

PLAINTIFF'S
EXHIBIT

ETCO-75

Stump-

Industrial Citizen
of Baton Rouge

FMP

Ethyl

Industrial Citizen of Baton Rouge

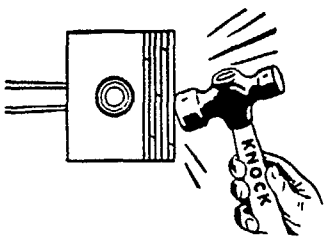
This booklet is designed to acquaint you with the Ethyl Plant in Baton Rouge. It tells how "Ethyl" antiknock compound is made, what it does, where it is used and something of the men and women who make it.

ETHYL - A PROGRESSIVE BATON ROUGE INDUSTRY

You wouldn't enjoy driving your car on the gasoline of 25 years ago. You would even have trouble getting started. Once you got under way, your engine would soon knock, overheat and lose much of its power.

The reason is that when gasoline vapor is tightly squeezed inside a modern engine, it is likely to detonate or "explode," instead of burning evenly. This detonation acts like a violent hammer blow on the piston, which you hear as a "knock" or "ping."

But in 1921, Thomas Midgley, Jr., working under the direction of Charles F. Kettering, discovered that



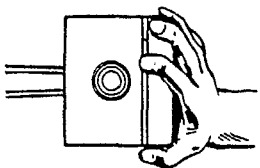
just a few drops of a chemical compound called tetraethyl lead, when added to a gallon of gasoline, almost miraculously prevents this knock. The gasoline then burns smoothly and evenly, and delivers a powerful push. Tetraethyl lead is the principal ingredient of "Ethyl" antiknock compound.

Since that discovery, oil refiners have greatly

improved their gasolines. These improvements, plus the use of "Ethyl" fluid, have changed gasoline so much that two gallons of today's gasoline do the work of three gallons of 1925 gasoline.

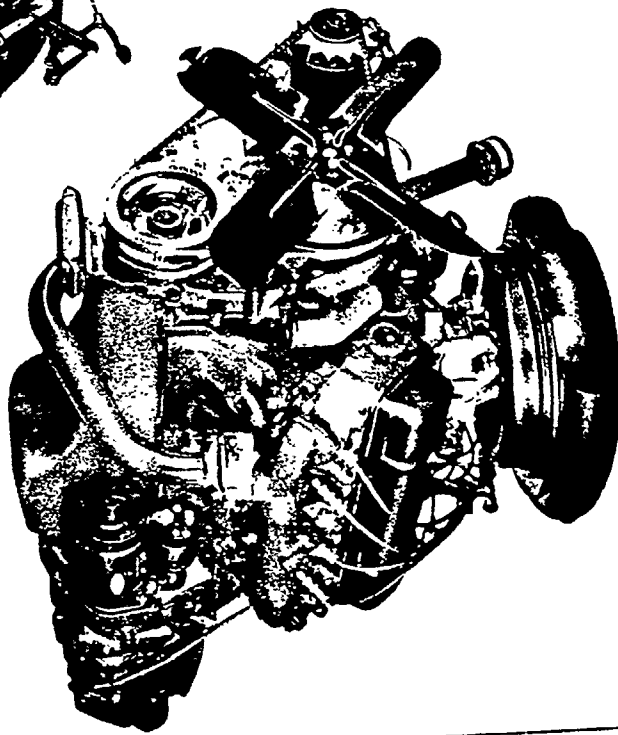
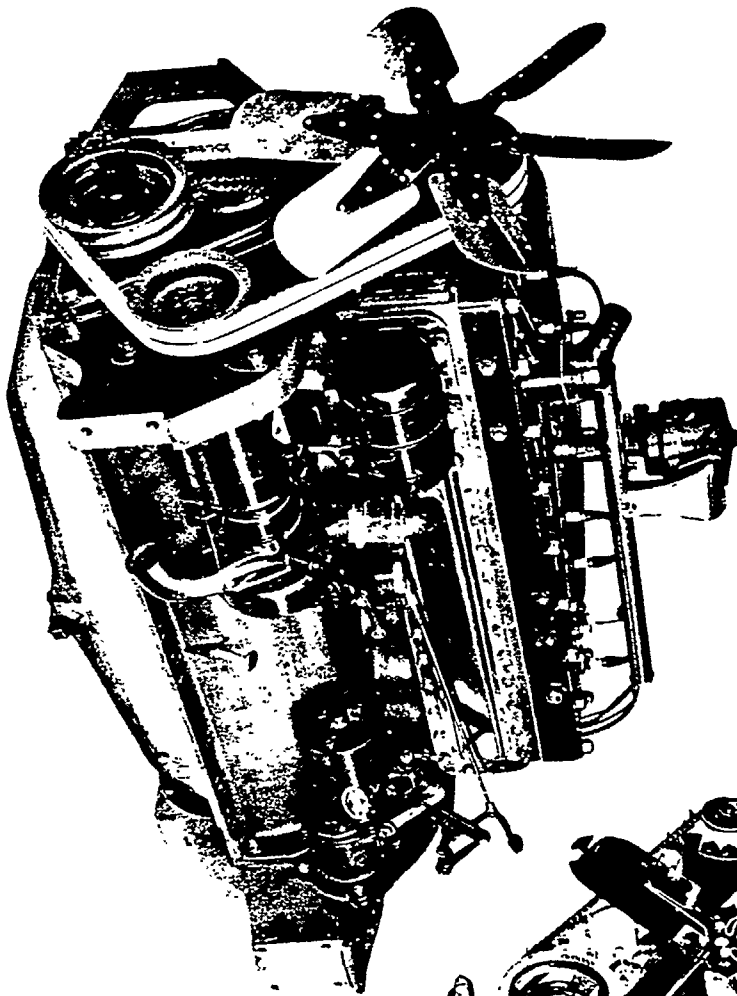
Automobile manufacturers have been able to step up the power and efficiency of engines, largely through higher compression ratios which take ad-

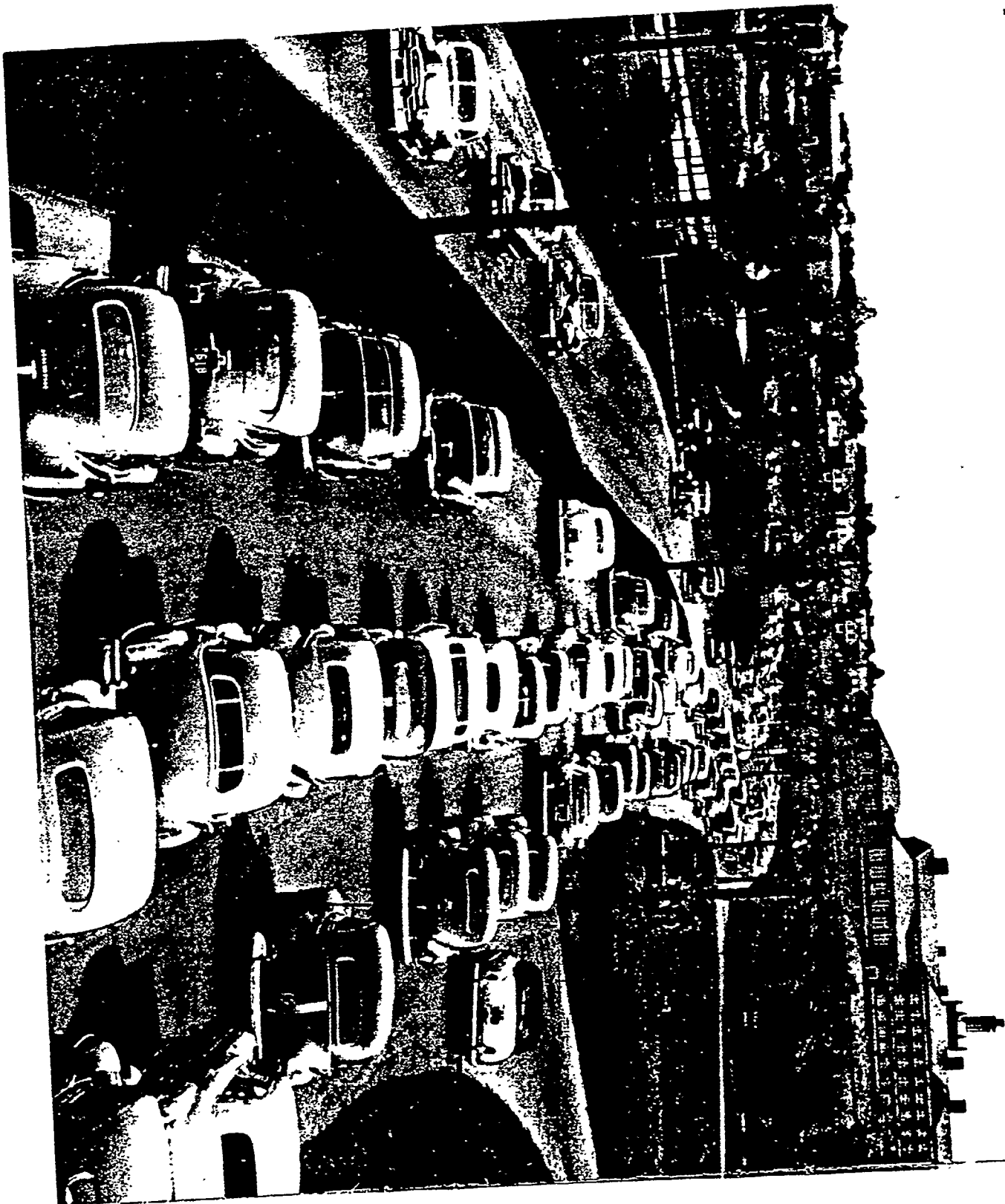
SMOOTH POWER



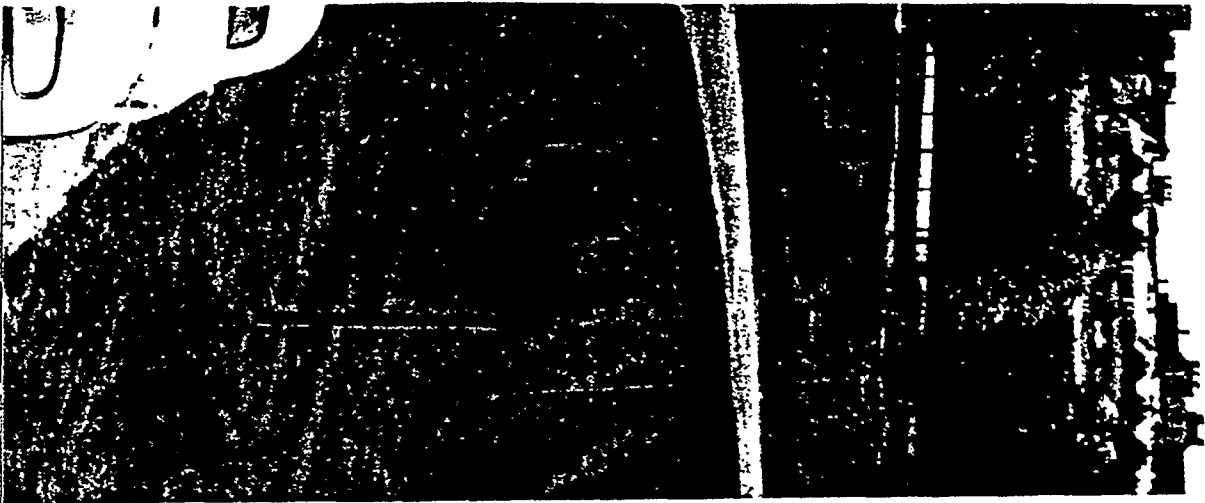
vantage of today's high quality gasoline. Over at the right you see a typical engine of the late 1920's and a modern engine. The older engine weighed 825 pounds and delivered 125 horsepower. The new engine weighs only 715 pounds, but delivers 185 horsepower, and uses considerably less gasoline. Its compression ratio is better than 8 to 1.

Much of the credit for this progress is due to the automotive industry, but more than half is due to improvements the oil industry has made in gasoline quality, aided by the use of "Ethyl" antiknock compounds made in Baton Rouge and Houston.





E-06693



SCIENTISTS have figured that the use of "Ethyl" antiknock compound in today's gasolines has resulted in an increase of approximately six hundred million horsepower to the nation's automobiles. This added power has been equal to the output from 350 Hoover Dams.

Here's why: Today's high octane gasolines, improved with "Ethyl" fluid, make it possible for engine manufacturers to build higher compression engines that give more power.

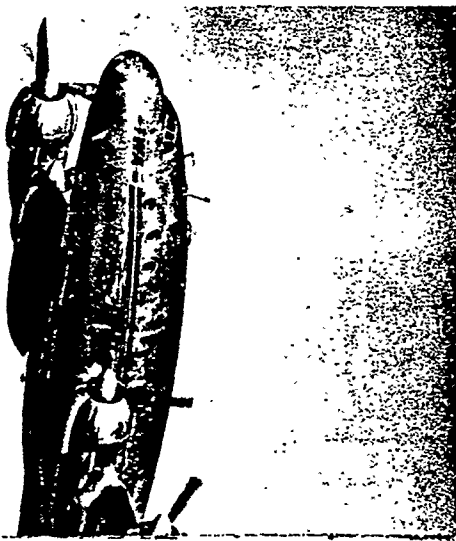
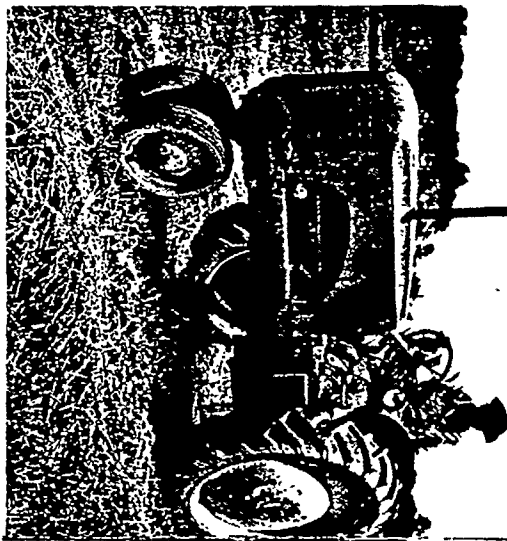
If such gasolines were not available all over the United States, automobile manufacturers could not put high compression engines in their cars. However, "Ethyl" antiknock compound is used by progressive oil companies everywhere, and with its help, they produce plenty of high antiknock gasoline.

Automotive engineers, looking ahead to the cars of the future, are at work on engines of still higher compression. These more powerful and efficient engines are in sight for tomorrow largely because high octane gasolines, improved with "Ethyl" fluid, open the door for continued progress.

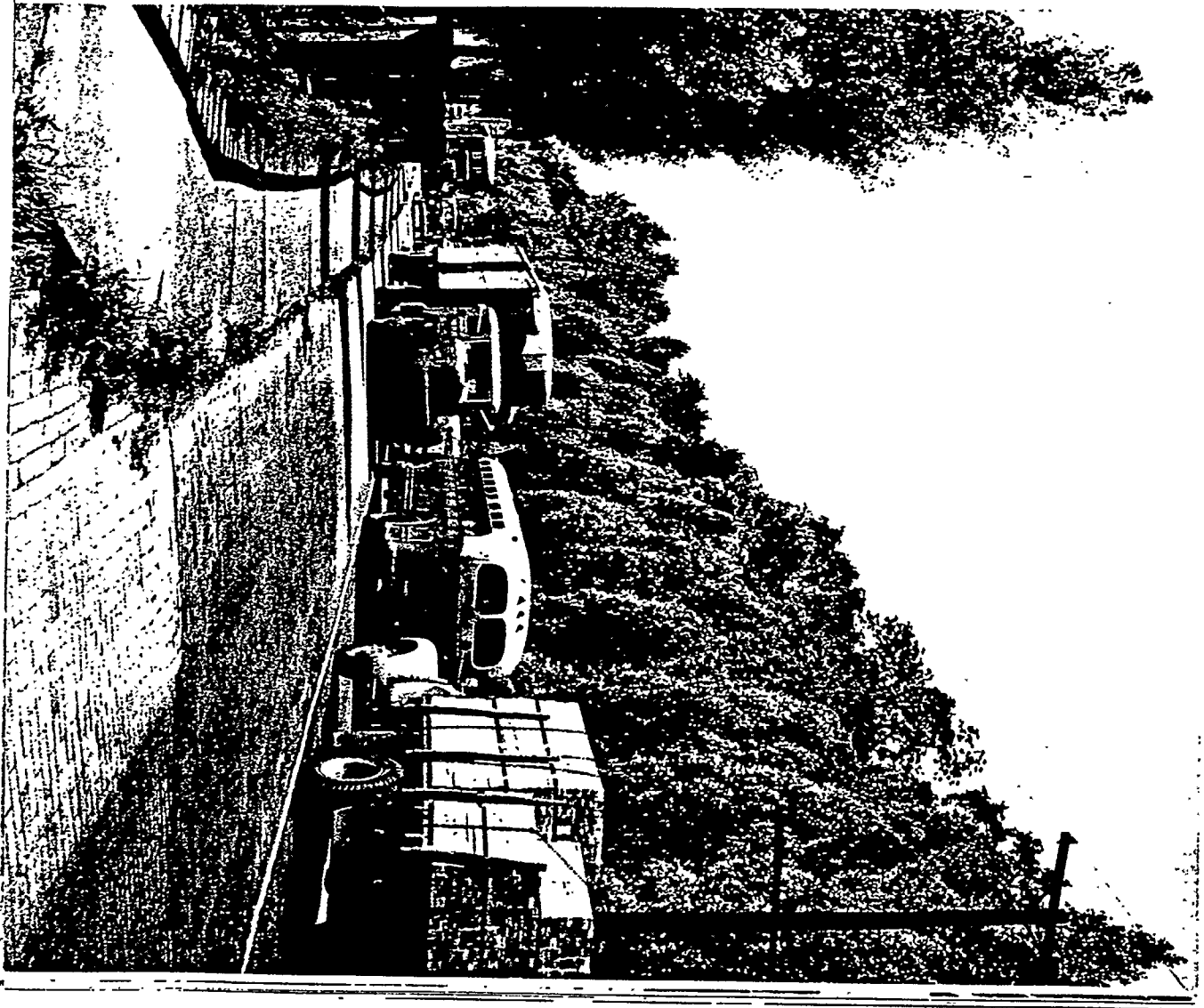
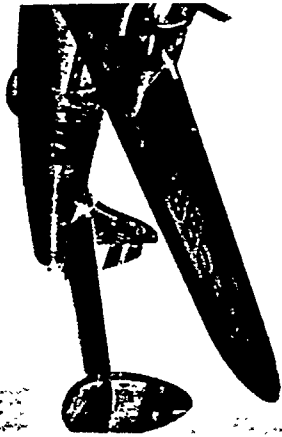
1. Ethyl engineers were the first to demonstrate that a tractor with a high compression engine designed for good gasoline could do more work in less time for less money than an old-fashioned tractor. In 1935 the first high compression tractor was put on the market, and today more than 95% of farm and other tractors being manufactured are of the high compression type.

2. Modern airliners need plenty of power to get off the ground and to fly long distances at high speeds. Because most of them get their enormous power from high compression engines, these airplanes cannot operate without high octane gasoline. Millions of pounds of "Ethyl" antiknock fluid are used in high octane aviation fuel required for the world's airways.

3. Bus and truck operators have also learned by experience that vehicles using high compression engines and good gasoline squeeze more power out of every gallon of fuel. Gasoline improved with "Ethyl" antiknock compound is available everywhere at reasonable prices for the nation's bus and truck operations.



2



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"Aniknock City" — largest antiknock compound plant in the world

HERE YOU SEE an industrial portrait of the Ethyl Plant — a group of chemical manufacturing units which comprise the largest gasoline antiknock plant in the world. It is located north of downtown Baton Rouge, near the banks of the Mississippi River, in the heart of the city's industrial area.

The Plant may be divided roughly into three principal parts. The tetraethyl lead area includes the six matching red tile and brick buildings in the left foreground. Sodium and chlorine are manufactured in the large building with three wings, behind the tetraethyl lead area. On the right are the steel-framed units where ethyl chloride and ethylene dichloride are produced. These and other chemicals are needed to manufacture "Ethyl" fluid. The Plant also manufactures chemicals useful in controlling insect pests.

Other buildings shown include a hydrogen chloride plant in the left distance, with four furnace stacks, and in the foreground, the administration building, change houses, cafeteria, medical and personnel building and control laboratory. Not shown are the development laboratory and pilot plant, the storage area, the drumming plant and the agricultural chemicals plants.

Here's how the Ethyl Plant works

SHOWN HERE is a schematic drawing of the Ethyl Plant, which you saw on the preceding pages.

One of the Plant's interesting processes is breaking down common table salt by electricity into its two elements — sodium, a soft silverlike metal — and chlorine gas. Ethyl uses every year about a third as much salt as all the homes of America.

Ethyl chloride — a clear, colorless liquid — is made by the chemical reaction of ethylene gas and hydrogen chloride. The Ethyl Plant was the first to use this modern process.

In the tetraethyl lead area, sodium and lead are melted and mixed to form lead-sodium alloy, which is then reduced to small pieces the size of cornflakes. This alloy is reacted with ethyl chloride to produce raw tetraethyl lead, a colorless, oily liquid about twice as heavy as water. It is distilled and treated further before being sent to the blending plant.

In the blending plant, dye and other chemicals are added to tetraethyl lead to make "Ethyl" antiknock compound. Then it is loaded into specially constructed tank cars or drums, and shipped to more than 200 oil refining companies, which use it to improve regular and premium gasolines.

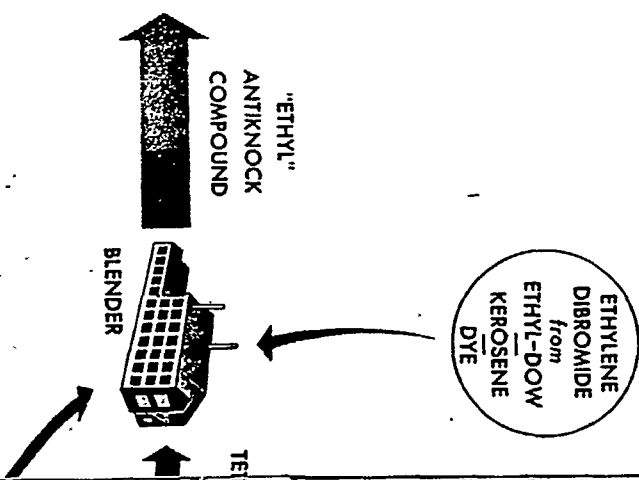
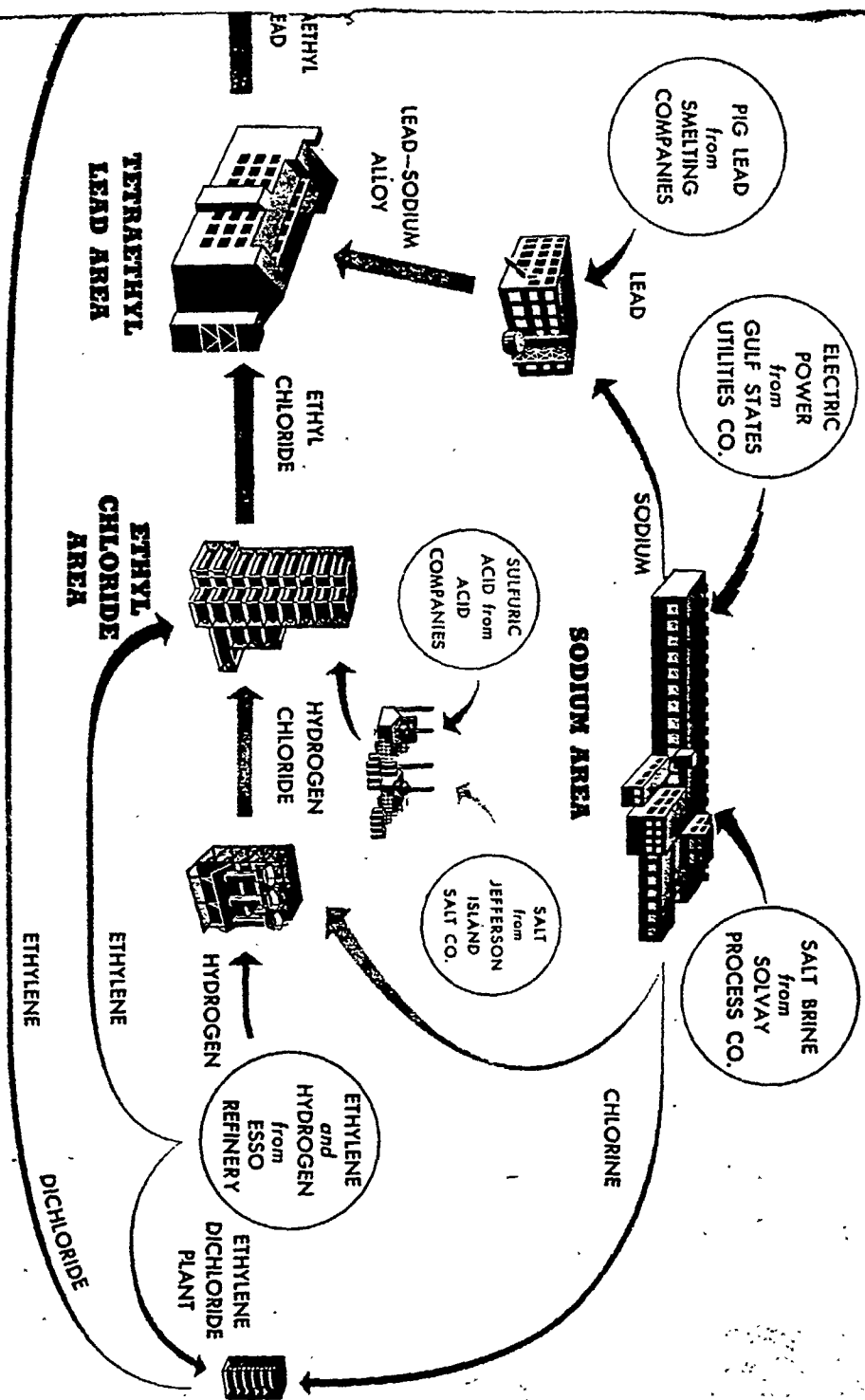
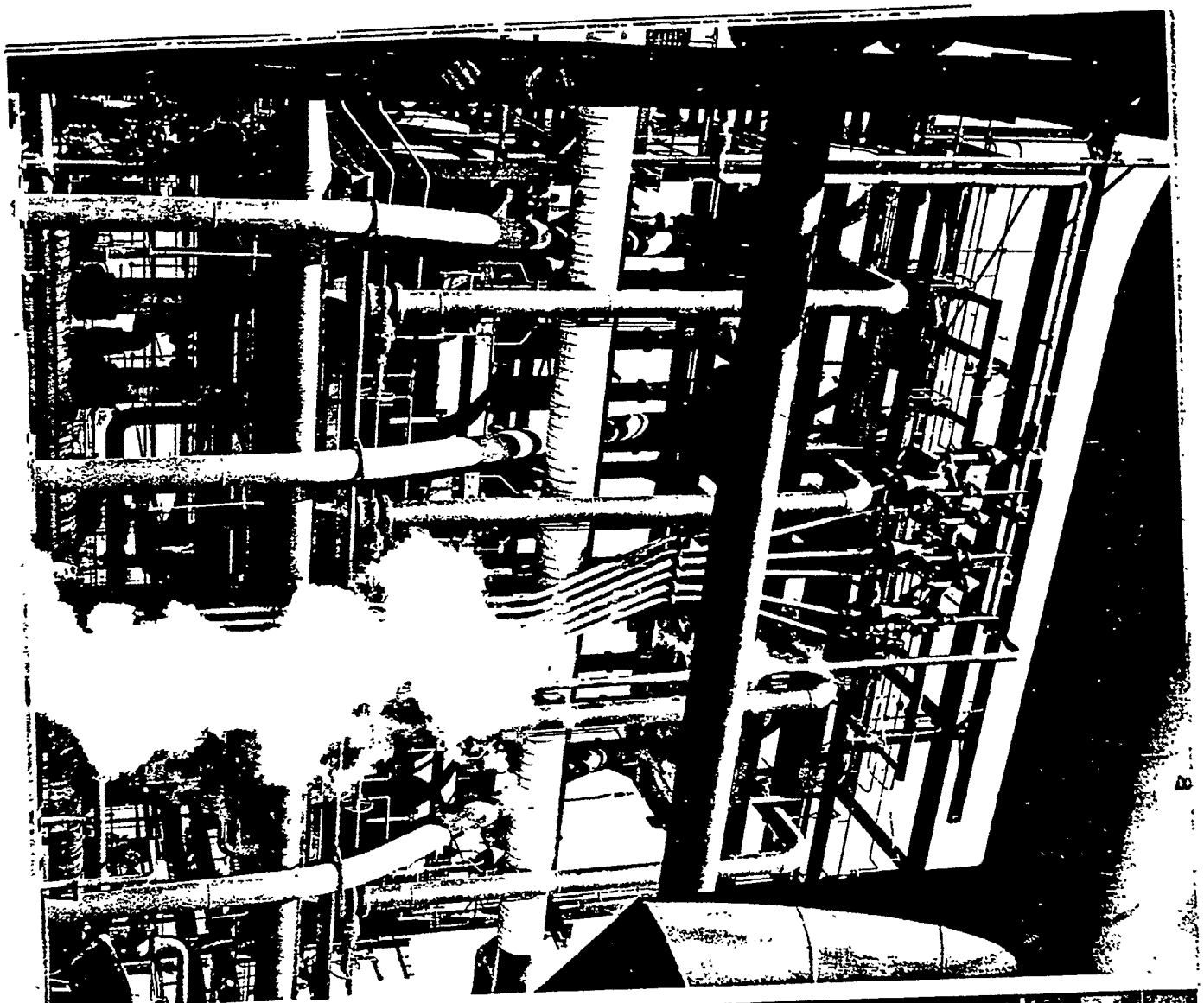


CHART-BATON ROUGE PLANT



SHOW SOURCES OF MAJOR RAW MATERIALS, CHEMICALS AND SUPPLIES NOT PRODUCED AT THE PLANT)





PRODUCING MILLIONS of pounds of "Ethyl" antiknock compound every week requires not only elaborate manufacturing units, but extensive auxiliary installations as well. Some of these are among the most unique of their kind anywhere.

1. A jet refrigeration unit, the largest ever built, cools 24,000,000 gallons of water a day for use in various manufacturing steps. Enough heat is removed from the water to melt 8,000,000 pounds of ice every twenty-four hours.

2. An intricate system of flumes, sluice-gates, precipitator basins and filters is used to purify some 30,000,000 gallons of water which the Plant draws from the Mississippi River daily. At times the Plant removes as much as 250 tons of mud a day from the water it treats.

3. The Plant's Shops and Stores Building is its most important service center. This is one of the lathes, where part of a unit used in tetraethyl lead production is being repaired. The lathe is capable of turning a propeller shaft of a diameter big enough to drive the Queen Elizabeth, the world's largest liner.

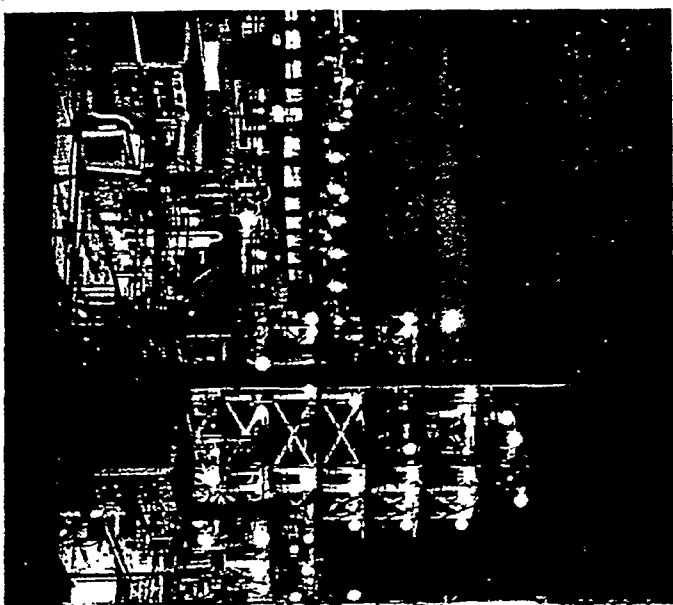
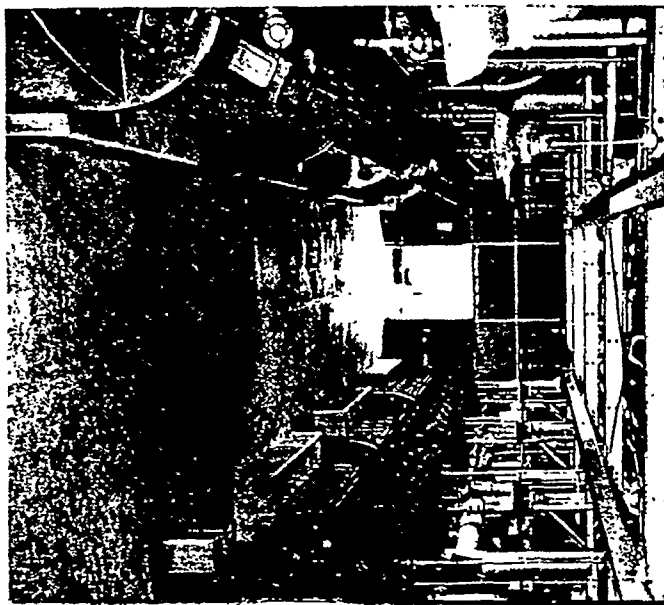
1. In the manufacture of ethyl chloride, temperatures as low as -142°F are required. These huge batteries of compressors are part of the ethyl chloride cooling system, which operates like the cooling system in your electric refrigerator at home.

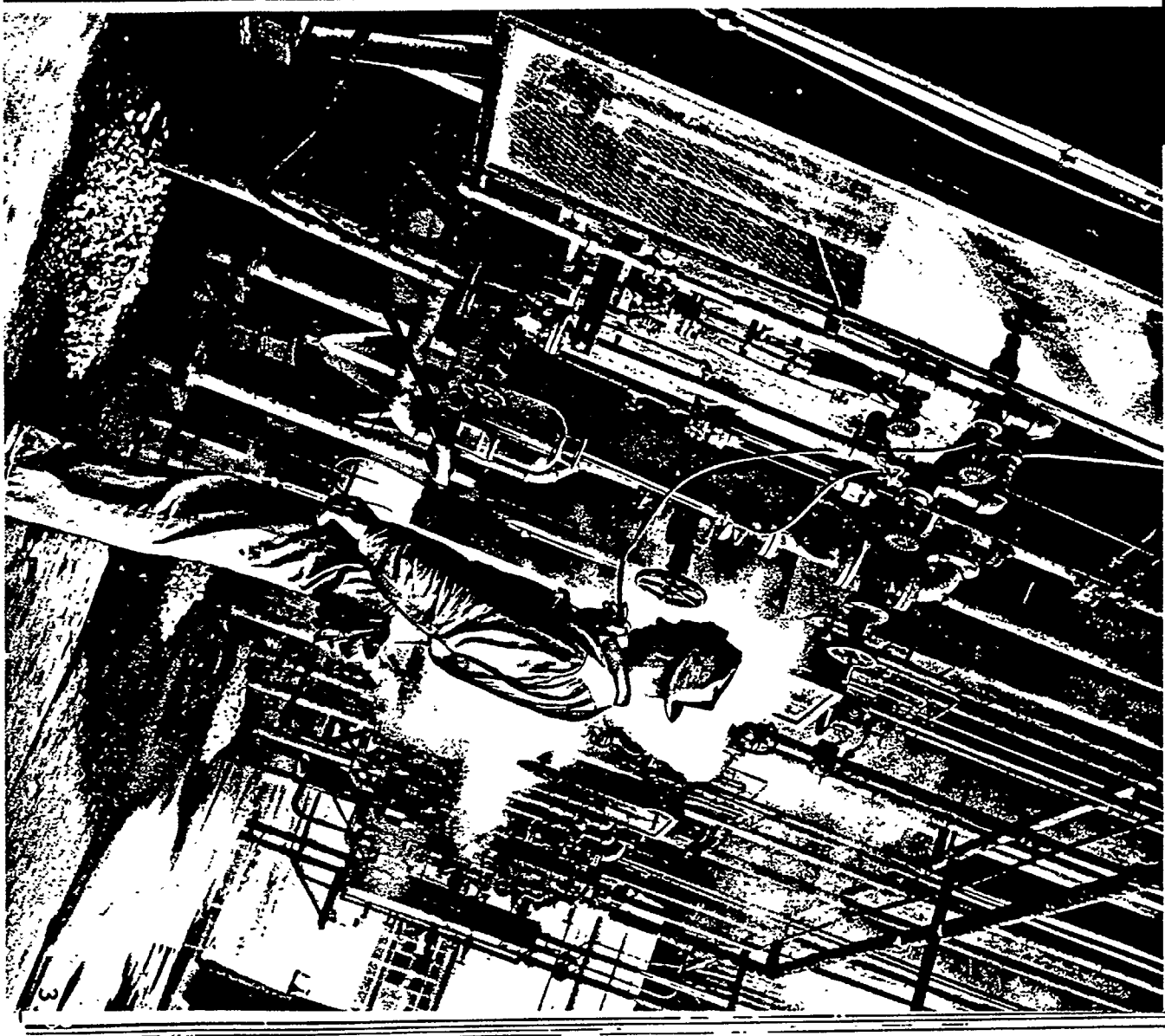
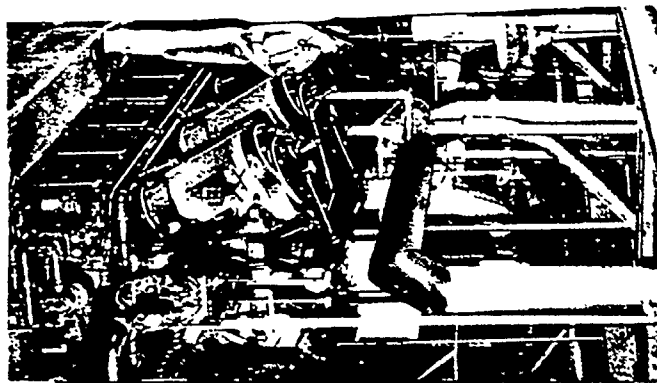
2. A night view of part of the ethyl chloride area of the Plant. Over half of America's supplies of this chemical are made in Baton Rouge, by a modern process which yields a product better than 99.5% pure.

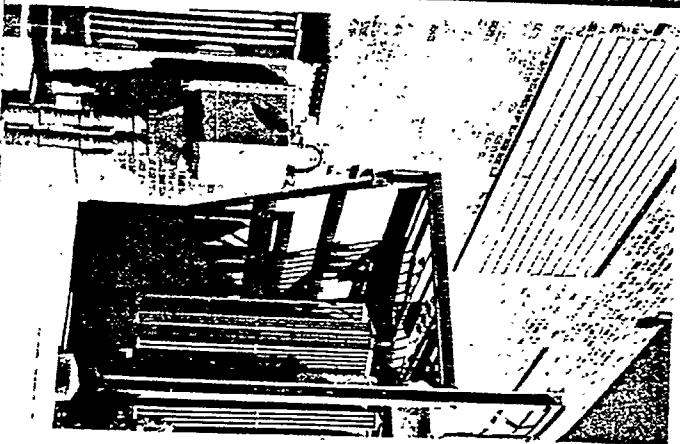
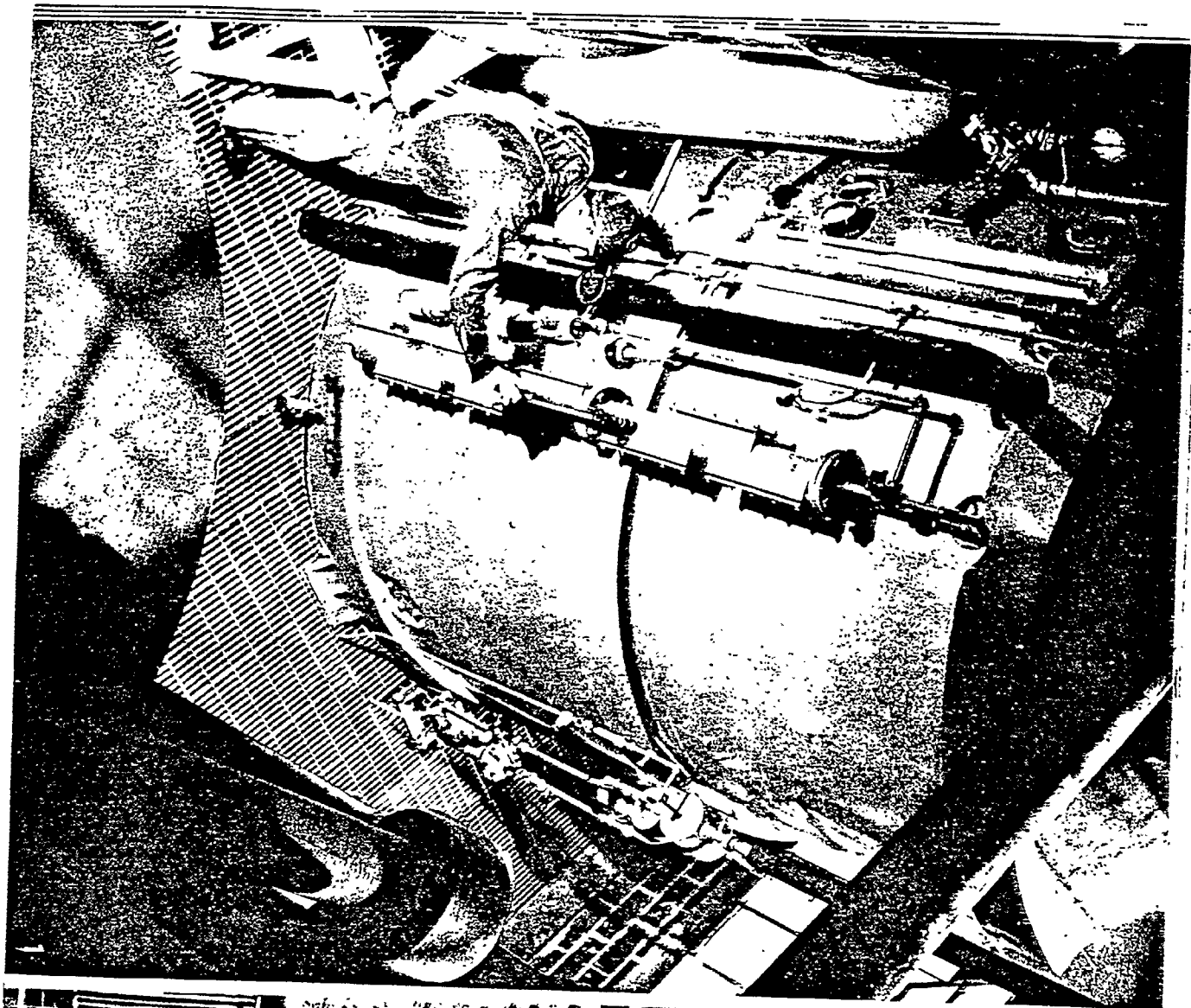
3. In these heavy steel columns hydrogen and chlorine are combined to form hydrogen chloride, one of the intermediate chemicals used in ethyl chloride manufacture. Hydrogen chloride is also made at the Plant's Mannheim furnaces by heating sulfuric acid and salt to 1500°F .

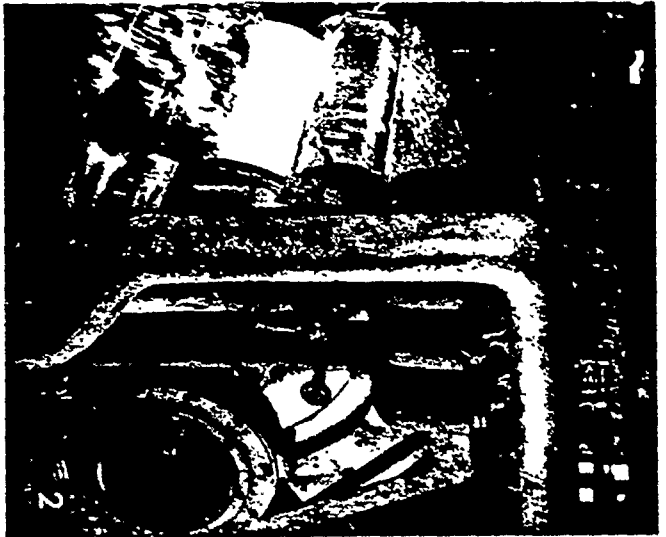
Ethyl chloride is highly useful industrially. Besides its importance in "Ethyl" antiknock compound, it is used as a refrigerant, as a catalyst in making synthetic rubber, and as a base for certain plastics. Dentists sometimes use it to deaden pain.

Page 14









1. Salt is piped into the Plant with water, as salt brine. In converting it to dry salt, it must go through one of twelve multiple stage salt evaporators like this. Ethyl uses more than 100,000,000 gallons of salt brine a year.

2. Before salt is broken down into sodium and chlorine, it must be purer than the salt you use on your dining room table. This filter is part of the Plant's salt purification equipment.

3. Huge transformers like these are part of the Plant's complex electrical system. Ethyl requires over 1,500,000 kilowatt hours of electricity a day, or twice as much as the rest of the city of Baton Rouge.

Few other metals have so many different uses as sodium. The largest industrial use is in making "Ethyl" antiknock fluid, but sodium is also needed to make sulfa drugs, pharmaceuticals, soaps and detergents, nylon stockings, paper pulp, dyes, locomotive bearings, and even cosmetics. It cools engine valves, lights street lamps, helps refine pure gold, and some day may help power rockets and guided missiles. Sodium has been used successfully as a heat transfer agent in putting atomic energy to work.



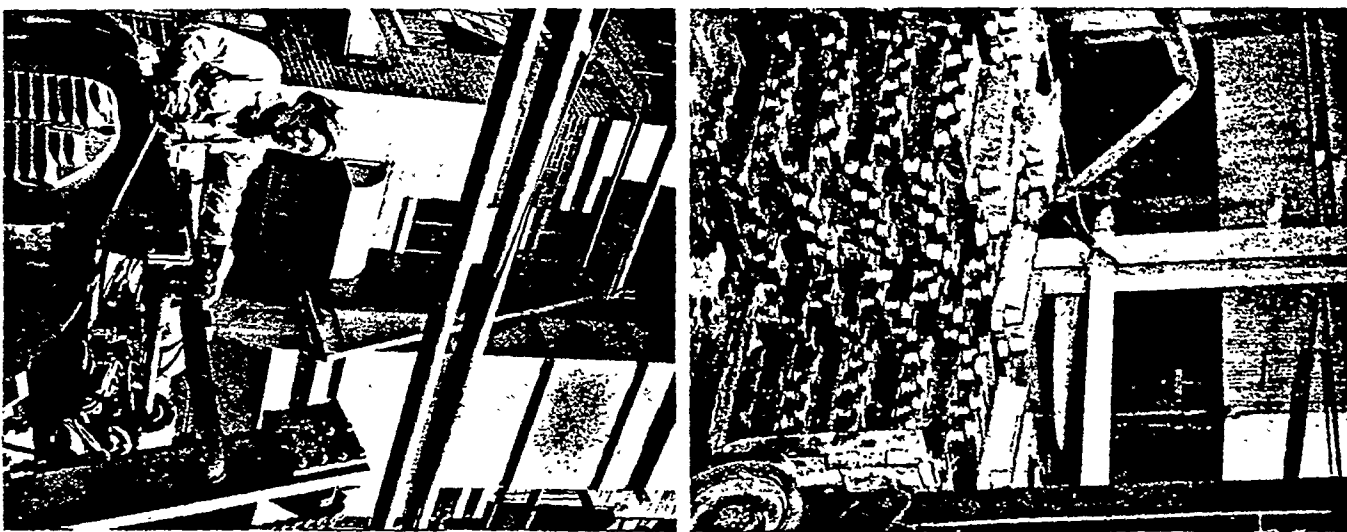
1. A major consumer of lead, the Ethyl Plant uses millions of pounds a year for tetraethyl lead manufacturing. Here 100-lb. pigs of the metal are being unloaded from freight cars for processing. Large lead inventories are usually maintained.

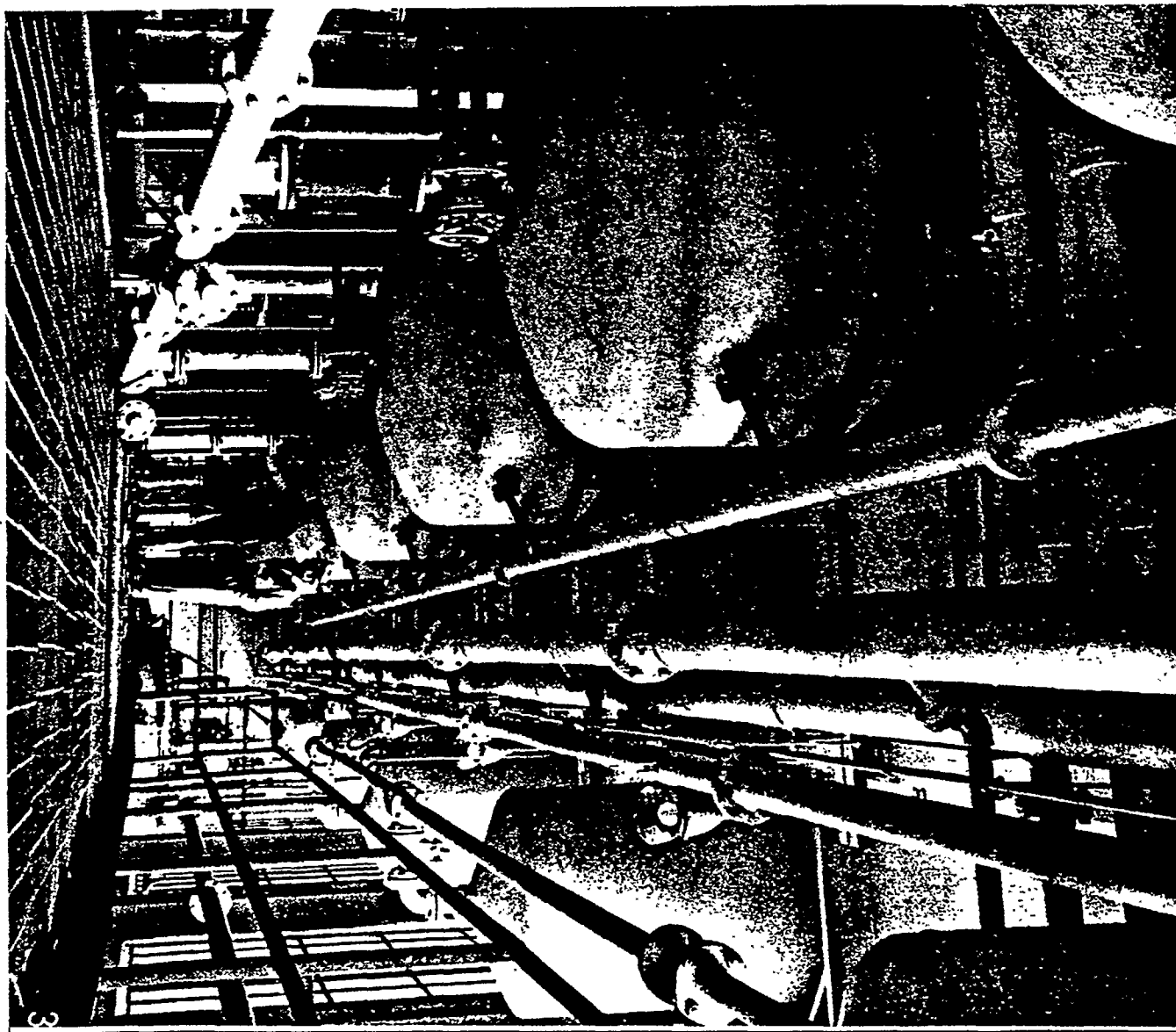
2. Here lead-sodium alloy is being transported in hoppers from the alloy building to a tetraethyl lead building. The alloy will be reacted with ethyl chloride to produce raw tetraethyl lead.

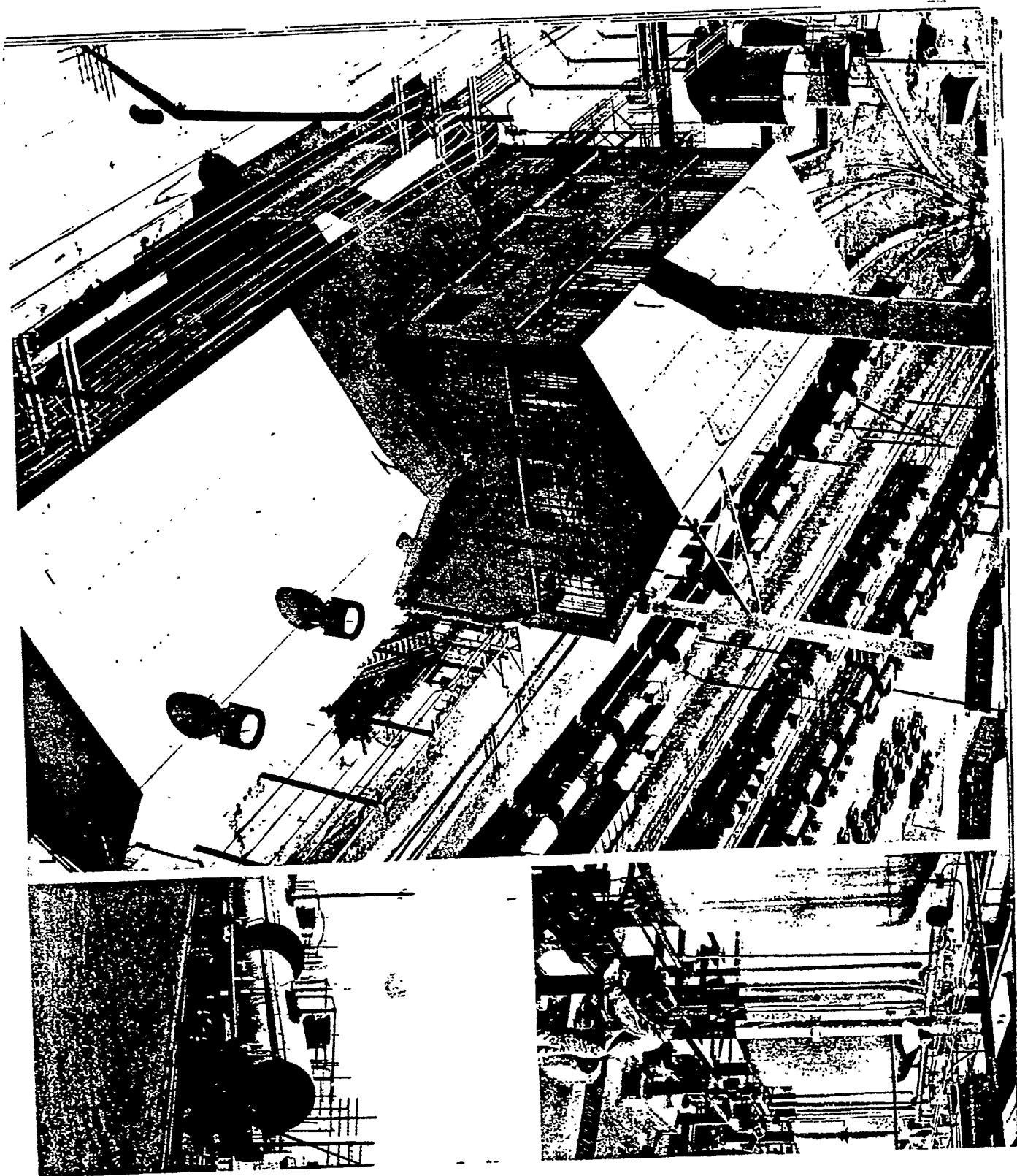
3. In these units, tetraethyl lead is separated from other reaction products by steam distillation. It is then piped to wash houses for purification before being sent to the blending plant.

The Ethyl Plant has produced over two billion pounds of tetraethyl lead since operations began in 1937. That much tetraethyl lead would be required in the "Ethyl" antiknock compound needed to make more than 300 billion gallons of "Ethyl" gasoline. And that much gasoline would drive every one of the nation's 46 million cars more than three times around the world at the equator.

Page 18









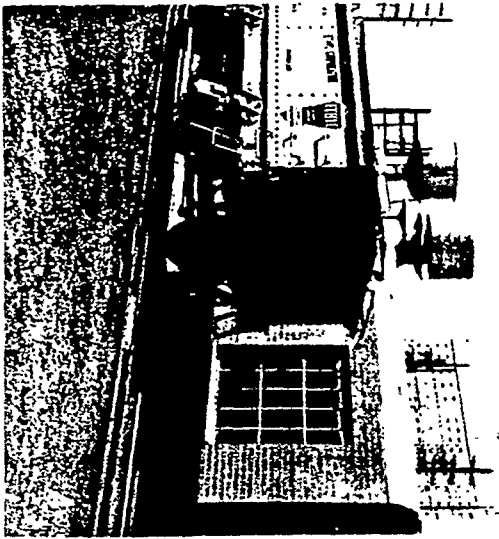
1. This is where tetraethyl lead and other chemicals are blended together into "Ethyl" antiknock fluid. The finished antiknock compound is chemically analyzed twice — once before and once during the loading operation.

2. All ingredients of "Ethyl" fluid are precisely weighed and proportions checked during blending operations, and before the product is shipped. Each carload is weighed in these scales before being loaded, and then weighed again on track scales.

3. Many tests are run during every step of the manufacture of "Ethyl" antiknock compound. Here laboratory analyses assure that strict quality specifications are met.

4. Track scales are checked with this special test car. They are also tested by the inspection bureau of the railroad.

The Company has a fleet of over 700 specially designed tank cars for shipping Ethyl products to customers. They cover approximately 15 million miles annually. "Ethyl" antiknock compound is also shipped in drums from Baton Rouge. Field terminals on the East and West coasts, supplied by our Baton Rouge and Houston Plants, handle auxiliary shipments to customer refiners.



NOT ONE OUNCE of "Ethyl" antiknock compound could be produced in this modern chemical plant without the help of dependable, capable employees.

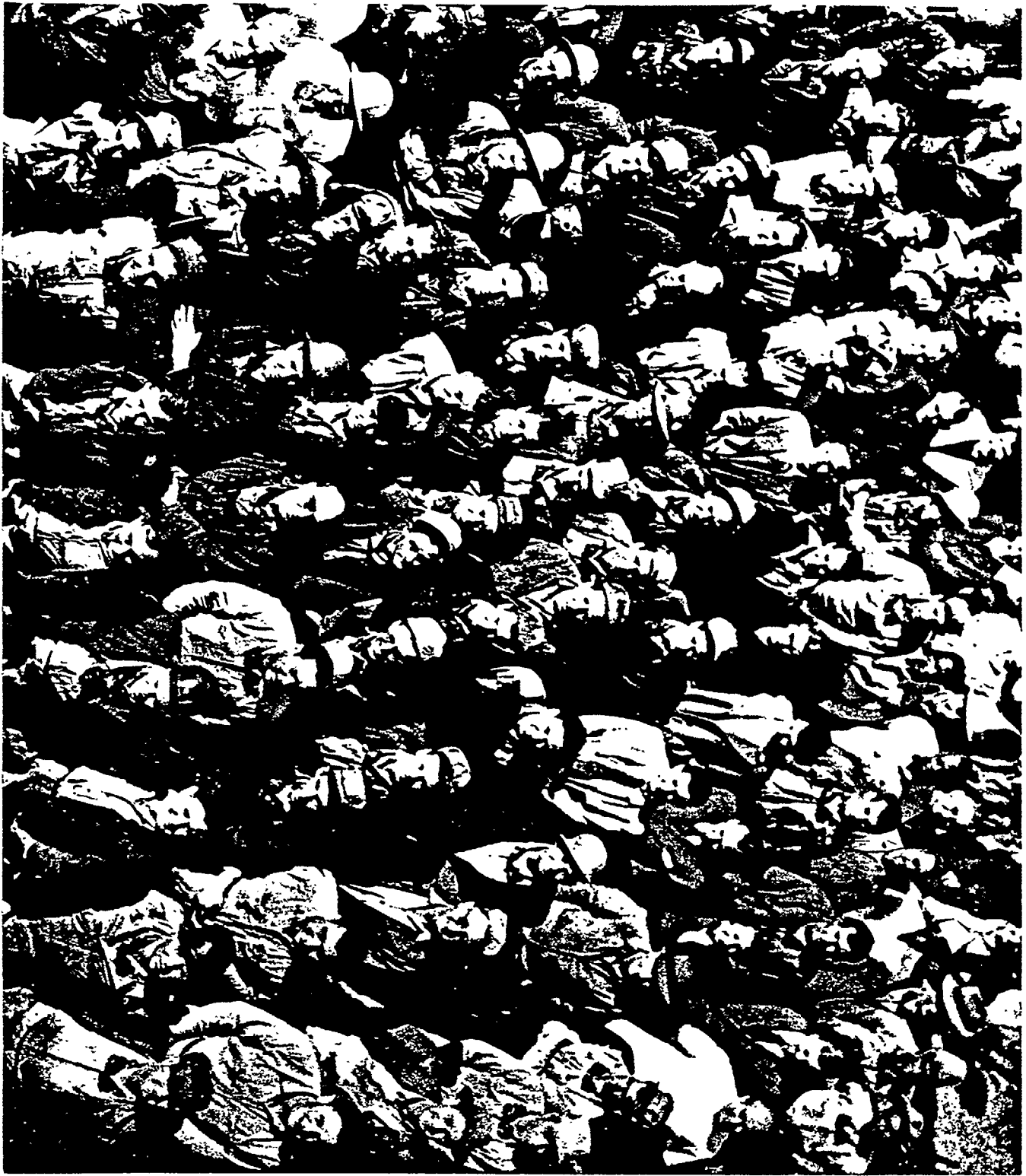
Four thousand men and women earn a good living at the Ethyl Plant. In addition to the employees who make the various chemicals required for "Ethyl" antiknock fluid, many more are needed to keep the Plant in good working order. Others are concerned with efficiency of production. Still others are working on the problems of tomorrow. All told, about one out of ten Baton Rouge families gains a livelihood from the Company.

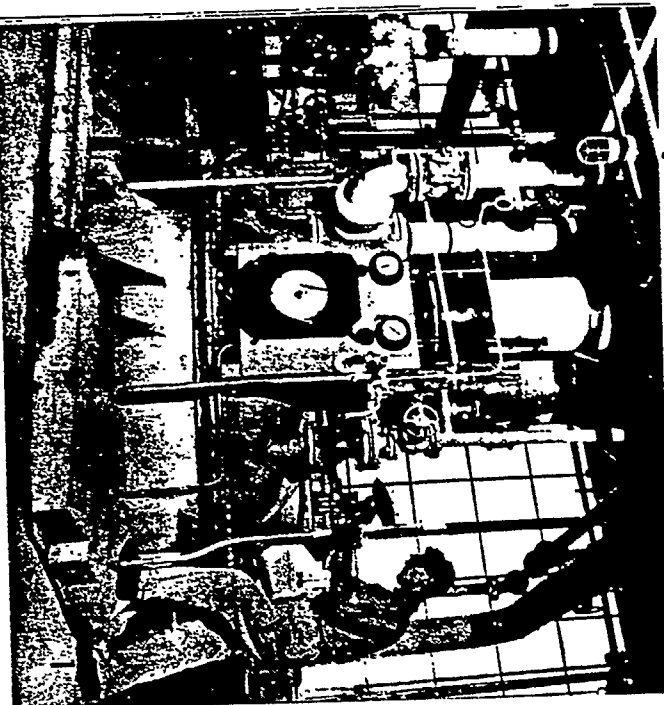
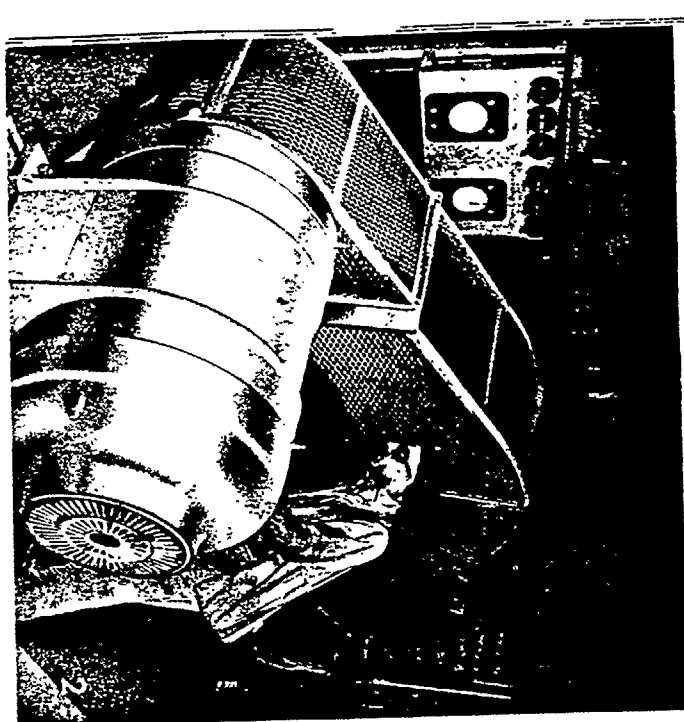
One way to show that Ethyl people like their jobs is that our employees stay with us for a long time. In fact the turnover of personnel in the average industry is 10 times greater than at the Ethyl Plant. Ethyl's promotion system also encourages advancement — promotions to supervisory jobs have occurred on the average of one every twelve days in recent years.

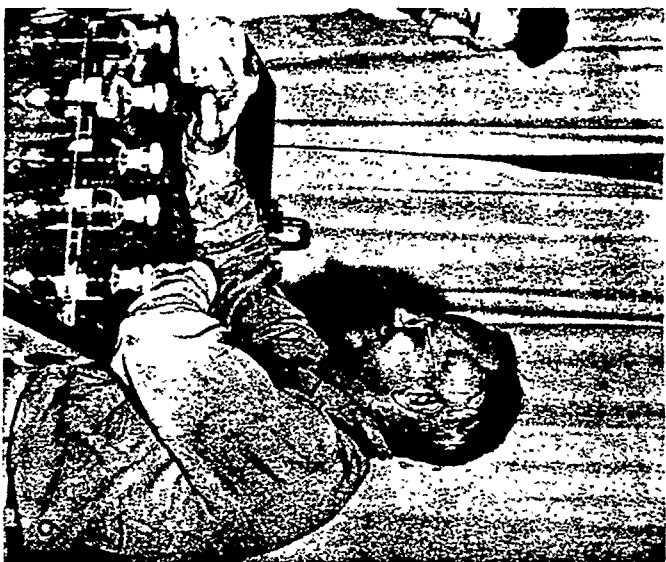
The skill and experience of the men and women of the Ethyl Plant is its outstanding characteristic. Through their efforts the Ethyl Corporation manufactures an outstanding product.

Page 22







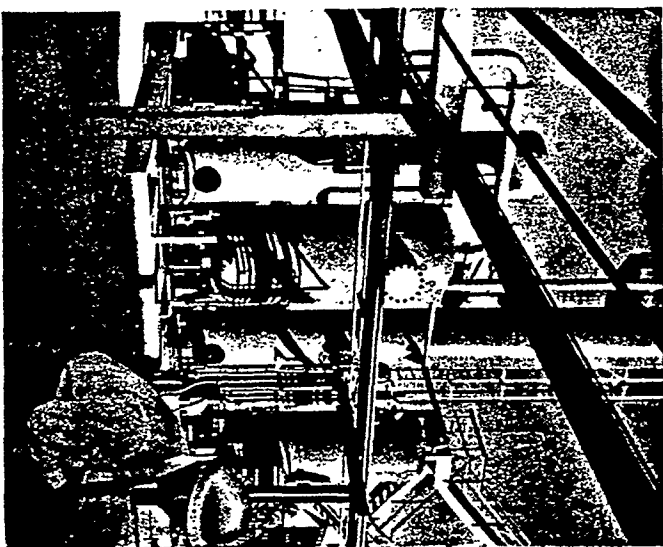
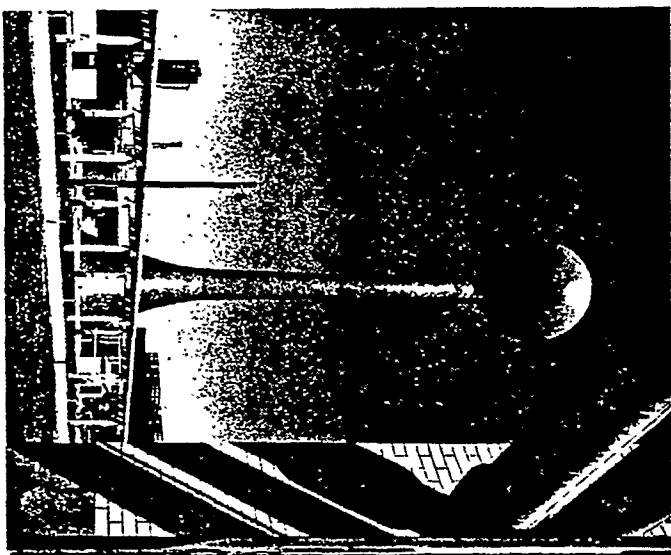


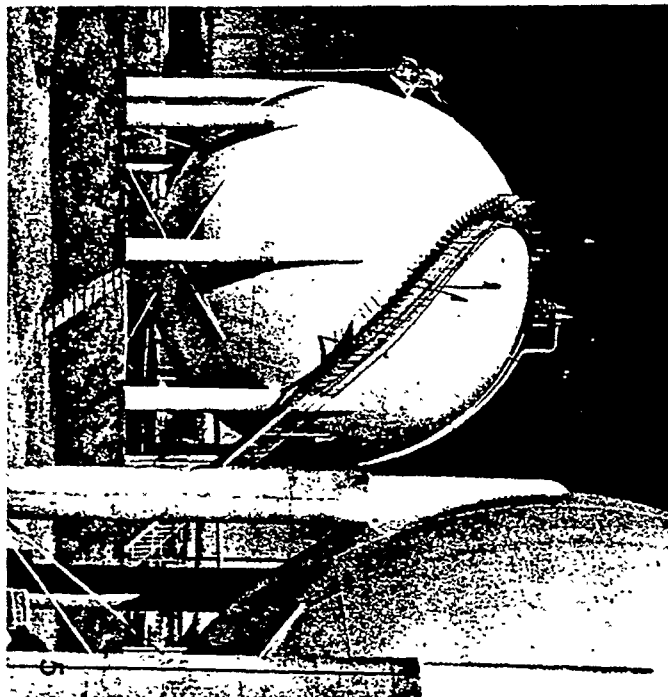
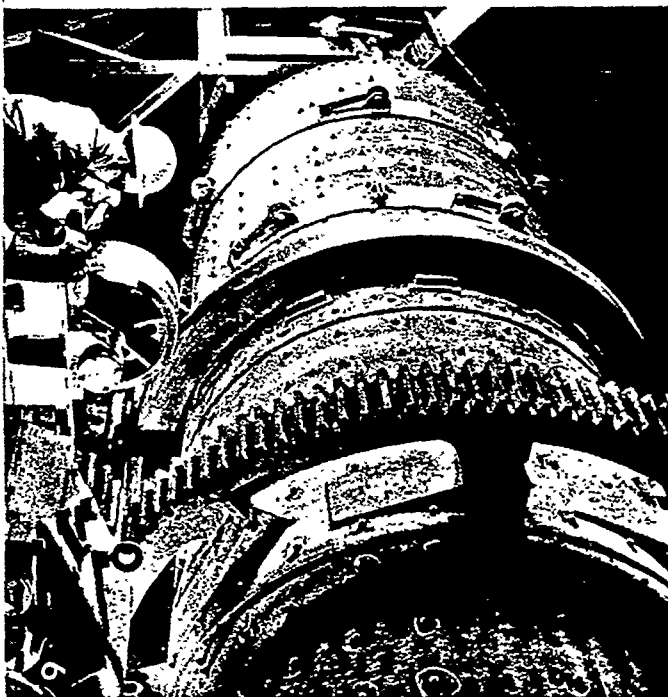
1. Ethyl employees have **GOOD WORKING CONDITIONS**. Everyone has the best tools and equipment to work with, in clean, modern buildings.
2. "**SAFETY FIRST**" is more than a slogan at Ethyl. The Plant holds the highest safety honor given by the National Safety Council, the Distinguished Service to Safety Award.
3. Ethyl employees *and* their families enjoy a year-round **ATHLETIC AND RECREATION PROGRAM** conducted by the Ethyl Recreation Association. It sponsors athletics, social events, children's camps and other activities.
4. Ethyl provides employees with one of the best **RETIREMENT INCOME PLANS** in industry. For every dollar put up by employees, the company puts up more than three. At retirement, an employee receives this income for life.
5. Nearly all Ethyl people are covered by **GROUP LIFE INSURANCE**. Other regular benefits include **ACCIDENT AND SICKNESS PROTECTION**, and **HOSPITALIZATION AND SURGICAL PLANS**.
6. Ethyl has one of the most progressive **MEDICAL DEPARTMENTS** in all industry — always ready to provide employees with prompt on-the-job medical attention.

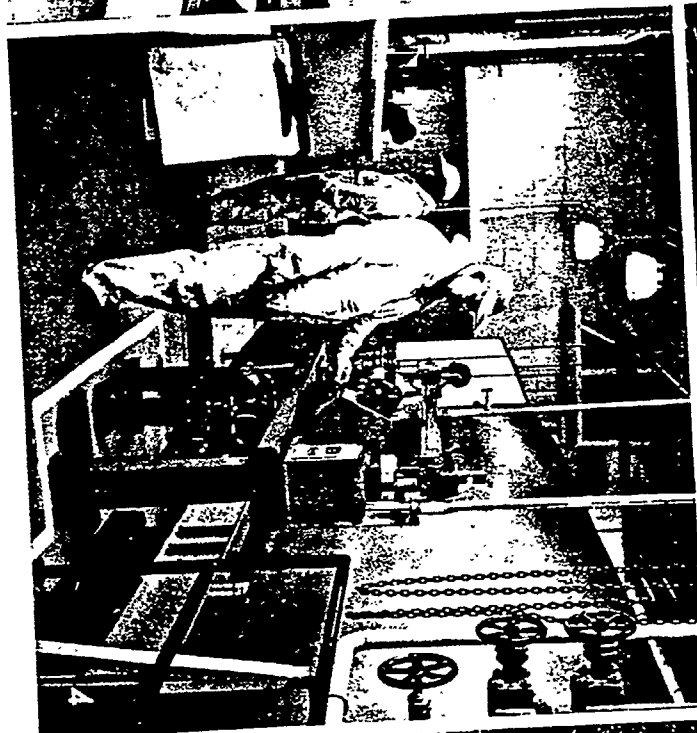
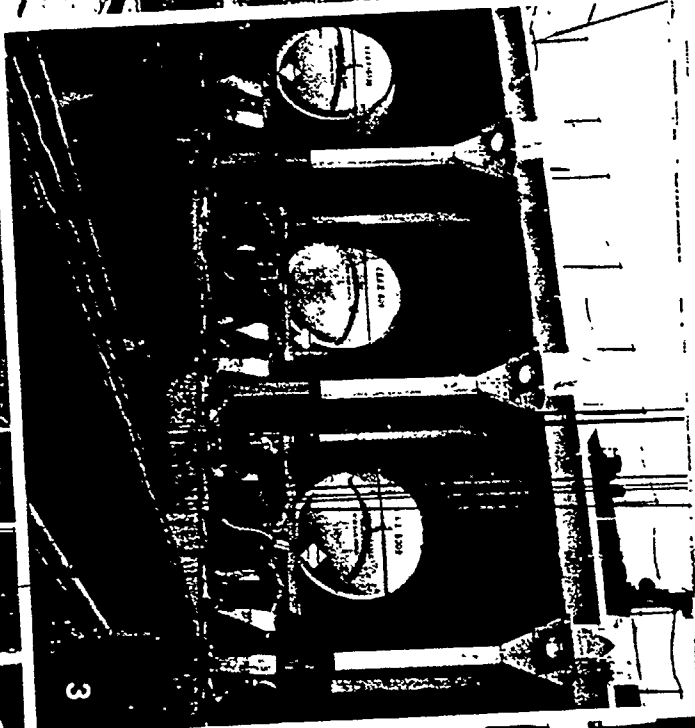
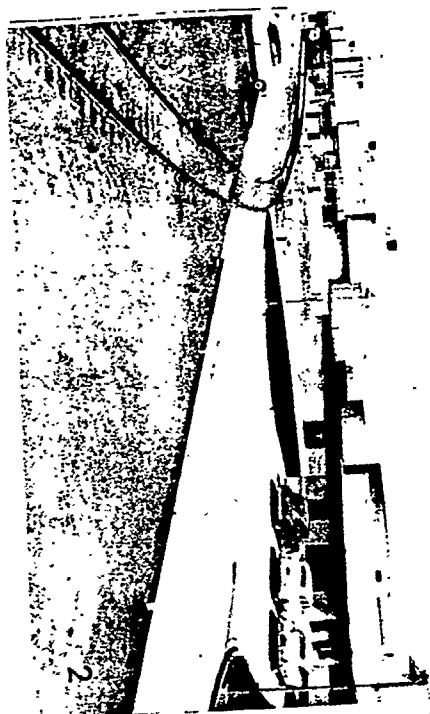
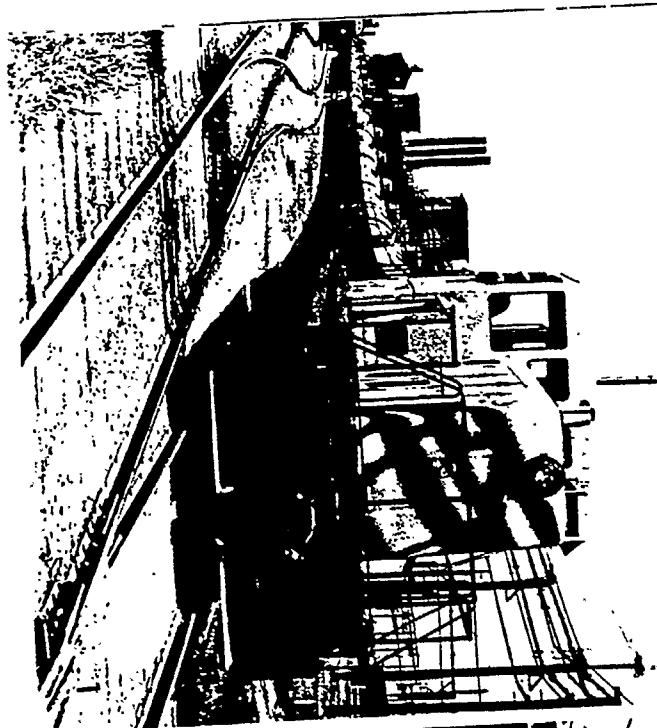
COMPLETED in the Spring of 1952, the Houston Plant was built to give the nation's refiners added assurance that in peace or war, they can depend on two Ethyl centers to help them provide high antiknock quality gasoline for civilian and military needs.

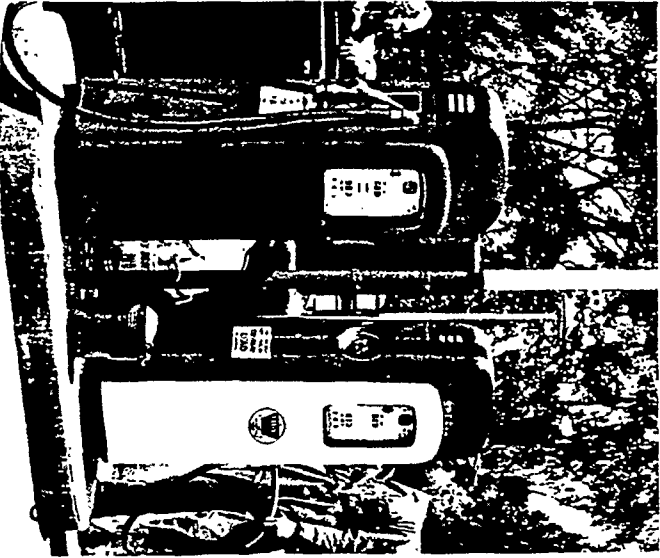
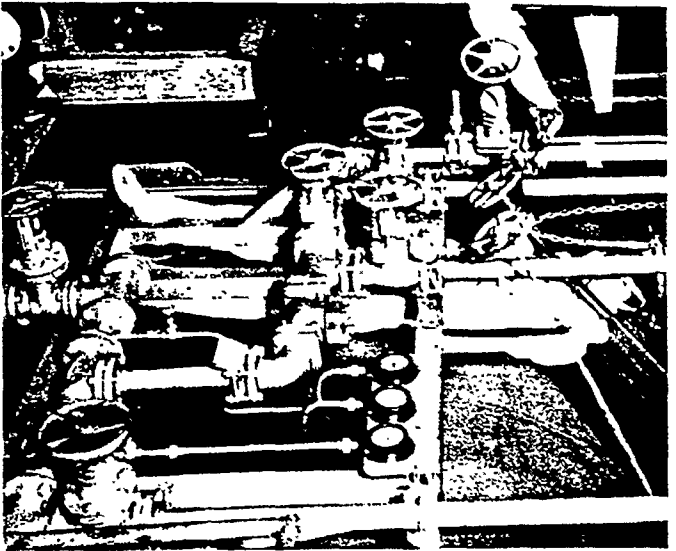
Installations at Houston include many improvements developed at the Baton Rouge Plant. Both manufacturing centers use the same basic processes. They are independent of one another and are fully integrated, and yet each can help supply the other's needs if necessary. Houston is producing about 25 % of Ethyl's antiknock fluid. The plant's buildings cover 80 acres of a 400-acre tract.

1. The distinctive 100,000-gallon water tower.
2. Hydrogen chloride gas is manufactured here.
3. The tetraethyl lead building.
4. This "chemical cannon" is an ethyl chloride reactor.
5. Hortonspheres store reserve supplies of chemicals.
6. Revolving oven used to dry salt.



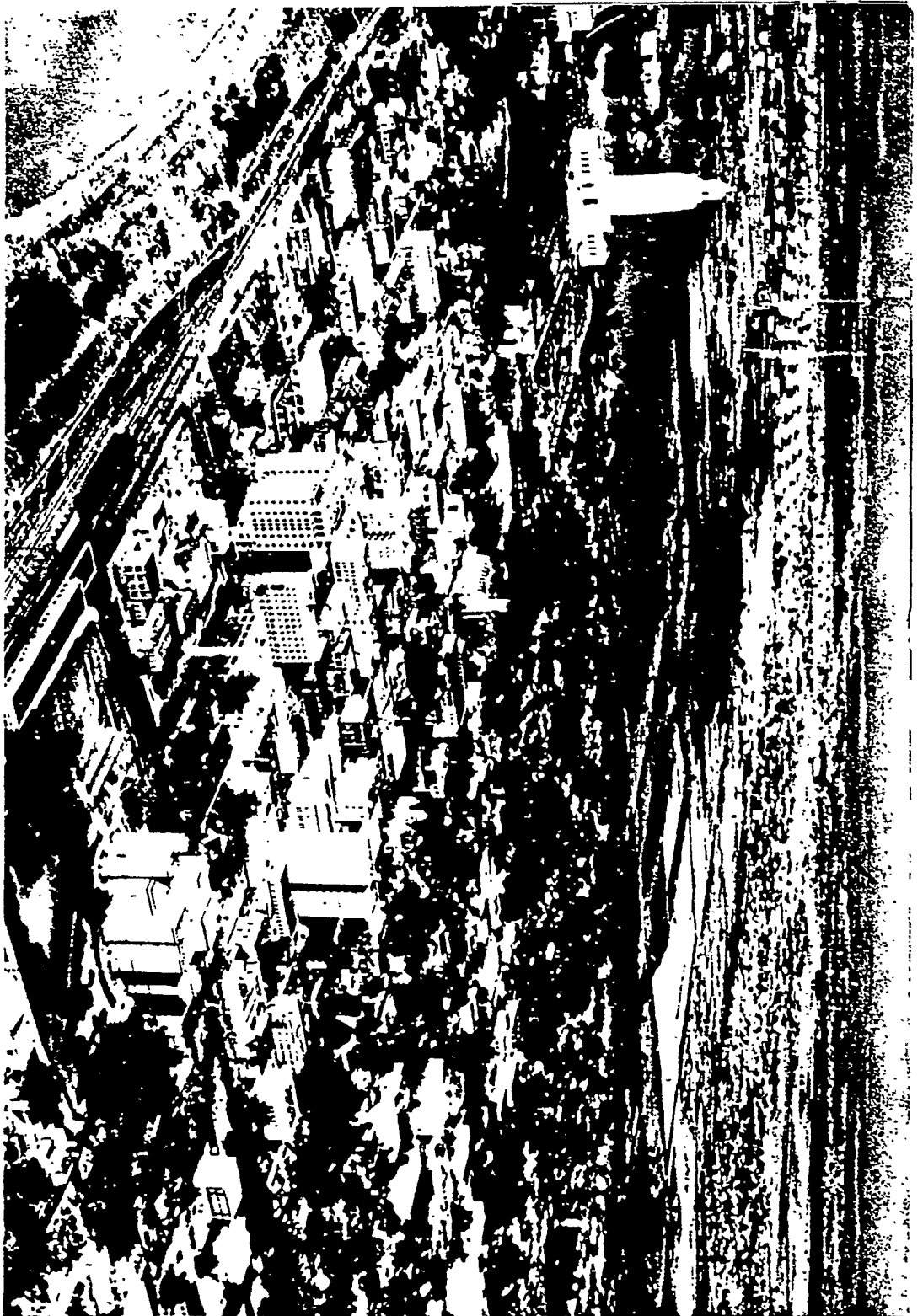






COMPLEX arrangements are required to help bring you high octane gasoline. Ethyl Corporation has extensive services for the oil industry to help make enough of this motor fuel available to you everywhere and at all times.

1. A train of tank cars loaded with antiknock compound leaving the Baton Rouge Plant for customers all over the country.
2. Field terminals on the East and West coasts serve as secondary supply sources for Ethyl customers. This is the terminal at Wilmington, California.
3. Some orders go part way by sea-train. Here tank cars are being shipped from New Orleans for some refineries.
4. Scales at the Edge Moor, Delaware, field terminal. Tank car or tank truck shipments from the terminals are always carefully checked.
5. "Ethyl" antiknock compound being added to high quality gasoline at a leading refinery.
6. When you buy the best grade of your favorite gasoline, it usually contains antiknock compound made in Baton Rouge.



AN AIR VIEW OF DOWNTOWN BATON ROUGE, with the beautiful State Capitol on the left. Founded by French pioneers, the city has grown from a river trading post to a thriving community of close to 142,000 people. The great refining, chemical and manufacturing area in the background makes Baton Rouge one of the most important industrial centers of its kind in the South.

General Information, About Baton Rouge

Air Lines — 3; Delta-Chicago & Southern Air Lines, Eastern Air Lines, and Southern Airways.

Airports — 1 commercial and instruction field (Ryan) and 1 (Old Parish Airport) for private flying.

Area — City limits include 30 square miles.

Capitol — State Capitol is tallest building (450 feet) in South; one of most beautiful in nation, containing marble from every marble-producing state and nation in the world. Located on 27 acres of landscaped grounds, it was built in 14 months at a cost of \$5,000,000.

Churches — 187, representing 15 denominations.

Climate — Mean average temperature, Summer, 82.7, Winter, 56.4; average annual rainfall, 52.29 inches.

Electric Power — Interconnected with system having 406,000 K. W. capacity, new local and system additions under construction.

Financial Data — 4 banks with total deposits of \$164,998,272 and total resources of \$174,683,707. Four building and loan associations, with total assets of \$36,957,243.

Form of Government — Mayor-president, city-parish (county) government.

Fuel — Natural gas, nearby fields and pipe lines connected to reserves of trillions of cubic feet.

Highways — 4 national: U. S. 61-65; U. S. 71 (Jefferson Highway); U. S. 190 (Evangeline Highway).

Hospitals — 2, with a total of 550 beds.

Hotels — 3, with a total of 500 rooms.

Industries — 218 industrial plants, with a total employment of 20,000 and a total payroll of nearly \$90,000,000 annually.

Libraries — 2, state and parish.

Natural Resources — Oil, natural gas, sand, gravel, clay and timber.

Newspapers — 3 dailies, 1 morning and 2 evening; 2 weeklies.

Population — 141,800.

Port — 13th largest in nation, and farthest inland deep water port, with 35-foot channel. Total tonnage (1952) 14,473,503.

Radio and Television Stations — WJBO 1150 KC, WLCS 910 KC, WAFB 1460 KC, WIBR 1300 KC, WXOK 1260 KC, WBRL-FM, 98.1 MC; WLCS-FB, 101 MC; WAFB-FM, 104.3 MC; WLSU-FM, 91.7 MC; WAFB-TV Channel 28.

Sales Tax — 2% State, 1% city.

Taxes — An average of 33 mills is levied in the city and an average of 25 mills is levied in the parish. Special levies for special purposes occur in some portions of the city and parish. These basic figures include state, parish, schools, recreation and city taxes.

Tourist Courts — 25, with a total of 550 rooms.

Trade — Retail establishments employing 9,600 people with an annual payroll of \$23,360,000, wholesale establishments employing 2,250 with an annual payroll of \$8,640,000.

Transportation — 3 trunk line railroads; Illinois Central, Louisiana & Arkansas-Kansas City Southern, Missouri Pacific, Texas & Pacific interconnection just west of Mississippi River. 3 bus lines: Teche Greyhound, Continental Trailways and GM&O Transport Co. State and Interstate trucking lines serve the city. Barge line service on Mississippi.

Water — Soft as any in nation, tests zero hardness. Unlimited supply from deep wells.

