keep searching beyond the obvious for answers which often have been hidden in obscure and hard-to-find fragments of oil's makeup. To symbolize this looking-past-the-apparent, THE TEXACO STAR commissioned photographer Simpson Kalisher to visit the Texaco Research Center at Beacon, New York—and asked him, as an artist whose own distinguishing talent is seeing what others wished they had, to illustrate his impressions of an outstanding petroleum research laboratory in his own unobvious way. The photos on these pages are the result.

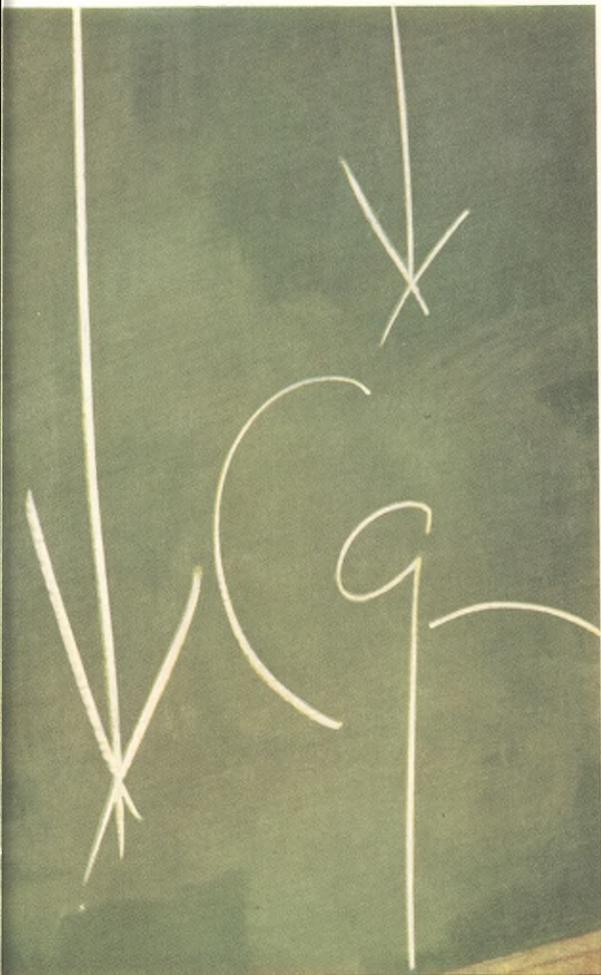




Festive as they look, close-to, these wisps of paper perform a no-nonsense research function. The colors they turn, when suspended in test solutions, indicate varying degrees of acidity.



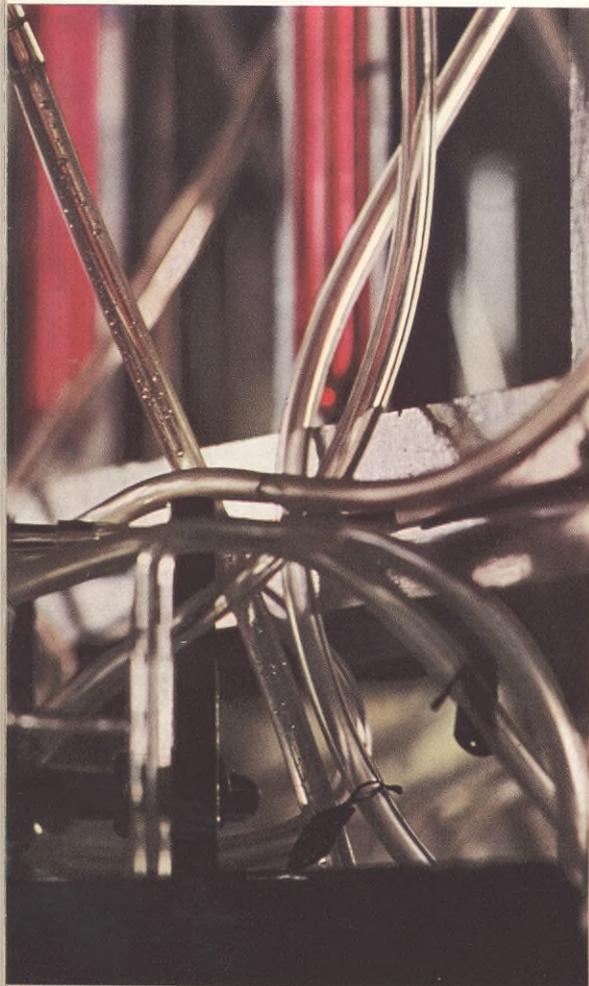
The equipment used to measure and control foaming (undesirable in some products, such as automatic transmission fluids) takes on classic beauty when it is viewed in the right light.



Part of an equation expressing a chemical reaction, this theorizing scrawled on a laboratory blackboard could become a first step in the development of an important new petrochemical.



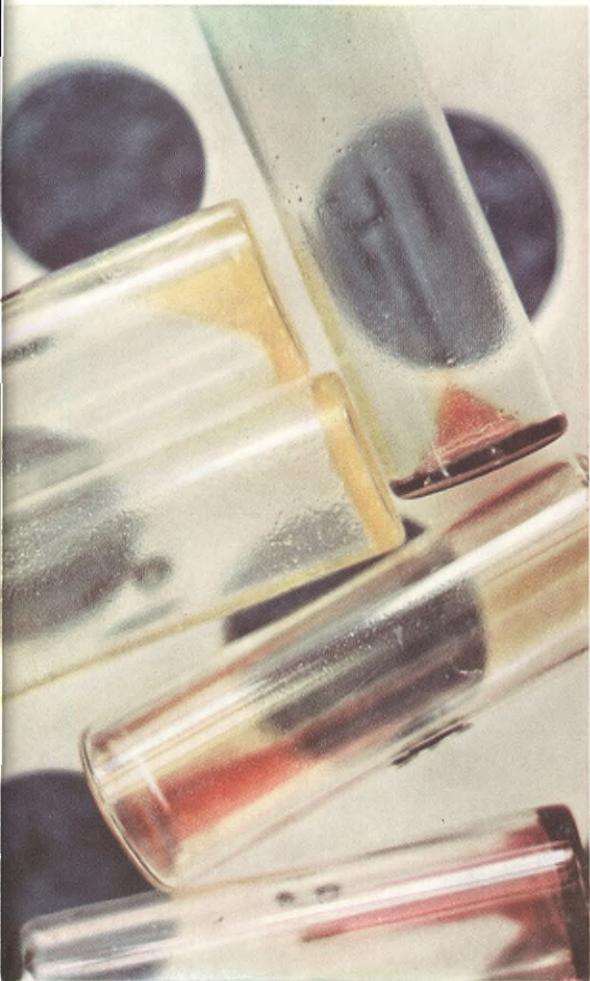
The surface of an experimental batch of grease which has been put to exhaustive mechanical tests catches the reflections of overhead lights and becomes a shimmering monotone of color.



A seeming tangle of plastic tubing actually has order, for the researcher. These are used to blow air through turbine oils in an oxidation test. The red instruments control air volume.



Boiling water, oil, and glass beads create an eerie composition as a petroleum sample goes through a neutralization number test to determine acidity, a factor in products' fitness.



Containers used to carry samples of experimental oils to Beacon's analytical testing labs (these held oils which underwent wax determination tests) are tinted with residue.



Thermometers placed in laboratory beaker for cleaning become a gleaming maze. These instruments had been used to determine low and high temperature resistance of oils under test.



C. N. BROOKS
Vice President, Foreign Operations-
Eastern Hemisphere



GREER W. ORTON
Treasurer



STANLEY T. CROSSLAND
Vice President,
Finance and Economics

Promotions and New Executive Assignments Announced

Election of two new officers, effective June 1, was announced by Augustus C. Long, Board Chairman. They are: C. N. Brooks, Vice President, Foreign Operations-Eastern Hemisphere; and Greer W. Orton, Treasurer. Stanley T. Crossland, Vice President and Treasurer since 1955, was named Vice President, Finance and Economics.

Mr. Brooks joined Texaco in 1928, in the Domestic Sales Department. He was named Houston Division Manager in 1938, Manager of the Atlanta Division in 1952, and Manager of the Company's 11-state Southern Sales Territory in 1953. He was appointed General Manager of the Foreign Operations Department-Eastern Hemisphere in 1956. Texaco's interests in the Eastern Hemisphere are so varied and widespread that the responsibility for them is being divided between Mr. Brooks and Harvey Cash—also Vice President, Foreign Operations-Eastern Hemisphere.

Mr. Orton also joined Texaco in 1928. For some years he was a Company auditor both in the United States and abroad, and later served in the Purchasing Department where he became Manager in 1944. He has also served as

Assistant to the President, General Manager of Foreign Operations, and Director of various foreign subsidiaries and affiliated companies. In 1954 Mr. Orton was appointed Texaco's senior representative in London, and, last year he became Assistant to the Chairman of the Board.

In his new assignment, Mr. Crossland succeeds Robert Fisher, who retired under the Company's retirement plan after almost 50 years of service.

Three changes in executive assignments, effective July 1, also were announced:

Frederic H. Holmes, formerly Vice President in charge of Texaco's Research and Technical Department, became Vice President in charge of the Refining Department. He succeeded John S. Worden, who retired under the Company's pension plan. L. C. Kemp, Jr., formerly Vice President in charge of the Petrochemical Department (Domestic), succeeded Mr. Holmes as Vice President of the Research and Technical Department. William P. Gee, Vice President in charge of the Petrochemical Department (Foreign), also was put in charge of Petrochemicals (Domestic).



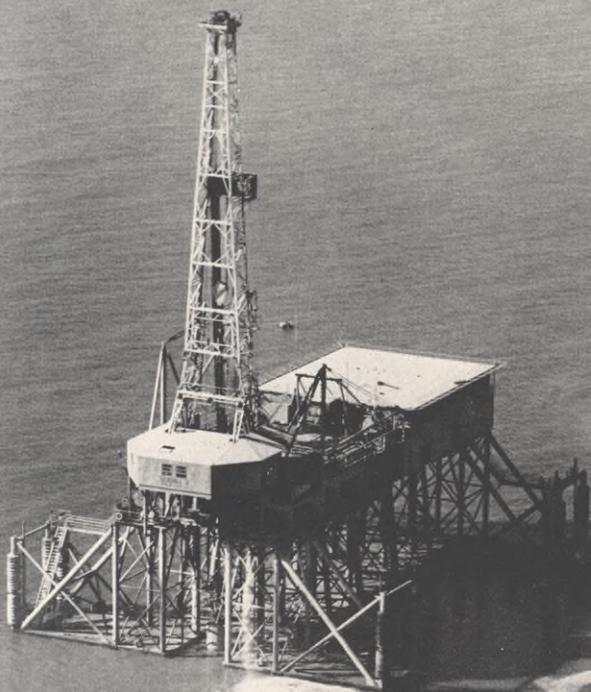
L. C. KEMP, JR.
Vice President,
Research and Technical



FREDERIC H. HOLMES
Vice President,
Refining



WILLIAM P. GEE
Vice President,
Petrochemicals



WHERE FROM HERE? From its tiny Titusville beginnings, the domestic oil industry has moved into more than half the states of the nation (an historic spreading out illustrated on the back cover of this issue) and, in recent years, even into offshore waters at the edges of our continent. From here, the American oilman intends to keep going wherever he must, to find new reserves. He is drilling deeper every year; applying new scientific and engineering knowledge to the quest; studying new techniques for bringing oil from the earth. United States consumers can be sure their oil industry will keep up the search for more and more petroleum energy—abundant and low-cost.



A MAP MADE OF "MAYBES"

For the domestic oil producer, every state represents a "maybe" until he has explored it, and either given it up or made a discovery. Over the last century, all the 31 states pictured above have been found to be petroleum producers, in varying degrees of productivity ranging from an enormous 940,706,000 barrels produced in Texas last year to the relatively small production (4,000 barrels) in Washington. To anyone who still thinks of America's oil country as limited to the Southwest, the actual count of states now providing petroleum is surprising, indeed; and the total is almost certain to grow as American oilmen keep looking into the "maybe" states which remain to be fully probed. A leading domestic producer of crude oil, Texaco currently is bringing oil out of 18 states. In the illustration, the year Texaco began producing in each is indicated (★).