

PLAINTIFF'S
EXHIBIT

ETCO-113

ETHYL NEWS

1953

ETC 24283

ETHYL NEWS INDEX 1953

AUTOMOTIVE

An Industrial Tale of Two Cities	March-April
"And On Your Right . . ." (sight-seeing tours)	July-August
Linking Our Highways (bridges)	January-February
Off We Go . . . (car vacations)	May-June
Preserving an Era (antique car restoration)	July-August

AVIATION

AAA of the Air (aircraft owners' organization)	January-February
Little Wonder (new diesel model plane engine)	July-August
Miracle Within a Miracle (50 years of flight)	July-August
Parker's Pusher (41-year-old plane)	May-June

CORPORATION ACTIVITIES

Ethyl in the News (personnel items)	May-June
Helping Tomorrow's Scientists Today (third cover)	January-February
Helping to Sell the Best (expanded advertising program)	May-June
It's a Hit! (ad painting to Baseball Hall of Fame)	September-October
Junior Partners in Business (Ethyl's JA company)	May-June
Made in Houston (Ethyl plant's first year)	March-April
Mining the Ocean (bromine for "Ethyl" fluid)	May-June
New Twist for Valves (valve rotation)	May-June
Shipped via E.B.A.X. (tank car delivery)	September-October
Solving the Combustion Mystery	January-February
The Consumer Looks at Lead (address by J. A. Costello)	March-April
The Road Ahead (Transportation Conference)	July-August
2,4,5-T (new product)	March-April

FARM

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Frozen Food Farm	January-February
Judges of the Land (land judging)	May-June

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Accent on Speech (pronunciation habits)	September-October
Hot off the Gridiron (football cartoons)	September-October
Let There Be Light (street lighting)	March-April
New Stars for Old Glory	May-June
"Remember the Alamo!" (third cover)	March-April

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To the Victor (sports trophies)	January-February
War Without End (battle against insects)	September-October
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What Better Mousetrap?	September-October
Where Stands Uncle Sam? (third cover)	July-August
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PETROLEUM

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Spotlight on Grease	September-October
The Road from Hanover (100 years of oil research)	May-June

SPECIAL ISSUE

American Petroleum Institute annual meeting	November-December
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ETHYL NEWS



PHOTOGRAPH BY JIMMY HARRIS

ETC 24286

ETHYL NEWS

Thom Yates, Editor
Richard F. Cook, Associate Editor
Hal Wohanka, Art Director

January-February ★ 1953

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Opinions expressed in signed articles are the authors'. Ethyl News welcomes articles of timely interest submitted from outside sources. Upon request, the editors are glad to grant permission to reprint material appearing in Ethyl News.

Published by Ethyl Corporation, 100 Park Avenue, New York 17, N. Y., manufacturer of "Ethyl" antiknock compounds, used by oil companies to improve the antiknock quality of aviation and motor gasoline.

Edward L. Shea, President
Stanley T. Crossland, Vice President and Treasurer
Herbert A. Savage, Secretary

In the NEWS

The morning of February 2, 1923, was frosty in Dayton, Ohio. Chances are few Daytonians remember it. In Ethyl Corporation annals, however, it is an unforgettable date. It was the day of the first public sale of "Ethyl" gasoline.

In the three decades since, premium gasoline has been responsible for progress in many directions. Some of the things it has meant are told in the story that starts on the following page.

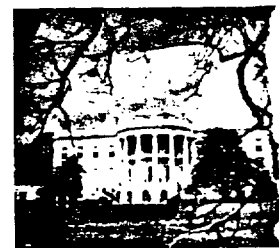
Regarding the "I Do Solemnly Swear . . ." feature, starting on page 6, some 50 oil companies (large and small and headquartered in all sections of the country) were queried in our private survey. Only the cooperation of the proper people in the various companies made possible the results reported, and to those who assisted we are duly grateful.

It all adds up to an encouraging report and assurance that personnel of the oil industry are more than aware of the value of their American freedoms—they're doing something to preserve those liberties.

Also by way of giving credit where credit is due, the color view of the ocean-going tanker on the cover of the special API issue of Ethyl News (December) was from the well-stocked Cities Service Co. photo library, directed by Nicholas Parrino.

One thing we're sure President Eisenhower will learn soon, if he hasn't already, is that the nation's Chief Executive has next to no privacy. Life in the White House, the beautiful, tradition-steeped building pictured on our cover, runs a close second to that in the proverbial goldfish bowl.

The doors of the White House are open the year 'round to anyone who wants to visit it. Last Memorial Day alone, for instance, close to 10,000 people were shown through the Executive Mansion. Dropping in on the nation's first family is another one of those things that can happen only here in the United States.



GASOLINE AT ITS BEST

The benefits of premium gasoline are shared by all—the refiner, the automotive industry, and the motorist

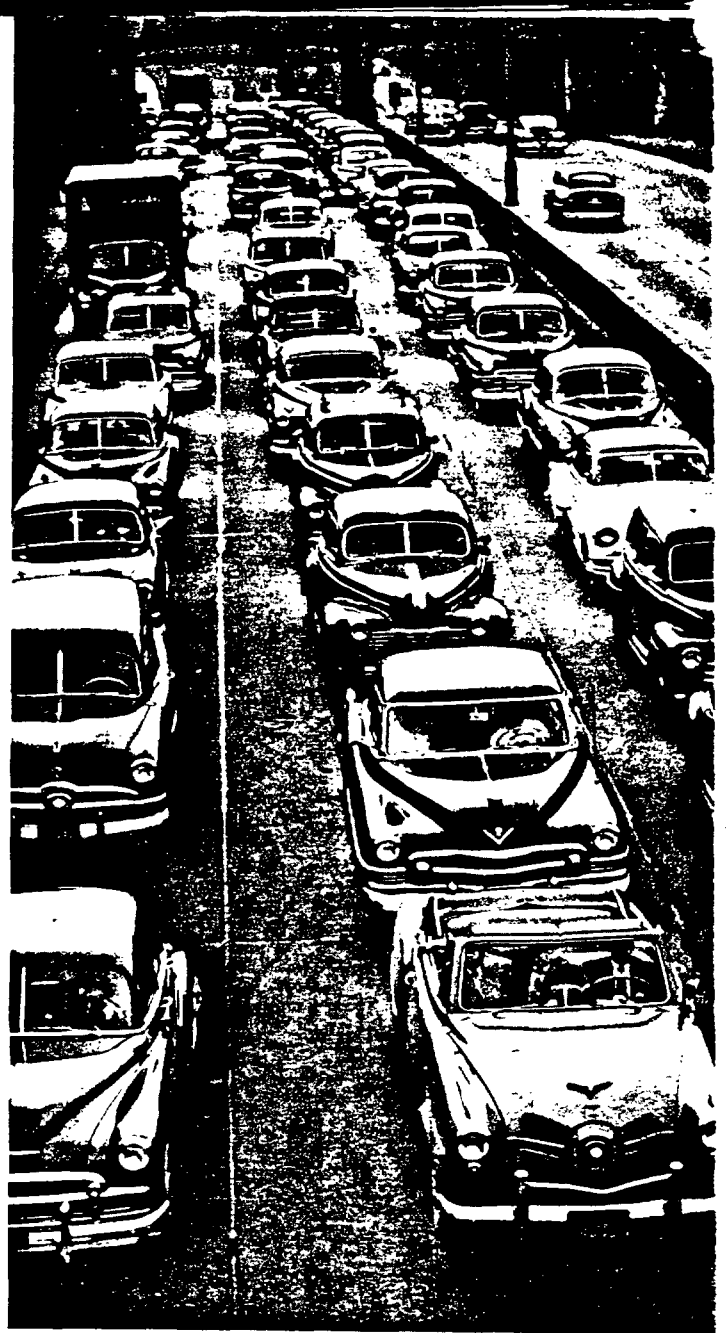
WHEN FUTURE historians get around to evaluating the great achievements of this era, they will have to record that one of the greatest accomplishments of all was the avalanche of new products which kept the American economy growing, vibrant and strong.

All around us today are products and materials that 40, 30 and even ten years ago were either undreamed of or, at best, were laboratory curiosities. So-called wonder drugs, new in this generation, tame pneumonia and other once-dreaded killer diseases. In a modern miracle of communications, we sit in the comfort of our home and watch on the television screen events as they unfold thousands of miles away. Plastic, unknown commercially even a few short years ago, finds hundreds of everyday applications. Synthetic fibers, synthetic rubber—on and on the list extends.

That Day In 1923

Naturally, the petroleum industry and its infant brother, the petrochemical industry, have developed their share of the outpouring of new products which go to make life in America the most comfortable, easiest and happiest ever known. Premium gasoline is a typical — and timely — example of such products.

It was just 30 years ago when premium gasoline, as we now know it, burst upon the American scene. Burst? Well, not really. No bands played, no orators spoke eloquent words, no parades enlivened the day. Actually what happened was that an Ohioan driving to work on the morning of Feb. 2, 1923, noticed that his car was low on fuel. He swung into a service station at the corner of Main and Sixth streets in downtown Dayton, and, in a normal sales transaction, became the



first motorist ever to purchase "Ethyl" gasoline.

But what that event lacked in spectacle it more than made up in significance. The gasoline that sluiced down the pump hose that wintry morning three decades ago was the first of countless billions of gallons of "Ethyl" gasoline which have been marketed since. It is more than coincidence that this acceptance of premium fuel parallels the tremendous strides that have been recorded in automotive and aviation transportation in the past quarter-century.

Contrary to general belief, "Ethyl" gasoline was not the nation's first premium motor fuel. Several were on the market earlier, some of them dating back to 1915,

and they sold for from three to seven cents a gallon over the regular gasolines of the day. Motorists, then as now, were willing to pay a little more for a better product.

Premium gasoline assumed a new importance with the discovery of the antiknock properties of tetraethyl lead by Thomas Midgley, Jr., vice president of Ethyl Corporation until his death in 1944. The research leading to this discovery was under the guidance of Charles F. Kettering, Ethyl's first president. Tetraethyl lead made possible, for the first time, the marketing of premium fuel of uniform antiknock quality.

New Era of Progress

The creation, in 1926, of the octane scale by Ethyl's Dr. Graham Edgar provided a universal yardstick by which that quality could be accurately measured at all times. "Ethyl" gasoline, in turn, opened up a great new era of automotive progress—an era which achieves new heights in the brilliant 1953 models of American cars.

As has been well established over the past three decades, the availability and widespread use of premium gasoline have paid handsome dividends to all concerned—the

petroleum refiner, the automotive manufacturer and the motorist.

For instance, today's high compression ratios and certain other automotive engine advances are attributable in large measure to the added octane numbers of gasoline. Just as it is axiomatic that increased compression ratio provides improved engine power and performance, so is it true that engines of higher compression ratio require fuels of higher antiknock quality in order to perform satisfactorily.

One set of figures tells the story quickly. In 1930, when the high compression engine was just beginning to come into its own, the average standard compression ratio of American-made cars was about 5 to 1. Premium gasoline that year averaged about 70 octane number (Motor). In this year's models, average standard compression ratio is 7.44 to 1, and premium gasoline now averages 91.5 (Research).

A lesser known, but just as significant, value of premium gasoline rests in the fact that improvements in antiknock quality by the addition of currently used quantities of tetraethyl lead permit today's vehicle performance with smaller engines of less weight than otherwise would

be possible. If this same performance were to be maintained with fuels of considerably lower octane number than those presently available, it is almost certain that engine size and weight would have to be increased. The cost of manufacturing such engines would, of course, be higher, running into the millions of dollars annually at current automobile and truck production rates.

A "Cushion"

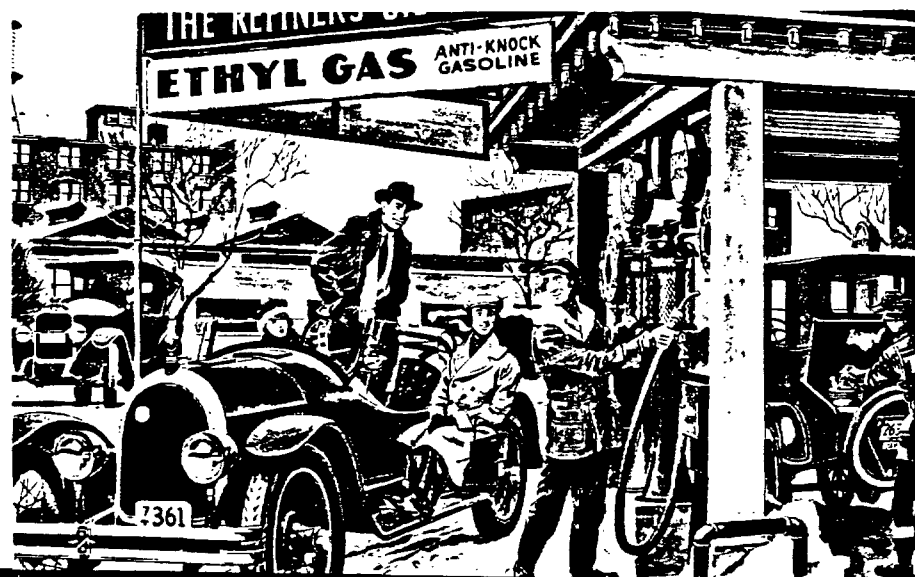
Another outstanding area in which the availability of premium gasoline has contributed materially to automotive progress is in providing a "cushion" for those cars designed to operate on regular grade motor fuel.

As any automotive engineer or fuel technologist knows, there is no assurance that all automobiles of the same make and model will have the same octane requirement. Slight variations in the manufacturing tolerances of the cars, the type of service a vehicle is put to by its owner, and several other factors account for this difference.

When any car, then, requires a better gasoline than originally intended, it is a source of satisfaction to both the motorist and the manufacturer to know that premium fuel of uniform antiknock quality is readily available to take up the gap. Without this "cushion," standard compression ratios would have to be lower. All car owners would be penalized in economy and performance, if that were the case.

Aside from its indispensable contributions to automotive progress, premium gasoline, it is recognized, offers many "plus" values to the petroleum refiner. The year-after-year growth of premium gasoline, stimulated by Ethyl Corporation and gasoline marketers, has been of

This drawing of a car filling up at the first station to sell "Ethyl" gasoline—just 30 years ago—appears in current Ethyl Corporation advertisements





The outstanding progress that has been scored in automotive transportation results from the contributions of both the oil and automobile industries. Premium gasoline has played a major role in that progress by helping to make possible better engines and enabling the oil industry to meet the higher octane requirements of the improved power plants



tangible benefit to the oil industry in at least three important ways:

1. It has enabled refiners to meet the ever-advancing octane requirements of the nation's car population in an orderly manner. As improved engines have been introduced through the years, the oil industry has, by correspondingly increasing the antiknock quality of gasoline, provided the fuels which make it possible for cars to convert more and more of the inherent energy of gasoline into useful power.

2. Premium gasoline, made possible by tetraethyl lead, has permitted the oil industry to plan its capi-

tal expenditures for new equipment more accurately. Refineries are operated primarily on a yield basis, to produce the proper balance of different oil products. In any refinery, the antiknock quality of base gasoline can be varied only slightly without a serious effect on product yield. Still, at the same time, refiners must be prepared to produce gasoline of any reasonable octane number dictated by competition, improved engines, and other factors. Even if cost were not a consideration, the refinery equipment necessary to meet sudden upward advances in gasoline quality could

not be installed overnight. Tetraethyl lead thus is the most economical method of reaching any given high octane number level.

3. The widespread use of premium gasoline has helped the petroleum industry to conserve vast quantities of crude oil. For instance, when the gradual but steady increase in automobile engine average standard compression ratio from about 6 to 1 to the 7 to 1 range was completed a few years ago, it was computed that the resultant fuel economy contributed by tetraethyl lead was approximately ten percent. That was a saving equivalent to all the gasoline to be obtained from 500 oil wells, each producing 1,000 barrels a day. In the 30 years that "Ethyl" gasoline has been on the market, it has been stated, TEL has made possible the conservation of over one billion barrels of crude.

Indispensable Tool

Premium gasoline has truly been an indispensable tool of both the petroleum and automotive industries. That it will continue to fulfill that role is evident from trends in automotive engineering. The next few years, under normal circumstances, can be expected to produce engines of higher compression ratios. The increased octane number requirements of these engines will be satisfied by the mechanical octane numbers built into the engines by the manufacturers and by motor fuels of the highest quality.

Similarly, premium gasoline will continue to serve the motorist as one of the products born of this generation that add so much to his general well-being. As in the past, the motorist whose car is primed to take advantage of premium gasoline will enjoy the superior performance that it provides.

Civic-minded oilmen are serving at all levels of government



Hand on the Bible, John Baker (left in upper right photo) takes the oath of office as mayor of Roseland, N. J. He is assistant sales department office manager for Tide Water Associated in New York City. First named head of the community of 2,700 in 1948, Mr. Baker was re-elected Roseland mayor in 1950 and again last November . . . Two leading oilmen active in government affairs at the national level are (above) U. S. Senator Robert S. Kerr, of Oklahoma, and (below) Robert B. Anderson, of Texas, the newly-installed Secretary of the Navy



I DO SOLEMNLY SWEAR..."



FROM OCEAN to ocean and border to border, oil industry personnel by the hundreds, if not the thousands, are performing the patriotic and civic duty of helping to manage the affairs of government.

It would take long study by a professional fact-finding organization to determine the full extent to which the industry's two million employees are devoting themselves to the often unsung job of assisting in the stewardship of their local communities, counties, states and even the nation. But a spot-check by *Ethyl News* gives some idea.

Coming at a time when, because of the changing administration in Washington, all America is politically minded, the small-scale survey reveals that oil personnel are active in positions of government ranging from town constable to U. S. Senator and President Eisenhower's sub-cabinet. These two national posts are, of course, filled by Robert S. Kerr, president of Kerr-McGee Oil Industries and junior senator from Oklahoma, and Robert B. Anderson, heretofore general manager of the W. T. Waggoner Estate, who is now Secretary of the Navy.



They, however, are the exceptions rather than the rule. The average oil industry employee holding public office, either elective or appointive, is a community or county official, or, as in a few cases, a member of the state legislature.

Two refinery workers, in fact, hold the distinction of being the newly-elected speaker of the House of Representatives in their respective states—Delaware and Wyoming. They are F. Albert Jones, of Sun Oil, and David Foote, Sr., of Standard Oil (Indiana). Among the other oilmen active in state government are G. B. Kiser, of Standard Oil (Kentucky), who is a Kentucky state senator, and Tom Garrett, Jr., of Pan-Am Southern, a representative in the Mississippi legislature.

But, as noted, it is at the local levels of government where the industry's members serve in the greatest number.

In all sections of the country are to be found men who are industrious oil employees by day and faithful, tireless public servants by night, so to speak. In many instances, their official positions pay little or no salary. The main remuneration is the satisfaction of a job well done in serving fellow-citizens and helping to keep alive our democratic form of government.

Make a verbal swing through the

Azel Adams, Continental Oil agent, is a city commissioner in Dallas. He is shown (upper left) in his citation-bedecked office . . . Upper right, carrying out his duties as justice of the peace in Ridley Park, Pa., is John Allen, storehouse supervisor at the Sun Oil Co. refinery at Marcus Hook

nation, starting in Oregon. There, for instance, the voters of Salem and The Dalles have called upon A. W. Loucks and M. A. Davidson, Tide Water Associated distributors, to be their mayors. Down the coast, in California, Daniel M. Bradley and Mel Heinkel, both of Standard Oil of California, are a Richmond city councilman and mayor of El Cerrito, respectively.

If you ever cross paths with the mayor of Whiteface, Texas, you'll find that he is Joe B. Haskins, of Stanolind Oil and Gas. Clyde C. Broam is president of the Andrews county school board and I. B. Lansford heads the Springhill school board. Both are also with Stanolind.

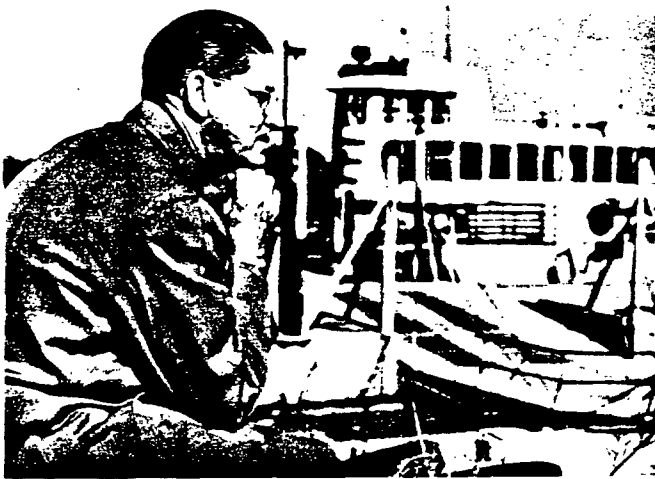
It's the same story in Oklahoma. In the refining towns of Ponca City and Cushing, for instance, Lawrence Cannon, of Continental Oil, is commissioner of finance and

Shown on the Capitol steps in Cheyenne with a colleague in the Wyoming legislature is David Foote, Sr. (right), Standard of Indiana refinery pumper. A veteran lawmaker, he is the new speaker of the House



Above, Robert Pulver, chief engineer at a Socony-Vacuum refinery, serves as water department trustee in the city of Valparaiso, Indiana





Above, V. G. Relimpio, assistant refinery superintendent for Pan-Am Southern, has been president of the police jury in the St. Charles parish of Louisiana for the past 10 years



Above, one of the public servants of Ponca City, Okla., is Lawrence Cannon (center), general control chemist with Continental Oil. He is the city's finance commissioner



James A. Bowlin, Pure Oil refinery senior clerk, has been mayor of Port Neches, Texas, since April, 1951

Lynn E. Faling, of Deep Rock Oil, is a city commissioner, respectively.

Swing over to the other southern states and oilmen there are just as loyally and sincerely carrying out the trust of public office.

In Louisiana, Pan-Am Southern refinery employees Robert L. Argus and A. J. Cambre are fellow-members of both a St. Charles parish (county) water board district and the board of commissioners. At least 16 employees of the Ethyl Corporation manufacturing center in Baton Rouge hold elective or appointive public positions in that part of Louisiana. To name two, Charles Averill is both a Port Allen town alderman and secretary of the Greater Baton Rouge Port Com-

mission, and Ben H. Burge is a committee chairman on the State Parks and Recreation Commission.

Standard Oil (Kentucky) can list a score of its personnel who play active roles at one level of government or another in several southeastern states. Included are Edward D. Melcher, who is chairman of the board of trustees in Parkway Village, Ky.; J. S. Asbury, mayor of Elberton, Ga.; Dewey Fagan, member of the Calhoun county (Ala.) board of commissioners; and C. B. Bohannon, Jr., who is a city commissioner in Gainesville, Florida.

In the Midwest, as elsewhere in the country, oilmen in number oc-

Below left, Louis Vaughn, general foreman at the Socony-Vacuum refinery in Trenton, Mich., is a village councilman . . . Below right, L. R. Robinson, Standard of Kentucky agent and chairman of the Seminole county (Ga.) board of commissioners, addressing a farm gathering



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Above, among the members of the village council in Granville, Ohio, is G. F. Eisele (extreme left). During working hours, he is technical foreman at Pure Oil's Heath refinery

cupy positions in government. One example: The Pure Oil refinery at Heath, Ohio, can boast of at least six men serving on school boards, city councils and in a mayor's chair.

Without even trying, a list of more than 25 office-holders can be compiled from Sun Oil personnel in the Philadelphia area. Their public service is rendered to 17 different Pennsylvania communities, mostly on school boards (such as Donald P. Jones, in Swarthmore) and borough councils (such as Judson Laird, in Rose Valley).

A quick tally of Socony-Vacuum Oil personnel at installations in

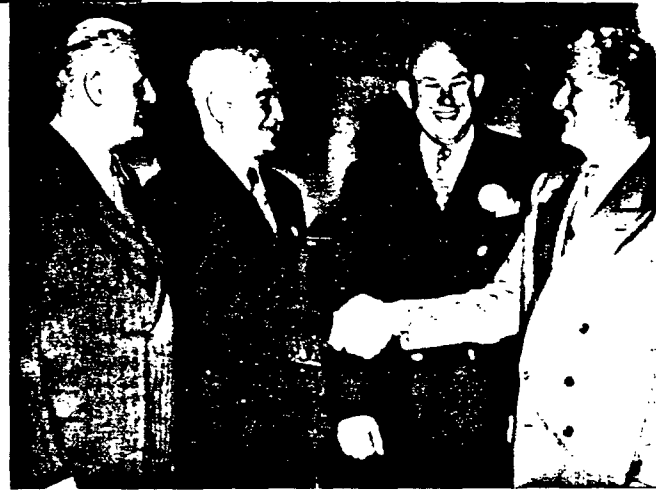
New Jersey, New York, Michigan and Indiana presents a likewise formidable roster. Naming one from each state, Sylvester Billbrough is clerk of the Paulsboro, N. J., board of education; Forrest Wing is a supervisor of Allegany county, N. Y.; Louis E. Vaughn is a village councilman in Trenton, Mich.; and Charles Smoljan is assistant municipal athletic director in East Chicago, Ind.

The foregoing are but some of the personnel of some of the oil companies reached by the *Ethyl News* questionnaire. Along with their uncounted fellow-members of the industry who hold public office, they form oildom's honor roll of citizens who are giving unselfishly of their energy to keep the wheels of American democracy in motion.

Below, Charles Colvin, Ethyl manager of purchases in Baton Rouge, heads the city-parish planning commission . . . Right, Frank O. Campbell, of Tide Water Associated, a Bayonne (N. J.) city commissioner, throws the switch to open a train display



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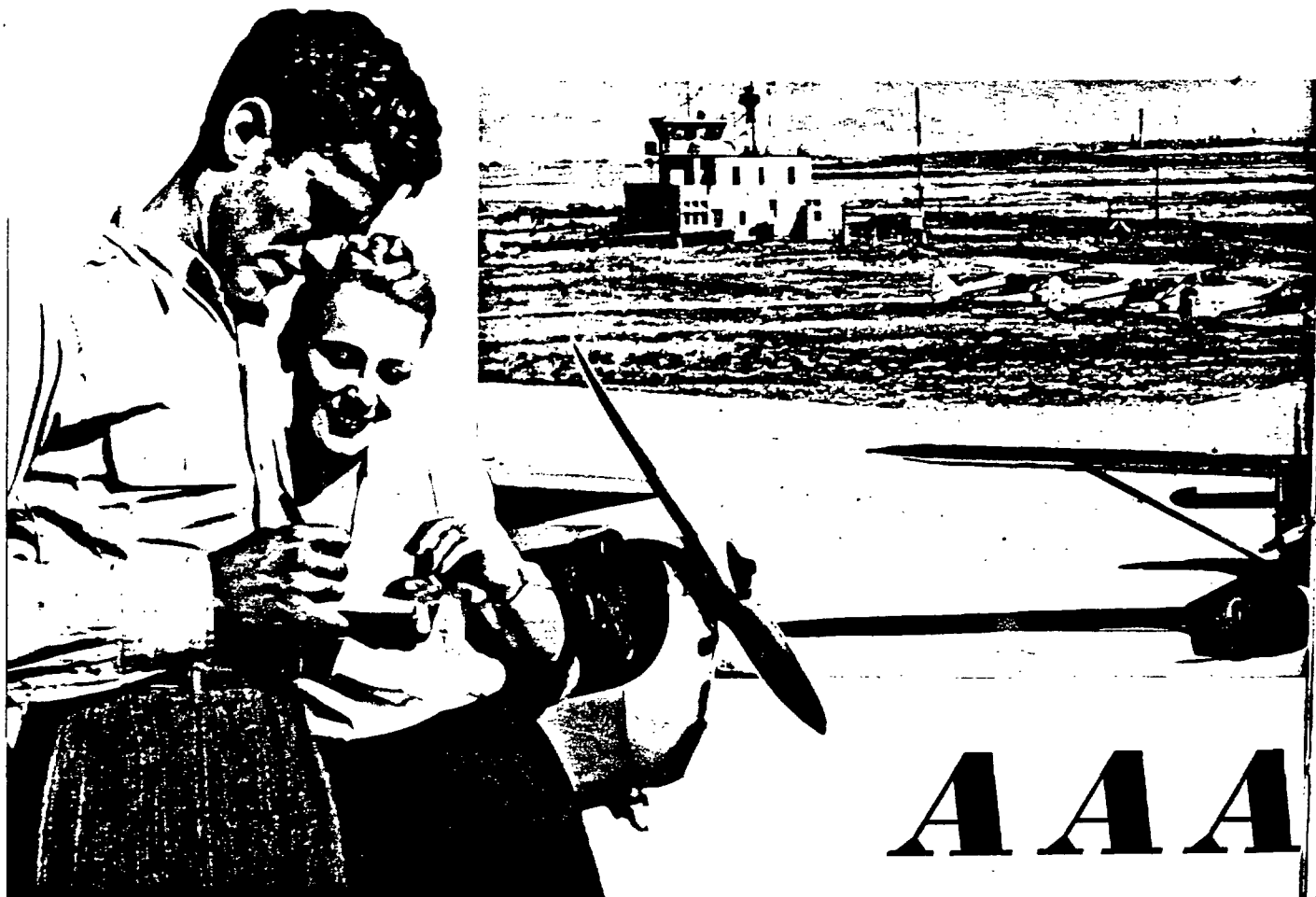


Daniel M. Bradley, city councilman of Richmond, Calif., and Standard of California public relations staff assistant (dark suit), exchanges greetings with Oakland's mayor



Above, Oscar Larson, of Tide Water Associated, is president of the Mt. Diablo (Calif.) board of education





AAA

**What the American Automobile Association is to motorists,
the Aircraft Owners and Pilots Association is to flyers**

IT'S BEEN quite a few years since the sound of an aircraft slicing through the heavens was a signal for curious Americans to drop everything and crane their necks skyward. But anyone who does bother to look up these days will find that things have been happening in the "wild blue yonder." Not all the droning comes from the mighty engines of the commercial airliners and military planes.

There are in flight in the United States today some 60,000 civil aircraft—small privately-owned planes that accommodate one, two, three, or four persons. And you can add to that number thousands more such planes which hold Civil Aeronautics Administration licenses but

which currently are in storage.

Private plane ownership and flying have been on the upswing ever since the end of World War II, and most of the aircraft manufacturing firms have backlogs of orders.

Indicative of the growing interest in civilian flying is the fact that the Aircraft Owners and Pilots Association (AOPA), the world's largest organization of private flyers, just recently registered its 90,000th member. Of these, 40,000 are active, enthusiastic "belongers."

Until 1939, when AOPA was formed, the private flyer was, as someone once described him, "the stepchild of the air." Without any national organization to back him up, he was at the mercy of unscrup-

ulous airport operators who charged excessive landing fees and other prices and who supplied inferior products and service. He was often shunted off runways. He was endangered by reckless pilots and malfunctioning equipment.

Now, largely because of AOPA, private pilots and aircraft owners no longer are unwanted or overlooked. They are universally recognized for what they are—mature citizens with a deep-down interest in flying. Far from being "hot rodders," as some suppose, the average pilot is a substantial man or woman in the middle-thirties age bracket.

Doctor, merchant, lawyer, chief—there is no limit to the number and variety of occupations represented by Association members. Some are wealthy persons who enjoy flying as a hobby. But the aver-



1 of the AIR

age private plane owner has an annual income of about \$5,000. Among the better known AOPA members are entertainers Arthur Godfrey, Edgar Bergen, and Vaughn Monroe. Congressman Clair Engle, of California, is an active member, and so are oilmen S. K. McCauley, of Atlantic Refining; Aubrey Keif, of The Texas Company; Richard Bradley of Standard of California; and James Rianhard, of Esso Standard, to name just a few.

It was a group of eastern businessmen, well versed in the problems of private flying, who decided 14 years ago to establish an organization devoted to improving the lot of individual pilots. The result was AOPA, which today, after a shaky beginning, is a solid, powerful association — one that for private flyers is a sort of combination travel agency, in-

formation bureau, legal and technical advisor, sounding board, and discount house.

The five founders still serve AOPA as non-salaried officers and members of the board of directors. They are L. P. Sharples, Philadelphia businessman who has won more than 46 trophies in 21 years of flying; C. Townsend Ludington, present AOPA president, who is an authority on aerodynamics; Philip T. Sharples, a veteran of aviation since the free-ballooning days of World War I; J. Story Smith, a director of Piasecki Helicopter Corporation; and Alfred L. Wolf, an attorney who has been a licensed pilot for more than 20 years.

To pilot the Association's destinies, the founders selected J. B. "Doc" Hartranft, Jr., an enthusiast who had organized the highly suc-

cessful National Intercollegiate Flying Club while attending the University of Pennsylvania. As AOPA's active and capable general manager, he represents it on countless government and industry aviation committees and testifies on legislation before Congressional groups, in addition to his "routine" duties. More than anyone else, "Doc" Hartranft has been responsible for AOPA's growth from a one-man, one-room operation with a handful of members to the efficient association with a staff of 35 employees it is today.

At first, the going was pretty tough for the young organization. Its declaration that its mission was "to make private flying more useful, safer, less expensive, and more fun" was greeted with more derision than acclamation. But "Doc" Hartranft invited members to send in their complaints. When he proved that something could be done about them, membership began to climb. It continued to shoot up even during the period of restricted civilian flying in World War II years.

All For \$10

For \$10 annual dues, the active AOPA member gets a bargain package. It includes his registration card, which gains immediate recognition (and often discounts) at many airports, as well as courtesy cards from a leading airline and one of the drive-it-yourself automobile companies. Through AOPA, members enjoy lower rates on plane, liability and property damage insurance and group life insurance. Membership also guarantees a steady flow of printed material of timely interest to all private flyers and aircraft owners. Included among this informational material are the Association's own confidential monthly newsletter and a subscription to the

special AOPA edition of *Flying*, an independent aviation magazine.

Responsibility for the mountains of literature that originate with AOPA lies with blunt, outspoken Max Karant, assistant general manager and editorial director. Long-time editor of *Flying* and a veteran pilot, Karant never hesitates to call a spade a spade. If, for instance, he has received reports of airports rendering sub-par service or if parts suppliers fail to make deliveries on time, these shortcomings are pointed out in the pages of AOPA publications. This firm policy in its literature and in its dealings with government and other agencies has bruised lots of toes, but it has gained recognition and improved conditions for private aviation.

Along with its publications, another of AOPA's popular functions is its flight service. Designed to aid the private pilot in the same way the American Automobile Association and oil company touring serv-



One of AOPA'S primary functions is to check on the safety and performance of planes and equipment and report those findings to members

ices assist motorists, it plans flights to almost anywhere in the world.

Trip planning for flights within the United States is done on a huge map that covers an entire wall of AOPA's headquarters. The map shows all airways, airports, intermediate fields, beacons and radio ranges in the country. Members requesting trip information are told the towns over which they will pass and the airports at which they can stop. They're also warned of their responsibility to avoid dangerous and prohibited areas. As a further help, AOPA publishes a two-volume guide of resort airports throughout the United States and maintains a complete file on the facilities of all landing fields.

Aids Romance

One of the requests for a planned trip came from a New York member who was about to get married. He had \$500 and an airplane. Would AOPA map out a honeymoon flight for him? The Association obliged.

Even a more unusual request from another member couldn't stump the AOPA staff. This particular flyer wanted to take his family on a cross-country hop, but was faced with the problem of getting a bottle heated

every so often for his three-month-old offspring. By return mail, AOPA sent a well-tabulated list of airports where baby's liquid meal could be warmed.

Because they are flying all over the country, AOPA members seldom have an opportunity to meet together. Occasionally, however, as it did last September at Rehoboth Beach, Delaware, AOPA sponsors a roundup. Some 1,500 private aviation enthusiasts, flying more than 700 small planes of all makes and descriptions, attended.

While talk on such occasions covers every phase of the subject of aviation from aerodynamics to zero ceilings, much of the conversation centers around the gains that have been scored in the realm of private flying. Pilots reminisce about the power lines that once obstructed airport runways, about the airports that have been improved, about the flying equipment that has been made safer and more efficient, about the rules and regulations that have been written or rewritten to give the private flyer a better break, and about the burdensome tariffs and taxes that have been eased.

And when the private flyer talks of such things, he just naturally means the work that the Aircraft Owners and Pilots Association has done during the past 14 years to gain for civilian aviation the stature it enjoys today.

J. B. Hartranft, Jr., AOPA general manager (right), carries the fight for better flying conditions directly to the nation's Capitol, if necessary





SOLVING THE COMBUSTION MYSTERY

There is a lot that is unknown about what happens inside an engine, but Ethyl research is helping to find the answers

COMPARED WITH the sputtering automobile engines of 50 years ago, the purring power plants under the hoods of today's cars are recognized as the last word in reliability and efficiency.

But in spite of their accomplishments, the automobile industry that builds the engines and the petroleum industry that fuels and lubricates them are never content to rest on their laurels. In the laboratories and on the proving grounds of the two industries, research engineers are constantly seeking—and developing—better engines, better fuels and better lubricants.

One of the primary goals of these research efforts is increased engine efficiency. This is important to both the oil and automotive indus-

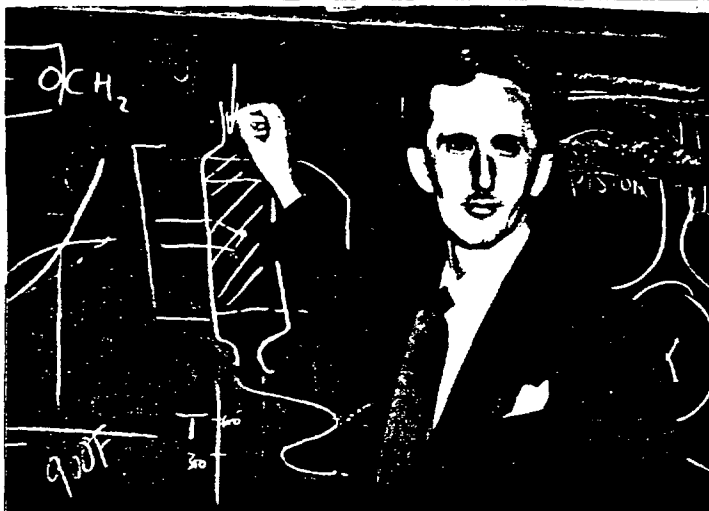
tries. More efficiency would enable engine manufacturers to increase both power and fuel economy without increasing engine size.

Of the many research projects devoted to increasing engine efficiency, one of the most promising is combustion research—the study of the actual burning of the fuel-air mixture in an engine. Research specialists of the oil and automotive industries agree that accelerated progress in the development of better fuels and engines will be possible when more is known about the mechanism of combustion.

A broad understanding exists as to how and why some of the energy released by the burning fuel-air mixture gets to and drives the rear wheels of an automobile. But

only a limited amount of information has been developed about the burning process itself. In fact, it has been said that more is known about the release of atomic energy than is known about combustion in an engine.

While combustion is less of a riddle than it once was, formidable obstacles have combined to keep science comparatively in the dark on the vital problem. First of all, combustion takes place inside the engine cylinder where it is obscured from view. Combustion lasts only a few thousandths of a second and occurs at temperatures and pressures which run up to thousands of degrees and hundreds of pounds per square inch. During this brief time and under these varied conditions, many chemical reactions take place in the fuel-air mixture.



To aid in the exchange of combustion knowledge, Ethyl recently sponsored a series of lectures in Detroit by British scientists, one of whom is shown above . . . Right, this tandem engine is among the special pieces of equipment used in Ethyl's combustion research



Another complication is that all the many compounds of carbon and hydrogen (hydrocarbons) of which gasoline is composed burn to give very nearly the same vapors and gases—namely, water and carbon oxides. Therefore, analysis of the gas leaving the exhaust pipe tells very little about the combustion process.

Renewed Efforts

Despite these difficulties, the rewards for more information about the combustion process are so promising that all concerned have intensified their research efforts in this field.

Among those with a decidedly active interest in combustion research is Ethyl Corporation.

Starting with Thomas Midgley's studies which led him to the discovery of the antiknock properties of tetraethyl lead and continuing to the present, Ethyl has constantly played a leading role in combustion research. The information developed in its laboratories, and in research projects it has sponsored, has been valuable in two important ways. It has enabled Ethyl to manufacture highly effective antiknock

compounds. And the data have contributed to the development of better fuels and engines through their use by oil refiners and engine builders under Ethyl's "share the knowledge" program.

A recent example of the latter is the series of lectures sponsored by Ethyl Corporation for oil and automobile company research engineers in the Detroit area. Speakers at these lectures were some of Great Britain's outstanding authorities on combustion research. By presenting these lectures, Ethyl made it possible for the visiting research engineers to bring to the people most concerned with the problem in this country firsthand reports of the methods they are using and the findings they are making in their combustion studies.

In Ethyl's own combustion research projects, many avenues have been explored. Often, to overcome the obstacles encountered in full-scale engine studies, it has been necessary to develop special equipment to make possible better control and observation.

One phase of Ethyl's combustion research that is currently attracting wide attention is the study of

chemical changes which have been found to occur in the fuel even before it starts to burn—while the mixture of fuel vapor and air is being compressed by the upstroke of the engine piston. After the spark plug fires, the gases created by the burning of the first portion of the fuel expand and squeeze the unburned part of the mixture still further, creating additional chemical changes in the fuel. The chemical reactions which take place in the unburned mixture are called precombustion reactions.

Structure Changes

In such reactions, the structure of the fuel changes or "cracks" in what amounts to a continuation of the process by which it was originally made at the refinery. During these reactions some of the oxygen molecules in the fuel-air mixture react with some of the fuel molecules so that partial burning takes place ahead of the flame caused by regular spark plug ignition.

One of the most important aspects of these reactions is that as they progress they are accompanied by the release of appreciable amounts of heat. Since the release

of this heat alters the character of the entire combustion process, the importance of precombustion reactions to all combustion studies is obvious.

Data obtained from operating an engine without spark ignition and at increased compression ratios disclose that as much as 27 percent of the potential heat in the fuel may be released during precombustion reactions.

Chemical analysis of portions of the fuel-air mixture ahead of the flame front, extracted through a small sampling valve installed in the combustion chamber, also reveals changes in the structure of the fuel before it burns. Something of the precision of the equipment employed in combustion studies and the time available to make these

studies is seen in the fact that the small sampling valve used in this test can be open for only the smallest fraction of a second to get a sample of the fuel-air mixture ahead of the flame front. Several hours of engine operation are required before the equivalent of even a thimbleful of the mixture can be obtained for analysis.

Another important Ethyl tool for studying combustion is a special installation in which two variable-compression knock test engines are set up in tandem. The first engine, with its ignition turned off, is cranked at regular operating speed by an electric motor. The second engine operates under its own power.

In the first engine, the fuel-air mixture is subjected to a variety

of temperature and pressure changes encountered in regular engine operation, without actually being ignited by a spark plug. After it has passed through the motored engine, this mixture, which then resembles the unburned mixture in a fired engine, is piped into the fired engine. Knock ratings made in the second engine enable Ethyl research teams to measure the effects of precombustion reactions produced in the first engine.

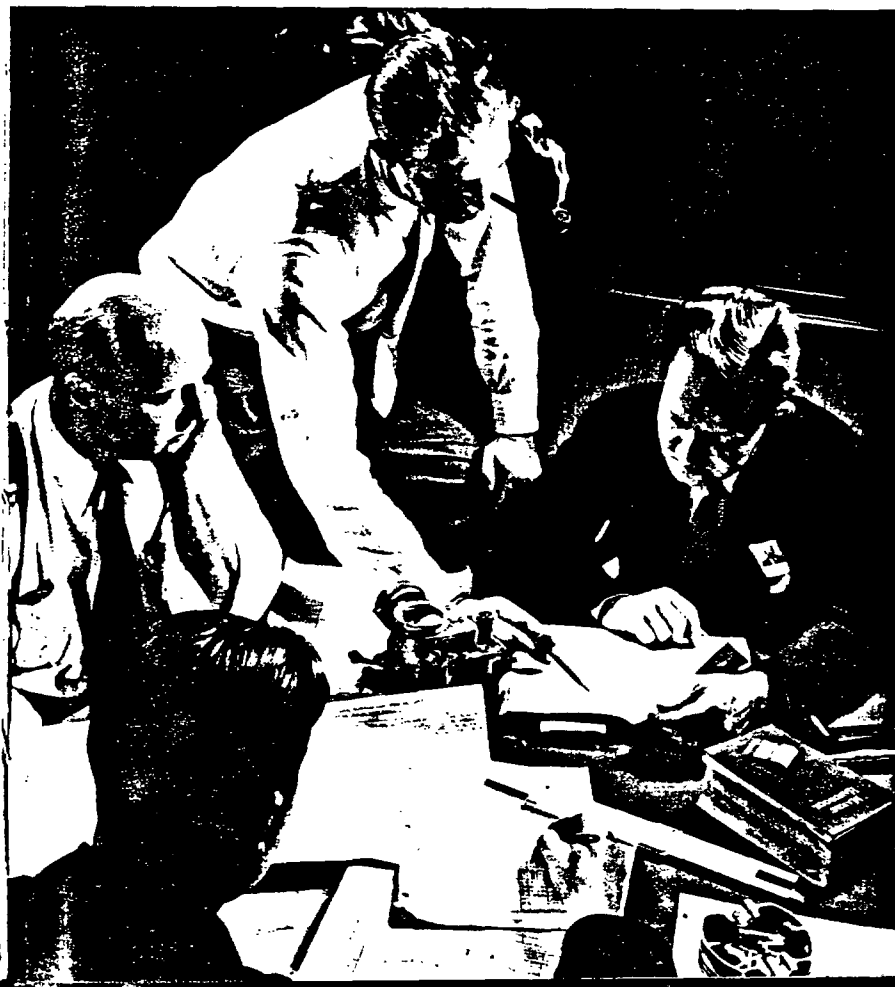
Besides the combustion studies at its own laboratories, Ethyl Corporation sponsors a research project at the Sloan Laboratory of Massachusetts Institute of Technology. This project involves the use of a machine which compresses a fuel-air mixture rapidly, without spark ignition, to a state at which its pressure and temperature approximate those of the end-gas, or unburned portion of the fuel-air mixture, in an engine cylinder. Thus, it becomes possible to study the mixture in a way that is impossible in an operating engine.

Use Jet Combustors

Research has not been confined to engines, however. It also includes studies of fuels and their ignition, flame propagation and combustion products. These studies involve the use of a variety of burners ranging from small glass tubes to combustors similar to those used in jet engines.

This is but a brief review of a few of the courses Ethyl's combustion research has followed. The information developed to date has contributed materially to improvements in fuels and engines. Increased knowledge about combustion will make possible still other valuable gains in fuel and engine efficiency in the future.

Into every Ethyl combustion research project go the skill and experience of technical personnel well versed in the problems of fuels and engines





One of the largest and most ornate of all trophies presented in the field of athletics is the Davis Cup, symbol of supremacy in tennis

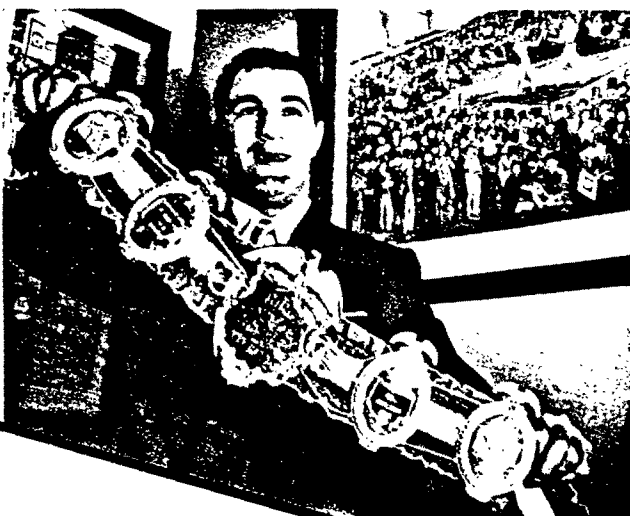


Two Detroit Red Wings players wrap fond arms around the Stanley Cup, given annually to the National Hockey League champions



These American trackmen swept the 110-meter hurdles at the Olympics. Their reward: a medal and a bouquet

A belt awarded the world's heavyweight boxing champion is displayed by Rocky Marciano



Small compared with certain other baubles, the Kentucky Derby cup nevertheless is coveted by all horsemen



THE

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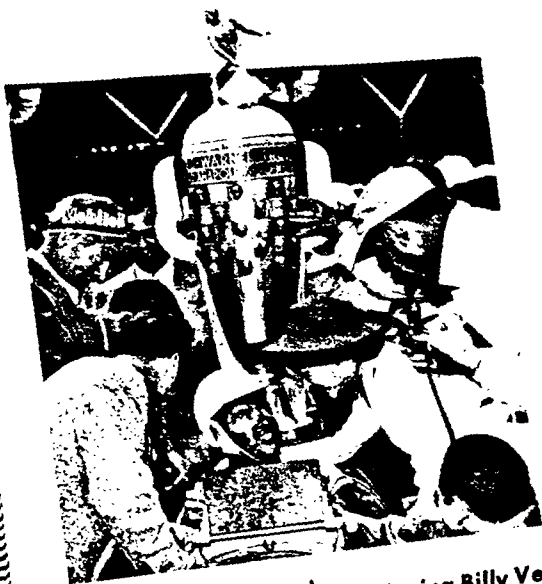
"TO THE VICTOR belongs the spoils" is as true in the world of sports as it is in any other realm. But what are the spoils? Or, more to the point, what do they look like? Sports page headlines proclaim such tidings as "Detroit Cops Stanley Cup Again" and "Marciano Gains Heavyweight Crown." Often these stories are accompanied by photographs of the jubilant victorious athletes. Seldom are the trophies which they or their teams won pictured. Here, then, on these two pages, are shown some of the more famous spoils of sport.



Golfers Sam Urzetta and Willie Turnesa admire the Walker Cup, for which teams from the United States and England vie



This "World Champions" banner has not flown in a National League baseball park since the St. Louis Cardinals won it in 1946



One of the biggest and most handsome of all sports trophies is the cup presented to the victor of the grueling 500-mile racing car event at Indianapolis



Two happy LaSalle basketball stars grip the prize they shared as National Invitation tourney most valuable players. Their coach, his arm around No. 15, holds the team cup

Grinning Billy Vessels, Oklahoma U. all-America back, displays the Heisman trophy he won as nation's top college gridder



ETC 24302

SIX MILES north of Bridgeton, where Route 46 cuts through the heart of New Jersey's rich truck farming country, a giant red brick smokestack towers over the sandy loam. The large white identifying letters down it spell "Seabrook Farms"—a name that is repeated on packages containing millions of pounds of food raised and frozen in the shadow of the stack every year.

It is appropriate that this skyscraping landmark rises from a power plant, for it is *power* that has built Seabrook into the world's largest commercial truck farm enterprise. Power for the plows, harrows, reapers and other cultivating and harvesting machinery is supplied by some 175 diesel and gasoline-driven tractors. Power for most farm operations and the transporta-

contract growers in three states and those bought on the open market, and turning out 91 million pounds—13 percent of the nation's total—of frozen foods annually.

Packages bearing the Seabrook Farms label are imprinted with the slogan "We grow our own—so we know it's good, and we freeze it right on the spot." True as this is, it doesn't begin to tell the story of how modern agricultural, industrial, and scientific methods are applied to seed selection and planting, cultivating, harvesting, processing, quick-freezing, storing, transporting and marketing in order to put attractive, nourishing foods on America's dinner tables.

The housewife opening a 12-ounce package of frozen peas would find it difficult to picture several million pounds of the crop. And the backyard gardener hoeing a few rows of corn would be staggered by 2,500 acres of that one vegetable. But Charles F. Seabrook's ability to think in these

Today, the complex organization is incorporated to include four separate companies, each employing many skilled experts. Still, it is pretty much a family affair. Charles F. Seabrook remains active as president, although most responsibilities are shared by his three vice president sons—Belford L., chief engineer; C. Courtney, in charge of sales; and John M., in charge of farm operations.

In the corporate organization, Seabrook Farming Corporation handles growing operations; Seabrook Farms Company, the freezing; Cumberland Warehouse Corporation, the huge refrigerated storage facilities; and Cumberland Auto and Truck Company, the vast transportation system.

The farm itself is divided into ten operating divisions, each individually managed and each with its own machines, shops, labor force, fields, and crop schedules. The manager of each division lives in a house in his own area. For book-

FROZEN FOOD FARM

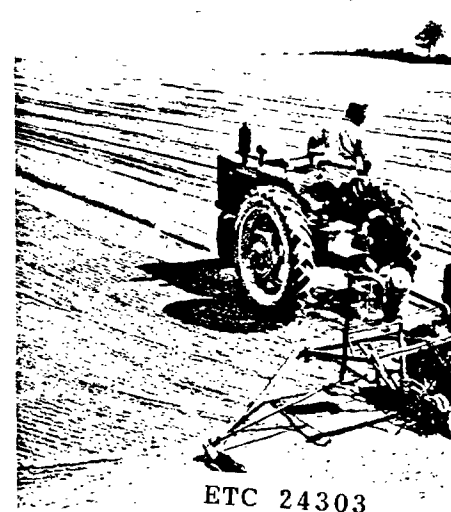
By applying science and industry to agriculture, Seabrook has become the world's largest commercial truck farm enterprise

tion of finished products is found in the more than 500 motor vehicles used for those purposes. Power for plant operation and maintenance—millions of kilowatt hours of electricity—is supplied by the local utility company.

Power in these quantities is an absolute necessity when you're operating 19,000 acres of farmland in two counties, processing additional crops raised by almost a thousand

terms, to visualize farming as an industry, and to apply assembly line techniques, has created a farm that functions like a factory.

The vast Seabrook holdings—you can ride for 45 miles in one direction and still be on their land—started with a 57-acre tract. Mr. Seabrook formed Seabrook Farms in 1912, and inside of seven years expanded it to 2,000 acres. It has been growing ever since.



ETC 24303

keeping purposes, the farm day ends at six p.m. By six o'clock the following morning each manager is supplied with an analysis of his previous day's operations and a comparison with those of the other nine divisions.

Working for and with the managers are headquarters purchasing, planning, research, insect control, and maintenance units. At their service also are chemists, bacteriologists, engineers, climatologists, and soil conservation teams.

All details of planting, cultivating, harvesting, and packing are planned far in advance—sometimes as much as two years. By correlating his information with the climate rather than the calendar, Dr. C. Warren Thornthwaite — Seabrook climatologist and key man in all planning — schedules plantings so that harvesting times will be properly spaced. The variables of farming are compensated for through the use of modern portable irrigation systems, fertilizers, and airplane spraying for insect control.

New Jersey, of course, does not bask under a friendly sun the year around. Still, careful planning and crop scheduling enable Seabrook to harvest and process produce for more than eight months of the year

ONE MOMENT, PLEASE

With this issue, readers are receiving a postal card which, when completed and returned, will enable us to bring our Ethyl News mailing list up to date. The card takes but a few seconds to fill out, and is already stamped and addressed.

We respectfully ask each reader to make the proper notation on the card and then see that it is put into the mails. In that way, you'll be assured of receiving future issues of Ethyl News at the right time and the right place.

and to get two crops a year from some growing fields.

Crops start rolling from the fields to the food freezing plant in late April or early May, with spinach and kale leading the parade. From then until the last of the broccoli and Brussels sprouts have been cut and processed along about the middle of December, vegetables are raised, harvested and frozen in an unending stream.

Lima beans, peas and spinach are the three largest crops in volume, but corn, snap beans, asparagus, cauliflower, turnip greens, squash, and other vegetables all go through in mountainous quantities.

In the spring, as soon as the ground is sufficiently thawed and drained, five-bottom plows pulled by powerful tractors turn under the

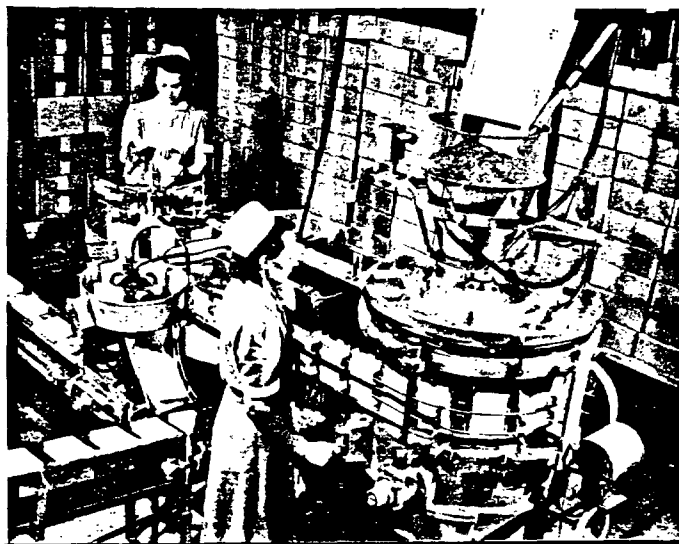
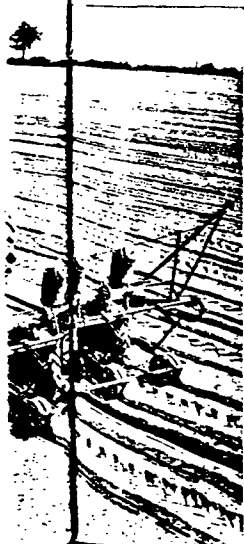
cover crop and organic fertilizer that have covered the ground during the winter months. They are followed by harrows, seed planters, cultivators, and all of the other machinery required.

The pea harvest, which starts about June 1, typifies the speed and efficiency with which Seabrook's mature crops are handled. As they approach maturity, the peas are carefully watched. When they reach the "fancy quality" stage, the order to begin harvesting is issued.

Out roll the big tractor-driven harvesters, cutting eight-foot swaths through the closely-growing vines and delivering them to trucks traveling beside. Peas go into the freezing cabinets three hours later, and until they do they are on the move continually. From viner stations, where pods are removed from the vines and peas extracted from the pods, they are sped to the processing plant.

At the plant, the peas are weighed and inspected and then hustled inside to the "assembly lines."

Three steps in Seabrook Farms' vast operations: Seeds are planted . . . The processed vegetables are packaged automatically . . . Wrapped packages go into special cabinets for quick-freezing at 37 below zero





Big as it is, the Seabrook organization is still a family affair. Here, President Charles F. Seabrook talks things over at luncheon with his sons

Traveling over rollers, chutes, trays, tables, and through water and brine (under the watchful eyes of trained workers), they are cleaned, graded, blanched and sorted. After a final washing, measured amounts are placed in cartons by intricate packaging machines. The machines even close the cover and wrap each box in a waxed label which provides a moisture-proof seal to preserve quality.

The packages of peas are then subjected to 37-below-zero temperature for two hours (more for other vegetables) behind the heavy doors of freezer cabinets. Frozen hard as a brick by then, they are removed, packed in shipping cartons and transferred to the huge four-story, 50-million-pound-capacity warehouse. There they are stored at 10 degrees below zero until they are loaded for shipment.

So great is the emphasis on top grade produce, that the quality control section is managed and operated separately from the production department and reports directly to the Farms' top management. Technologists from the section examine incoming vegetables at plant receiving platforms and at several strategic points along the processing lines. They follow crops through the lines and check machinery for proper adjustment and functioning.

At the same time, they watch for trouble spots and for ways to improve sanitation and eliminate waste. Finally, in the quality control laboratory, foods are subjected to bacteriological and microbiological tests, and in test kitchens are checked for flavor and ease of preparation.

Staffing the vast Seabrook farm-factory organization during peak periods are some 3,500 employees, many of whom live in Seabrook Village, a modern plant community near the Farms' headquarters. Complete with its own stores, post office, fire and police departments, schools, and child care and community centers, Seabrook is a model farm town. Several members of many of the families that live in the 990 company-owned houses and apartments are on the Seabrook payroll during

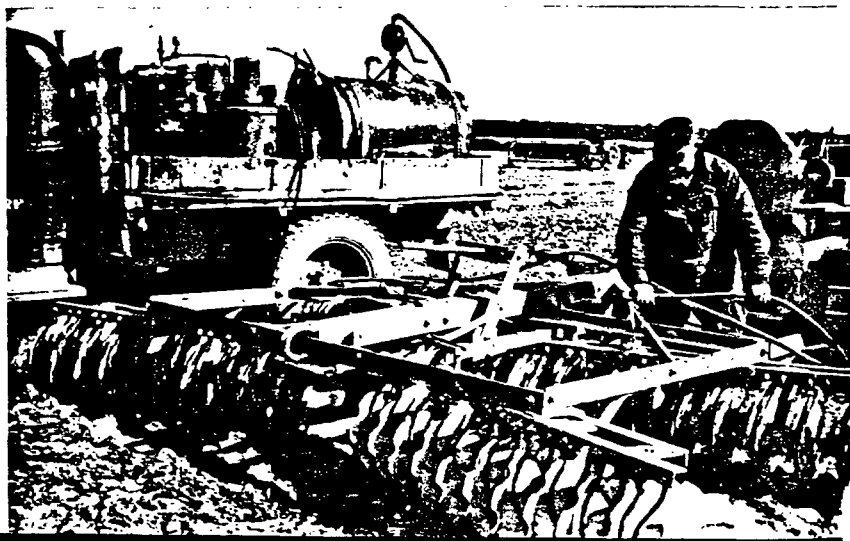
the summer months. Company policy guarantees year-round employment to at least one member of every family.

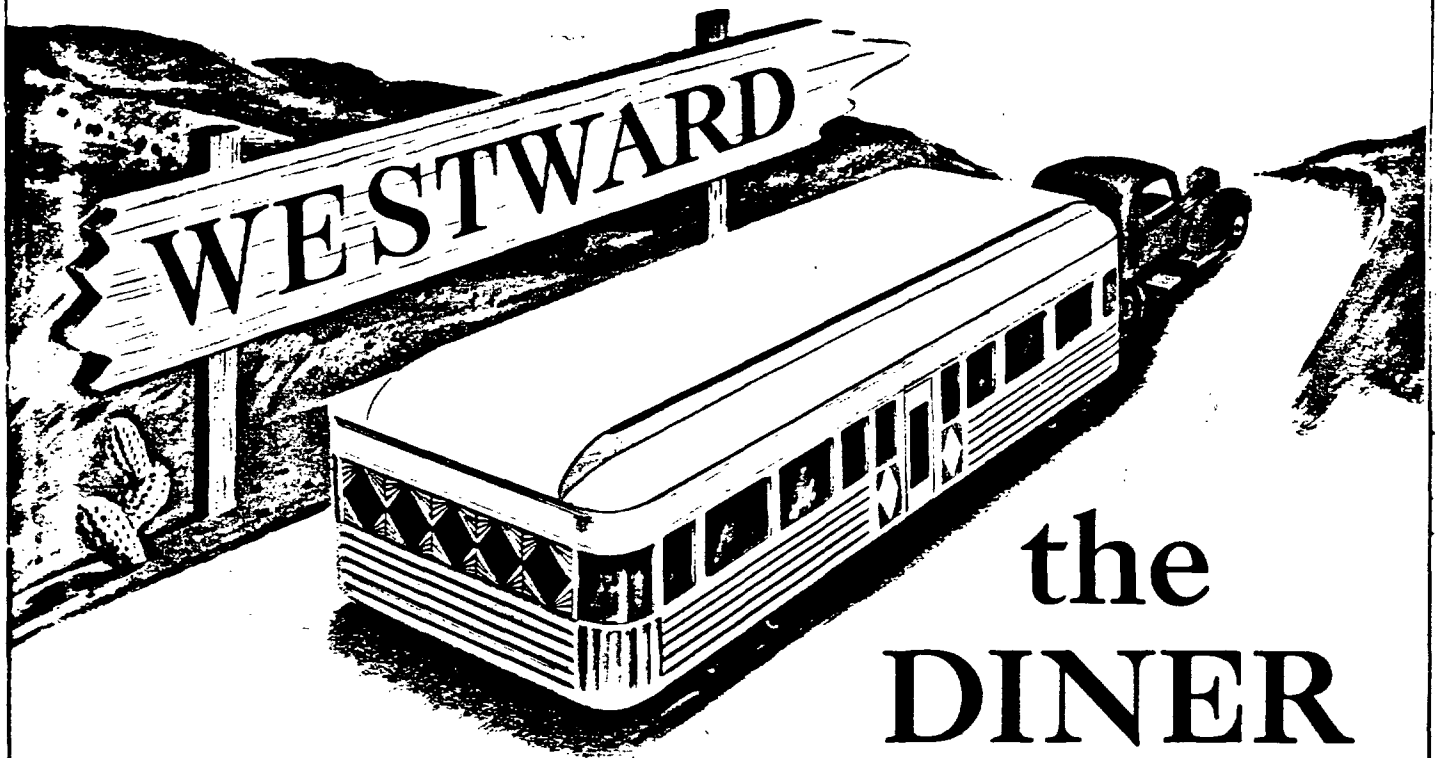
Progressive employee and community relations fit right in with progressive farming at Seabrook. Things seemingly unrelated to agriculture have been adapted successfully in many cases. The complete two-way radio-telephone system that connects all major installations and many of the vehicles is an example. From the broadcasting antenna atop the Farms' smokestack, messages are quickly dispatched to any part of the 19,000 acres.

To supply and maintain its hundreds of tractors and farm machines, Seabrook operates a fleet of "service stations on wheels." Instead of pulling vitally-needed equipment out of the fields for fueling, lubricating and minor maintenance, the mobile service units go to the equipment. Staffed by trained mechanics and supplied with gasoline, oil, greases, compressed air and tools, the units save both time and money.

Truly, Seabrook is performing farming miracles. And such miracles are needed, for no matter how you look at it, raising food for America's dinner tables is a big business. At Seabrook Farms, it's a powerful big business.

Manned by trained mechanics, Seabrook's mobile maintenance units contribute to the Farms' efficiency by servicing equipment in the field





the DINER

Long a fixture in the eastern part of the country, the elongated roadside eatery is about to bid for business west of the Mississippi

DINERS — those elongated eating places which remind one of displaced railroad cars — are heeding the sage counsel of Horace Greeley and moving westward.

In some size, shape, or form, the diner has been a fixture for almost 70 years in many parts east of the Mississippi, particularly in the New England and Atlantic seaboard states. But only a handful of our 6,000 such restaurants are to be found in the western half of the country.

That won't be the case much longer, the diner manufacturing industry predicts. As the first step in the invasion of the diner-barren West, the leading manufacturer of the roadside eateries recently put into operation a plant in St. Louis. This marks the first time that diners have been manufactured on a production basis outside the East. Or west of New Jersey, to be specific.

With an eye to the more distant future, this same manufacturer is weighing the idea of a plant on the Pacific Coast.

Western diner operators, admittedly, will have a stiff battle on their hands, cutting into the trade built up by drive-in eating spots. But many think it can be done, given a period of years.

Moving Comes High

Virtually the only reason for the absence of diners in the western United States is transportation costs. There are ten major manufacturing firms, all of them located within a 50-mile radius of New York City. Shipping charges from any one of these factories to a diner's business location often run into the thousands of dollars, and in some cases amount to more than ten percent of the purchase price of the diner itself. The farther the diner is transported,

of course, the higher the charges. They reach the "prohibitive" stage in moving a diner to the West, or even the far Midwest.

But with its St. Louis plant now operating, the Jerry O'Mahoney company, biggest in the diner manufacturing industry, sees the way open for the erection of more and more diners along the streets and highways of the West. If the O'Mahoney venture proves successful, other diner manufacturers undoubtedly will follow suit and operate plants west of the Mississippi.

There is no doubt of the demand for diners in the Midwest and West, say the manufacturers. Rather than being a question of sales, it's one of production capacity. The industry presently turns out about 200 diners a year. O'Mahoney says it could sell three or four times as many as the 30 diners it produces annually at its Elizabeth, N. J., plant.

From blueprint to delivery, construction of the average diner consumes about 90 days. It is difficult, if

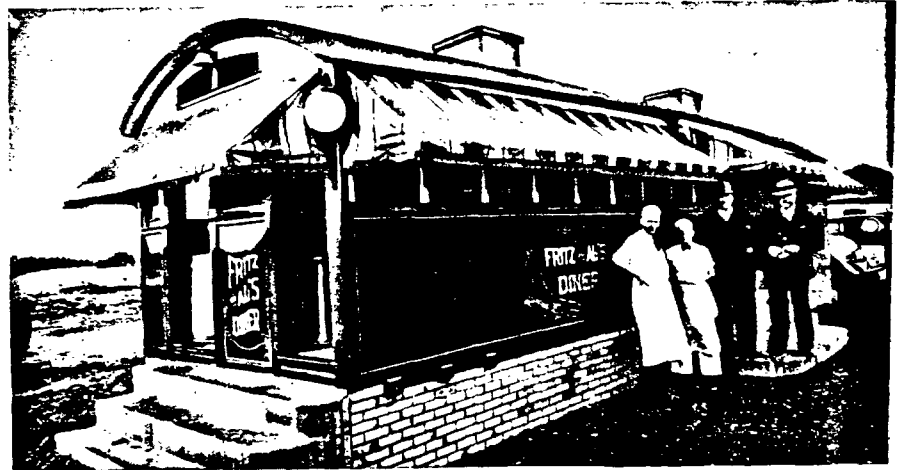


How diners have changed during the past quarter-century is shown by this series of photos. All four diners, operated by the same man, are in the same locale. The original 1927 diner (left) was little more than a shack. In 1932, the eatery he ran with a partner had awnings and a brick foundation. The 1938 job boasted fancy step railings. "Fritz's" present diner, built in 1946, is a big, shiny chrome steel structure, spotless inside and out

not impossible, to cut down on this period. Presently, there is no such thing as a "standard" diner. Each is tailored to a different set of specifications, depending upon the owner's wishes. Besides varying widths, lengths, and heights, diners differ greatly in their inside arrangements. Some provide more counter space than booths; others, the opposite. And so on.

But while each unit is built to meet the specific needs of its purchaser, the basic lines of this type of eating place have remained unchanged through the years. Manufacturers have tried to alter the over-all design from time to time, but found they met with buyer resistance when they did. It seems that people want the roadside diner to go on resembling the railroad dining car, from which it draws its name. It has been possible, however, to change the basic structural details of diners because they do not have to stand the many stresses of travel to which their railroad counterparts are subjected.

Although the first of them pre-



dated the appearance of the automobile, diners are definitely a phenomenon of the automotive age.

Historians chronicle that the first diners appeared in Worcester, Mass., in the 1880's. For the most part, they were eight-stool affairs mounted on wheels so that horses could pull them around from place to place, wherever business presented itself. The earliest diners were considered sinister establishments because they catered only to men and did most of their business after dark. The Woman's Christian Temperance Union

once operated several horse-drawn units so as to provide workingmen with a place to eat without the temptation of liquor. (It's only coincidence that diners today, almost without exception, do not serve alcoholic beverages.)

Through the years, as more and more Americans took to the road in their automobiles, diners attained the several features that are now their chief stocks in trade — prompt service, reasonable prices, and an informal atmosphere. The early reputation of the diner as a "beanery" and male hangout no longer is true.

Indicative of the acceptance of diners is the fact that they annually cater to more than 1.8 billion customers, who eat \$520 million worth of food. For the most part, diner patrons are average Americans. On the other hand, it is common at one diner in Aberdeen, Md., (which, incidentally, has 40 employees) to see

PHOTO CREDITS: Cover Kodachrome from International News Photos. Page 3, A. Devaney, Inc.; page 5, courtesy of Ford Motor Co. and Standard Oil Co. (N.J.); pages 6-9, courtesy of Continental Oil Co., Pan-Am Southern Corp., Socony-Vacuum Oil Co., Standard Oil Co. of California, Standard Oil Co. (Indiana), Standard Oil Co. (Kentucky), Sun Oil Co., The Pure Oil Co., Tide Water Associated Oil Co. and Casper *Tribune-Herald*, and from International News Photos and Wide World; pages 10-11, Monkmeier; page 12, courtesy of *Flying* magazine; pages 13 and 21, art work by Murray-Lynn Studios; pages 16-17, United Press, Wide World and International News Photos; pages 18-20, courtesy of Seabrook Farms; pages 22-23, courtesy of Jerry O'Mahoney Co. through International Counseling; pages 24-26, courtesy of American Institute of Steel Construction, Port of New York Authority, The Preload Co., and *Civil Engineering* magazine, and from Frederic Lewis.

an average of three customers daily arrive, ready to eat, in chauffeur-driven limousines.

The modern diner — a gleaming giant of chrome steel and terrazzo tile — costs anywhere from \$36,000 to \$120,000 at the factory. The most expensive job is 20 feet wide and 80 feet long, but that's just the eating unit. Another section just as large is attached for cooking, baking, and storage purposes. The framework of a diner is of structural steel and hardwood. All pieces of the skeleton are cut, shaped, and fitted to order. Right down to counter coin boxes for playing the juke box, the diner is fully equipped when it rolls off the production line. All the purchaser need do when it reaches "location" is have the plumbing and electrical connections made. With that, the diner is in business.

Moving the diner from the factory to business site is a major undertaking. The job usually is carried

Shipment isn't always by truck, however. The Jerry O'Mahoney company recently constructed a diner destined for Montgomery, Ala. This was built in two separate sections, each slightly more than ten feet wide, for movement by rail. Once in Montgomery, the two sections were joined together and no customer will ever know that the diner once was split down the middle. In a couple of instances, diners have been shipped in four sections.

Popular Investment

According to case histories in the files of diner manufacturers, the financial backing of diners is becoming increasingly popular among people with money to invest. A look at the figures involved shows why.

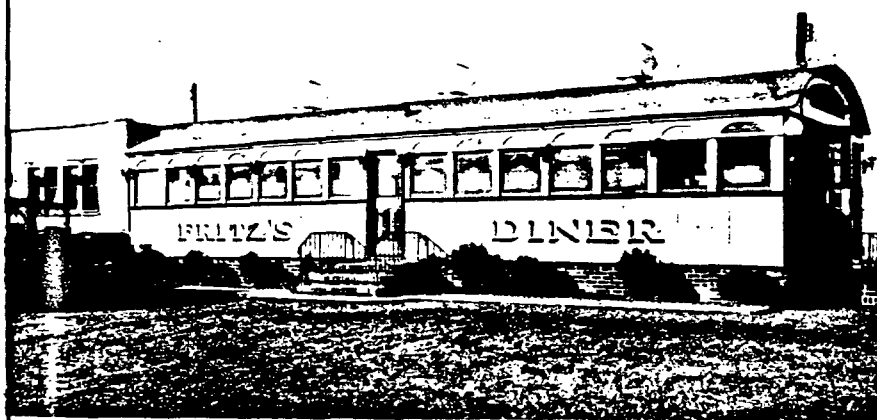
On a new diner, the O'Mahoney company requires 25 percent down. The balance is financed over 36 months. There are few diner operators whose business doesn't permit

meeting this obligation out of profits. A big 80-foot diner, in a good business location, can gross \$10,000 weekly, for a net profit of \$1,250.

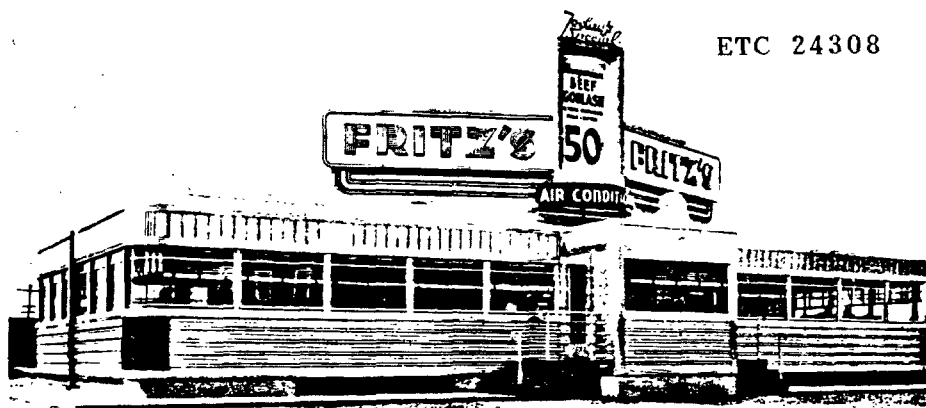
Location is the all-important thing. It is so vital that most diner manufacturers reserve the right to pass on the business site before contracting to build any diner for a prospective purchaser. Although generally looked upon as a roadside eating place, the diner is equally at home in a city or suburban shopping area as along a busy highway. Most diners, in fact, depend upon a steady local trade as much as they do transient business. To cultivate local customers, many diners feature businessmen's lunches and late-hour snack service.

Aside from the monetary return the owner of a successful diner can expect, he also enjoys certain other business advantages. A ten percent tax write-off for diner depreciation is allowed each year. And, because they can be jacked up, put on wheels and towed off to another location at any time, diners are taxed as personal property and not as real estate.

The attractive profits and tax advantages, the fact that there is always room anywhere for a well-run eating place, and now the paring down of transportation charges through construction at a plant outside the East, provide, diner manufacturers feel, all the momentum that will be needed to carry the diner across the Mississippi and into the Golden West.



out at night and over carefully planned routes, to take into account such factors as traffic density, overhead bridge clearances, and width of the highway. There are several trucking firms which specialize in transporting diners, both from the factory and from one business location to another.



LINKING OUR HIGHWAYS

Spanning everything from small culverts to broad rivers, bridges help maintain the smooth flow of motor traffic

MAN'S NEED to span bodies of water, openings in the earth and other natural obstacles that could impede his forward movement has led to a vast number and assortment of bridges in the U. S.

All too often taken for granted by those who sail under them or who walk or ride over them, bridges have played a very real part in the growth

of America from a foundling nation less than 200 years ago to a great world power today. Both by their presence or absence, bridges helped determine the outcome of the Revolutionary and Civil Wars. In more peaceful ways, they have, as in the case of New York and Brooklyn, served to tie together communities separated by water and thus had a

hand in fashioning our great cities.

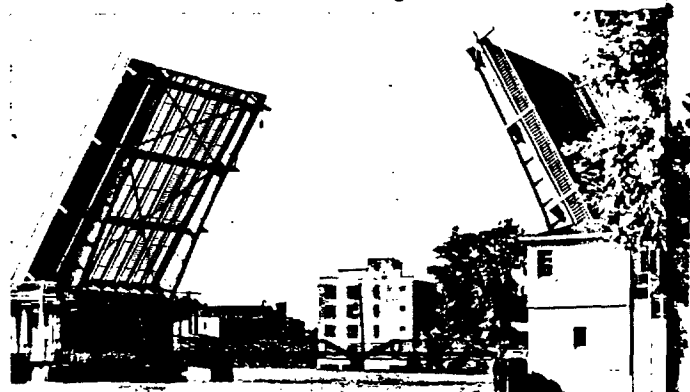
Bridge building is an art as old as recorded civilization itself. The masterful spans of Europe and the more crude bridges of other continents have long histories. The original London bridge, for instance, dates back to the 13th Century.

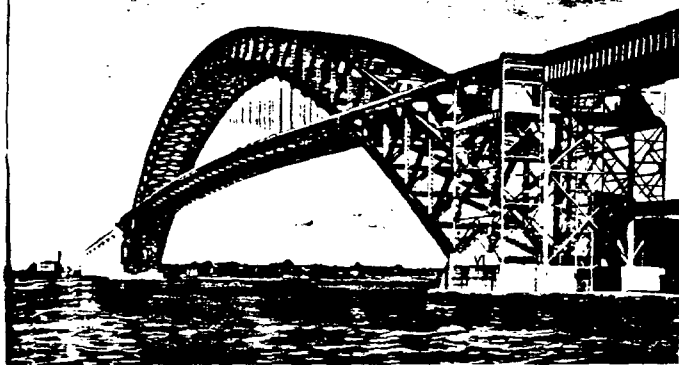
So, American civil engineers (who, incidentally, have just marked



ETC 24309

Left, the South Capitol Street bridge across the Anacostia River at Washington, D. C., is equipped with a swing span . . . Below, in Menasha, Wis., a bascule bridge is used for the Racine Street crossing of the Fox River





Above, the Bayonne bridge, owned and operated by the Port of New York Authority, connects Staten Island and New Jersey . . . Right, the Walnut Lane span in Philadelphia, the first U. S. prestressed concrete bridge



the centennial year of their foremost professional society, the American Society of Civil Engineers) are comparative newcomers to the business of putting up a crossing wherever and whenever it seemed necessary to bridge a water or land gap.

Once started, however, they soon caught up. No nation in the world begins to match the United States in total number of bridges or the cumulative engineering know-how acquired in their erection.

One yardstick of that progress is the fact that in one eight-year period alone, back in the 1930's, the record bridge span length was more than doubled. Upon its completion in 1929, the Ambassador bridge, linking Detroit and Windsor, Ontario, was the world's longest at 1,850 feet. This began to approach what, at the time, was considered the feasible maximum length of any span. Still, by 1937 five bridges with spans longer than the Ambassador had

been built in the United States. One of these, the Golden Gate, more than doubled the Detroit bridge's span, and another, the George Washington, almost did so.

Now, a bridge longer than the Golden Gate is contemplated for the Narrows in New York harbor, and most engineers agree that suspension bridge spans as long as 10,000 feet are practicable.

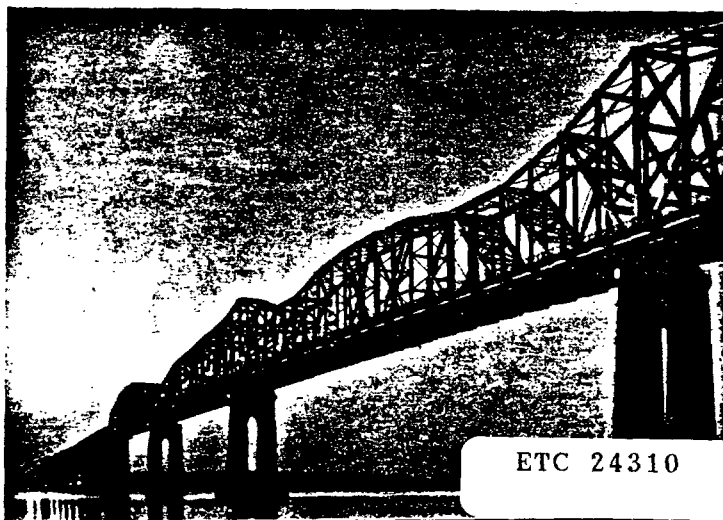
A New Tool

A tool recently added to the bridge-builder's kit is the prestressed concrete structure. To the untrained eye, such a bridge looks the same as the common concrete bridge. But, because the engineer can compress the structure with steel cables or wires, the prestressed concrete span offers greater carrying capacity. This method permits the erection of more graceful bridges over longer spans, and at the same time helps to conserve valuable steel.

As one means of surmounting the war-born shortage of steel and other materials, Europe has built many prestressed bridges during the past ten years. The first such American bridge, the Walnut Lane span in Philadelphia, was not completed until 1950. If not a definite trend in bridge construction, there is considerable interest in prestressed spans in this country. Scores of these bridges are now under construction. The most notable probably is the Lower Tampa Bay bridge, connecting St. Petersburg with U. S. highway 541 at a point about a mile north of Palmetto, Fla. This giant will be 15 miles long, including crossings over 11 miles of water. It is due for completion in 1954, and might well determine the future of the prestressed bridge in the United States.

Another possibility of the future is the aluminum bridge. There are only three known aluminum bridges

Right, the Huey P. Long bridge carries highway traffic across the Mississippi River at New Orleans . . . Below, arching over the Los Alamos (N.M.) Canyon is this new span owned by the U.S. Atomic Energy Commission



ETC 24310

in the world, and only one of these is in the United States. That, at Massena, N. Y., was completed in the early World War II days.

Everyone is familiar with the more famous bridges of the country, such as the Golden Gate, the Tacoma Narrows, and the Delaware Memorial. What may not be appreciated is that there now is the staggering total of more than 250,000 highway bridges in this country, not counting trestles and the short highway spans which cross culverts. Of the latter, there are some two million.

Be they large or small, each of these bridges serves as a vital link in the nation's chain of highways.

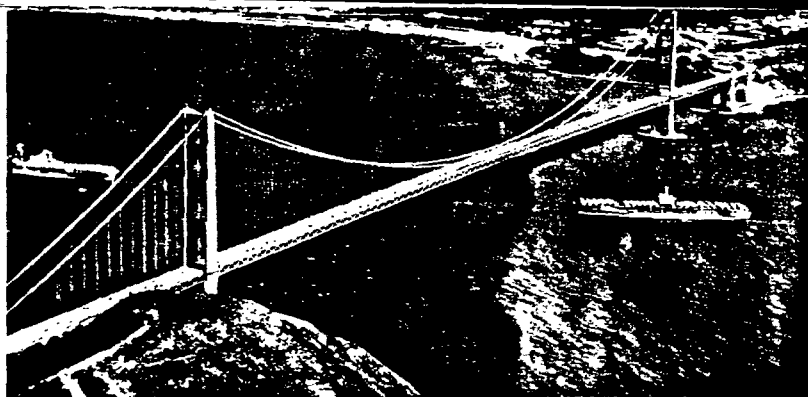
Many Outdated

Many highway bridges, especially those built since the automobile came of age, are nothing less than engineering masterpieces and miracles. But all too many, it is admitted, are what have been called "costly monuments to poor planning or evidence of foolish concessions to the budget."

Whatever romance and sentimentality surrounds the older bridges, they are bottlenecks for today's heavy traffic. The number of bridges of insufficient width or headroom is sizeable. So, too, are there countless bridges which are narrower than the approaching highway.

Thus, as his profession embarks upon its second century, the civil engineer will be blueprinting not only the graceful giants that reach across great rivers and wide bays. He'll be designing as well the less spectacular, but just as necessary, smaller bridges to cross highway and railroad intersections and the other obstructions to the smooth and safe flow of motor traffic.

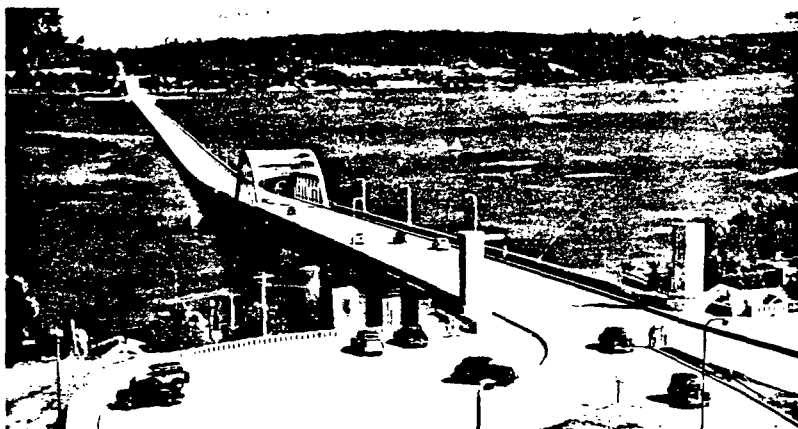
Right, three miles south of Wilmington, the Delaware Memorial bridge crosses the Delaware River to meet the New Jersey Turnpike



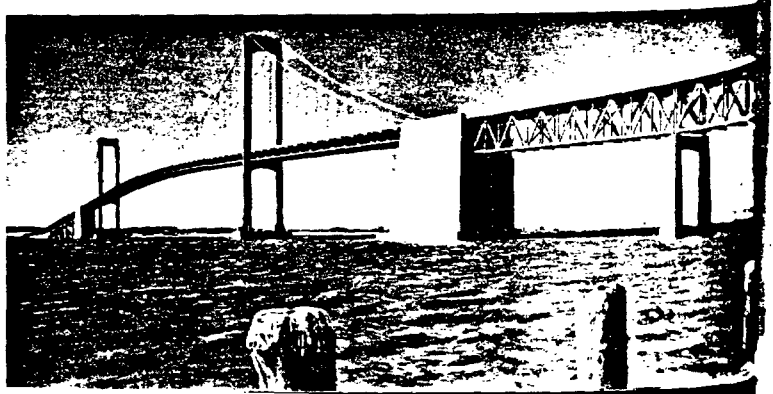
The world's longest suspension span is the 4,200-foot stretch between supports in the Golden Gate Bridge



A vertical lift highway bridge completed in 1941 crosses the St. Johns River in Jacksonville, Fla.



The Lake Washington bridge at Seattle is constructed on 25 concrete pontoons that float on the water



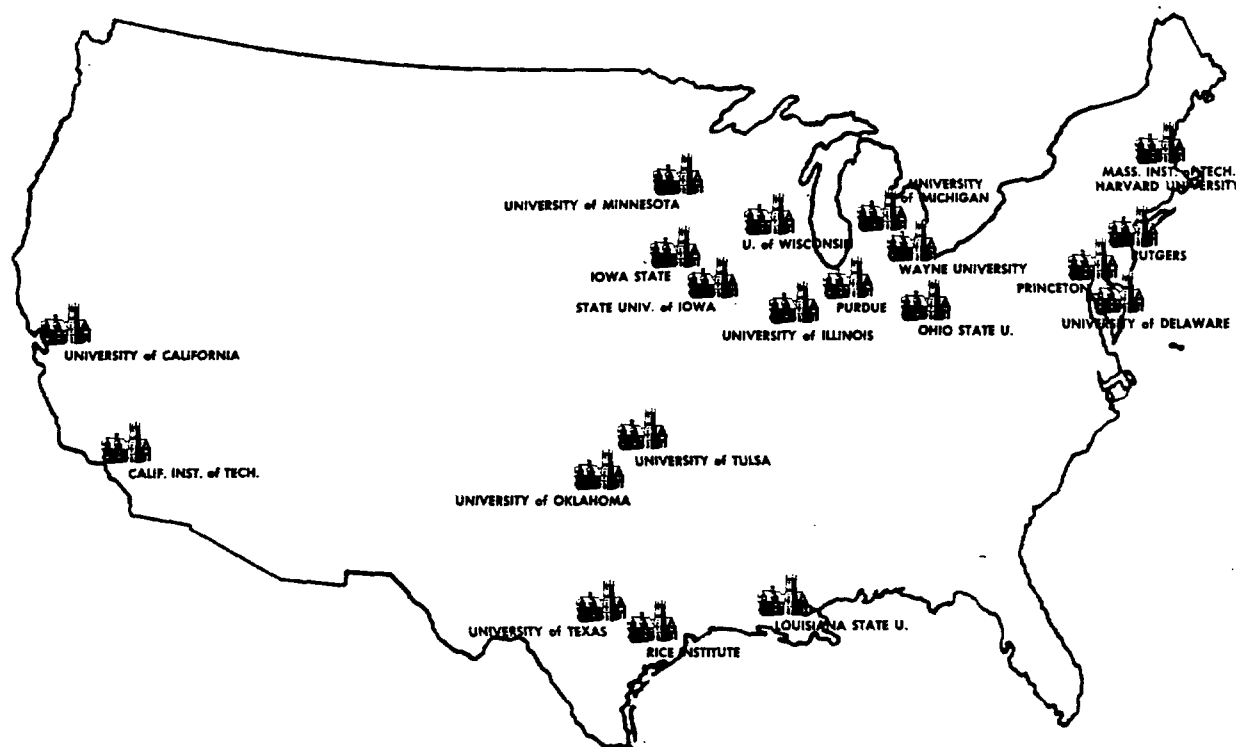
Helping Tomorrow's Scientists Today

One of the most serious problems now confronting American industry — and one that looms as dominant for several years to come — is the acute shortage of college-trained engineers and chemists.

Beyond an increase in the number of graduating students in these two fields, there is also need to encourage capable and deserving students to continue their formal education after graduation. As part of the latter effort, Ethyl Corporation substantially expanded its program of graduate study assistance for the school year which began last fall.

Compared with 12 grants made the previous year, 21 are in effect during 1952-53. Graduates at colleges from coast to coast are sharing in the program (see map).

Initiated 16 years ago, Ethyl's fellowship program is intended to assist — by financial support and personal interest — in the professional training of research workers. In common with similar programs of other companies, the direct objective is to encourage university graduates to continue their professional training to an advanced degree, thus qualifying themselves for research positions in industry.



As in past years, the Ethyl fellowships for 1952-53 have been awarded in fields related to the petroleum, chemical and automotive industries, all of which Ethyl Corporation serves. Recipients of the current fellowships and their respective fields and schools are:

California Institute of Technology — Craig Marks, mechanical engineering.

University of California — Maynard C. Michel, chemistry.

University of Delaware — Robert H. Perry, chemical engineering.

Harvard — Dietmar Seyferth, inorganic chemistry.

University of Illinois — Herbert F. Kraemer, chemistry.

State University of Iowa — John Kozikowski, chemistry.

Iowa State — John Anderson, chemical engineering.

Louisiana State University — Albert H. Wehe, Jr., chemical engineering.

Massachusetts Institute of Technology — E. Philip Cockshutt, mechanical engineering.

University of Michigan — William Mirksy, mechanical engineering.

University of Minnesota — Eugene R. Nightingale, Jr., chemistry.

Ohio State University — Rollin G. Lindsey, chemical engineering.

University of Oklahoma — Jasper A. Jackson, Jr., physics.

Princeton University — Edward J. Becker, chemistry.

Purdue University — Martha Havill, chemistry.

Rice Institute — Charles E. Boozer, chemistry.

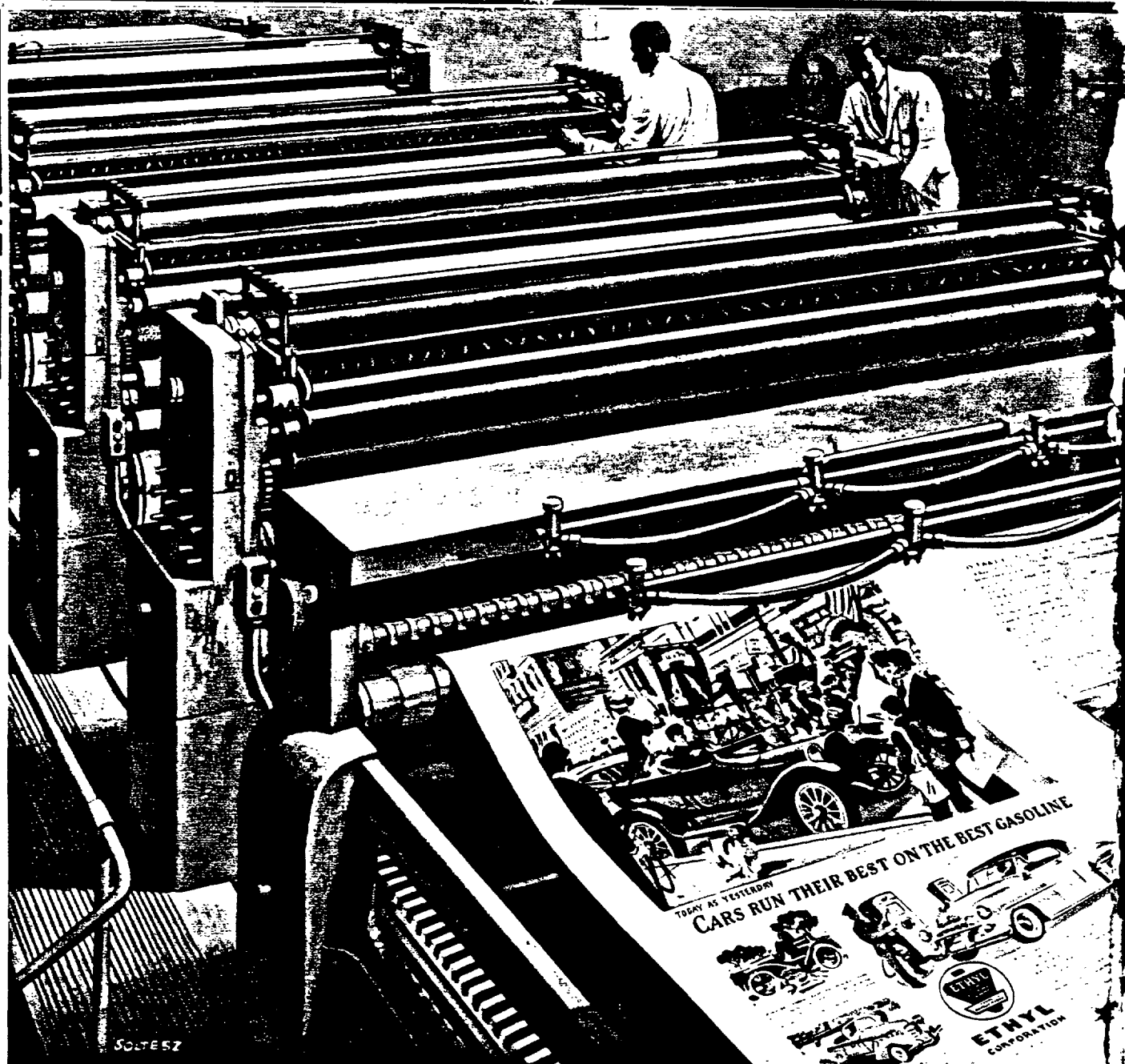
Rutgers University — George T. Fisher, entomology.

University of Texas — Langley R. Hellwig, chemical engineering.

University of Tulsa — Archie D. K. Knight, chemical engineering.

Wayne University — Thomas H. Coffield, chemistry.

University of Wisconsin — Ernest Freudman, mechanical engineering.



Printer's ink—an important ingredient of "Ethyl" gasoline

The composition of "Ethyl" gasoline has changed over the years as new refining processes have been developed. But printer's ink has always been a basic ingredient.

Starting in 1924, Ethyl advertising and promotion helped establish the premium gasoline market — a market which has brought millions of dollars of added income annually to the petroleum industry.

Today millions of motorists are buying "Ethyl" gasoline. But markets must be continuously developed. Every year millions of people come of driving age. These people are too young to have seen the 1927 or 1928 Ethyl advertising. They, as well as present users,

must be sold this year, next year and the year after that. That's why Ethyl advertising is a continuous year-in and year-out effort and has been for 29 years.

This year, Ethyl's "old car" campaign is appearing in national magazines reaching 48 million people every month. In addition, during the peak driving season, television and special drive-in movie films demonstrate to millions of car owners why it's smart to use "Ethyl" gasoline. But whatever its form, the important thing is that Ethyl advertising is working for you.

National advertising is one of the important reasons why Ethyl is first in antiknock service.

ETHYL NEWS



MARCH-APRIL ★ 1953

ETC 24314

ETHYL NEWS

Thom Yates, Editor
Richard F. Cook, Associate Editor
Hal Wohanka, Art Director

March-April ★ 1953

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Opinions expressed in signed articles are the authors'. Ethyl News welcomes articles of timely interest submitted from outside sources. Upon request, the editors are glad to grant permission to reprint material appearing in Ethyl News.

Published by Ethyl Corporation, 100 Park Avenue, New York 17, N. Y., manufacturer of "Ethyl" antiknock compounds, used by oil companies to improve the antiknock quality of aviation and motor gasoline.

Edward L. Shea, President
Stanley T. Crossland, Vice President and Treasurer
Herbert A. Savage, Secretary

In the NEWS

Much of the talk among oil industry people these days has to do with the forthcoming International Petroleum Exposition in Tulsa. If you are planning to attend — or even if you aren't — we think you might enjoy reading the article that begins on the next page.

In this connection, our back cover message also is timely. It gives a "sneak," albeit partial, preview of the Ethyl exhibit that will occupy booths 127 and 128 in the IPE's Kansas Building.

Back at his post as Central Region manager for Ethyl Corporation, after having been on loan to the Office of Price Stabilization in Washington, is S. T. (Jack) Pruitt.

Mr. Pruitt had served for three months as director of the rubber, chemicals, drugs and fuels division of the OPS. During his leave of absence, Stuart Forbes, assistant manager of the Central Region, served as acting manager.

Anyone looking for a spot in the United States where he can experience drastic changes in terrain, atmospheric conditions, and scenery — all within a few hours' drive of each other — need look no further. San Bernardino, California, is just the place.

The wide range of driving conditions found there, in fact, is the reason Ethyl Corporation established its road research laboratory at "San Berdu" some 15 years ago.

Our cover will give an idea of what we mean. The trucks, used in diesel fuel evaluation work, are climbing a road up one of the mountain ranges in the area. In an entirely different setting, but still not too many miles from where the trucks were photographed, is the test automobile in the lower photo. The engineers have set up equipment that permits on-the-spot analyses of exhaust gas samples. On test routes where wide variations in temperature and altitude are encountered, engineers often find it well to check air-fuel ratios in this manner.



ETC 24315



The famed International Petroleum Exposition at Tulsa really puts . . .

OIL ON DISPLAY

sisting of several articles of oil industry equipment. Immediately Mr. Sneed's mind clicked. Why just a window display? Why not a mammoth exposition, one worthy of "the oil capital of the world"?

Weeks and months of whipping up enthusiasm for the project followed. Finally, under auspices of the Tulsa Chamber of Commerce, a working committee was assembled to arrange a 1923 Exposition.

Although the first oil show boasted displays by maybe twoscore oil equipment manufacturers and was attended by a few thousand people, it was basically a street bazaar.

It opened October 8. As any native knows, it isn't supposed to rain at that time of the year in Oklahoma. But it did in 1923. Except for one fact, the deluge might have washed out the International Petroleum Exposition for all time.

Some committee members had lived long enough to know that you don't always trust the weatherman. Not even in Tulsa. They bought \$10,000 worth of rain insurance — just in case. That thoughtful act assured the financial success of the first oil show.

Follow-up Expositions were held

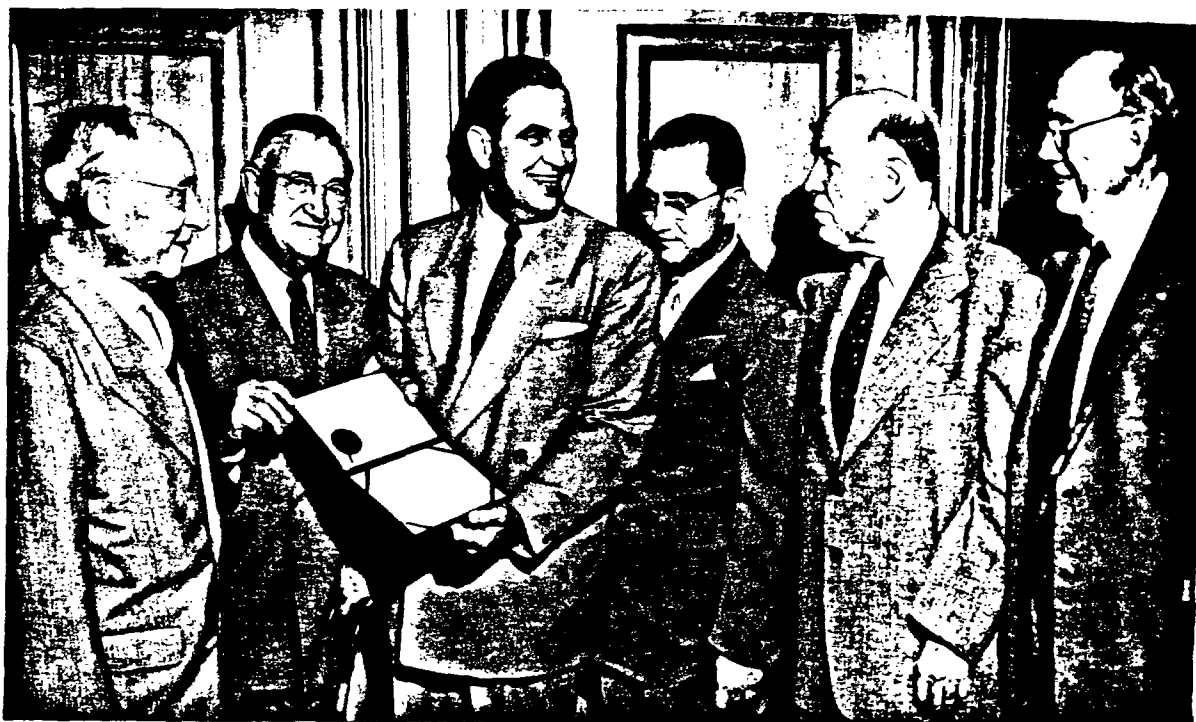
BACK IN 1923, when it staged the first International Petroleum Exposition, Tulsa was growing fast. And men were growing with it. William G. Skelly was one of those who grew with the city — and who helped the city grow. Often referred to today as "Mr. Tulsa," he has been one of the principal architects in transforming the city into a gleaming oasis of the Oklahoma flatlands.

Of "Bill" Skelly's many public services to Tulsa, one stands out above the others. That is his quarter-century leadership of the International Petroleum Exposition, the biggest show of its kind anywhere. He became president of the IPE in 1926 and has filled the position without interruption ever since. As such,

Mr. Skelly heads a non-profit organization whose directors form a veritable "Who's Who" of the petroleum industry, starting alphabetically with K. S. Adams, board chairman of Phillips Petroleum, and extending to Clarence H. Wright, board chairman of Sunray Oil.

For one whose guidance has meant so much to the success and growth of the Exposition, you might imagine that it's the familiar story of a man begetting an idea and then nursing that idea to reality. Not so in Mr. Skelly's case.

It was Earl Sneed, president of the present Sneed Oil Company, who first publicly envisioned what is now the IPE. On an after-dinner stroll with his wife one evening in 1922 he spotted a window display con-



Governor Johnston Murray, of Oklahoma, shows Mr. Skelly (second from right) one of the invitations to attend the IPE he extended to Latin American officials.

Others looking on are E. B. Reeser, IPE director; C. M. Pape, IPE treasurer; O. B. Irizarry, editor of *Petróleo Interamericano*; and Alf G. Heggem, a founder of IPE

in 1924 and 1925, by which time the number of exhibitors had risen to 102 and attendance to better than 38,500 persons.

Still, when Mr. Skelly was elected president of the IPE, it appeared that he might have inherited a non-entity. The early shows had accomplished their main purpose of attracting exhibitors, oil industry visitors, and the interested public. But they also attracted a galaxy of shooting galleries, games of chance, and concession booths. So deep was the dissatisfaction with this arrangement that, following the 1925 show, it was decided to abandon the IPE.

Fortunately wiser heads prevailed. Public-spirited oil and civic leaders considered the Exposition too important and too meaningful to discard. With a new team at the

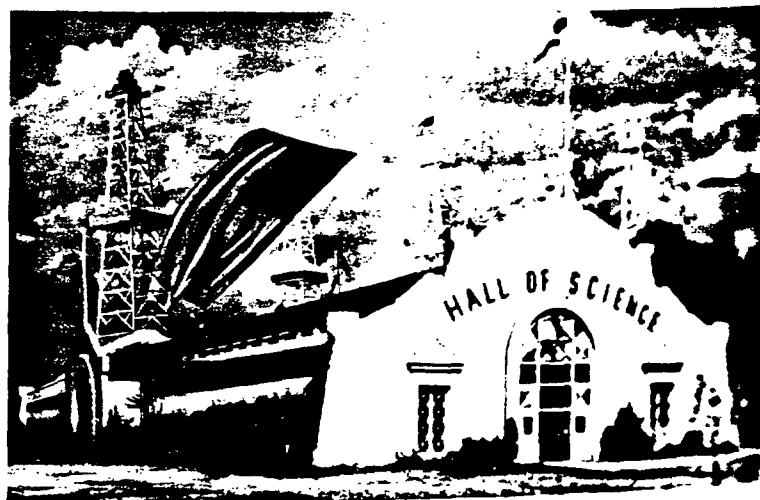
helm — Mr. Skelly as president and J. Burr Gibbons, Tulsa advertising man, as general manager — the IPE went back into business again. This time for keeps.

One of the major moves of Mr. Skelly's early administration was to acquire 25 acres adjoining the State Fair grounds in the southeastern

corner of the city. Little time was lost in starting the big job of preparing the land and erecting permanent exhibition halls and display buildings (of which there are now more than 35).

Next came the delicate task of selecting the date for the revised Exposition. Everything pointed to

Major exhibits—including the newest one, on petrochemistry—will be displayed in the Hall of Science



the period from September 24 to October 1. Weather records showed that to be the driest time of the year in Tulsa.

But again, as with the first IPE in 1923, the elements were in no mood to cooperate. Rain, in the form of payment on the rain insurance, had saved the initial Exposition. But now, in 1927, it threatened to undo all that Mr. Skelly and his army of co-planners had done in restoring the IPE.

It rained — oh, how it rained — for days just before the show was to open and during many of the days it was in progress. "It rained so hard," Mr. Skelly recalls, "there was great danger that the trucks hauling heavy equipment into place would get bogged down in the mud. For two days and two nights, around the clock, we brought in carload after carload of gravel and crushed rock to form roadbeds. There must be places at the Exposition grounds today where the crushed rock is five feet deep."

Despite the day-after-day downpour, the first Skelly-directed International Petroleum Exposition was a remarkable success. Nearly 200

IPE TO FEATURE PETROCHEMISTRY EXHIBIT

"Bigger and better than ever" is the only adequate description of the 30th anniversary International Petroleum Exposition to be held in Tulsa starting May 14.

The show, scheduled for 10 days instead of the usual eight, is expected to attract more than 350,000 visitors from 50 nations. The exhibits they will see are valued at in excess of \$100 million.

Progress in the petroleum industry has been extremely rapid since the last Exposition in 1948. Reflecting those strides, the 1953 show will feature a dramatic petrochemistry exhibit — the first time this "new science" of the oil industry has been singled out for IPE recognition.

A special committee, headed by Dr. Miller Conn. of Phillips Petroleum, has created what is believed to be the first complete display of the vast gains of the rapidly-growing petrochemical industry. Others on the group are John A. Britton, Jr., of Enjay Company; Leroy Donald, of Lion Oil Company; Robert A. Douglass, Ethyl Corporation regional manager in Tulsa; and Dr. Isaac Drogin, of United Carbon Company.

companies showed displays valued at \$5 million and attendance was in excess of 67,000.

No doubt about it now. The International Petroleum Exposition was here to stay. With each succeeding show, the Exposition has grown in importance and stature.

Many changes obviously have taken place over the years. For one, William B. Way, backed by long experience in handling the affairs of the Natural Gas Association of America, was named general manager in 1928 and has continued in that post ever since.

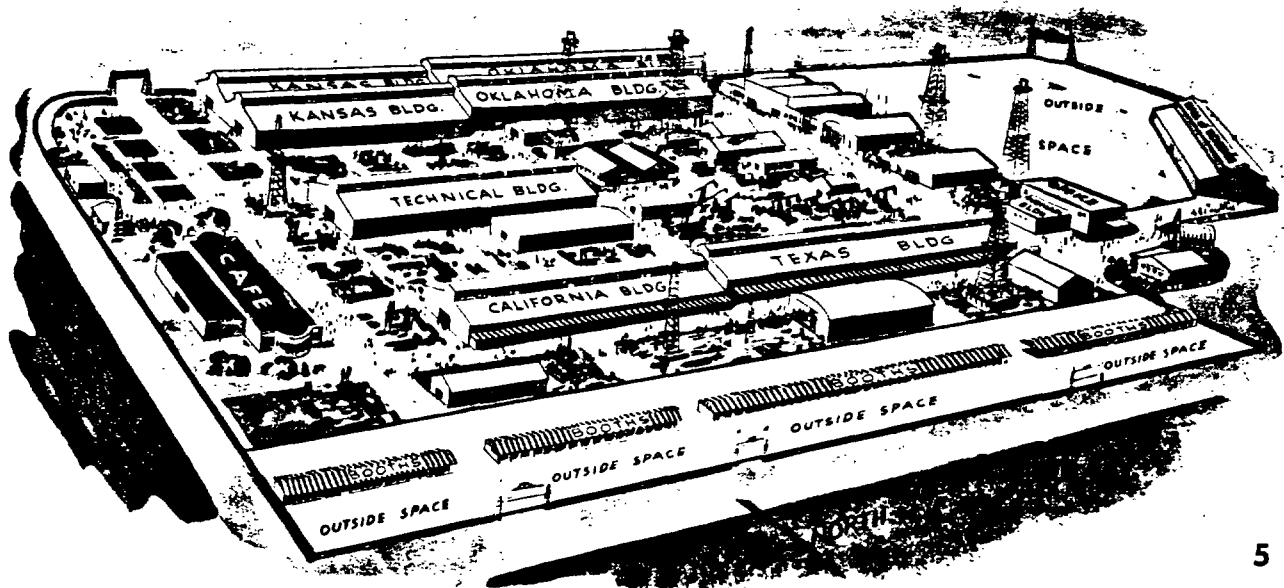
William G. Skelly would be the last person to claim undue credit

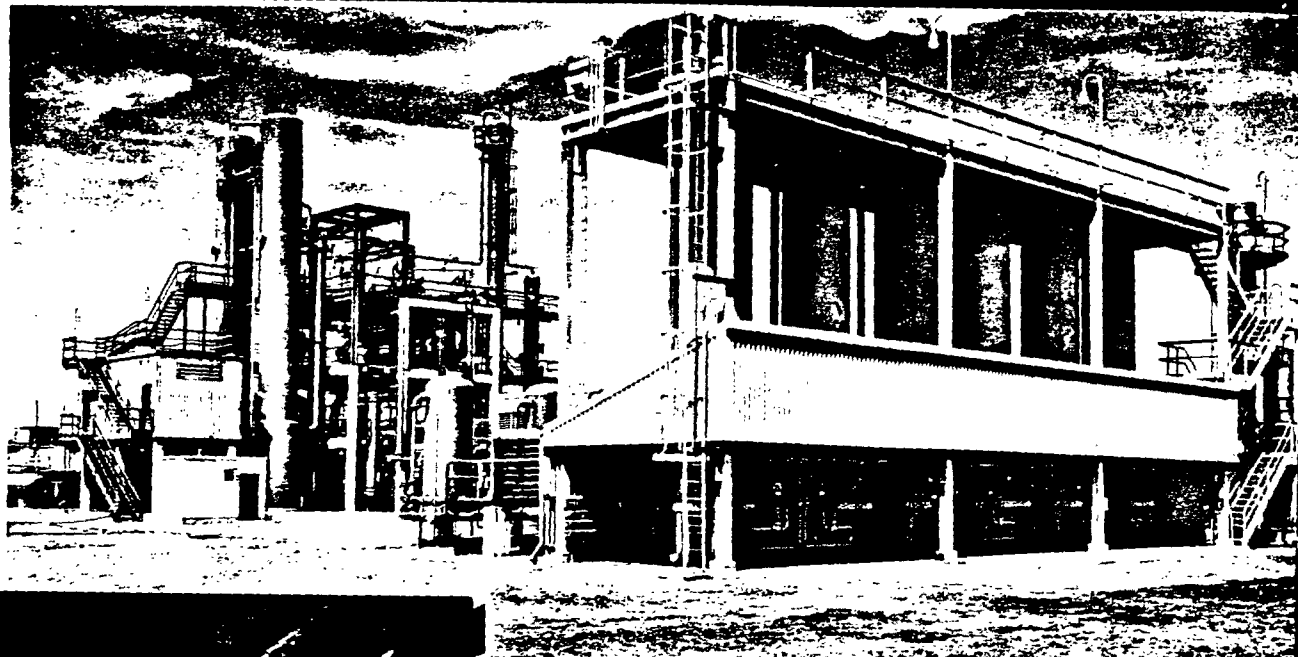
for putting the International Petroleum Exposition on a firm footing after its wobbly start. The real credit, he feels, belongs to the exhibiting oil companies and equipment manufacturers and to oil industry personnel who attend and support the IPE.

Obviously such a vast project is far from a one-man undertaking. Behind Mr. Skelly stand the IPE board of directors, the petroleum industry, and Tulsa's civic-minded citizenry.

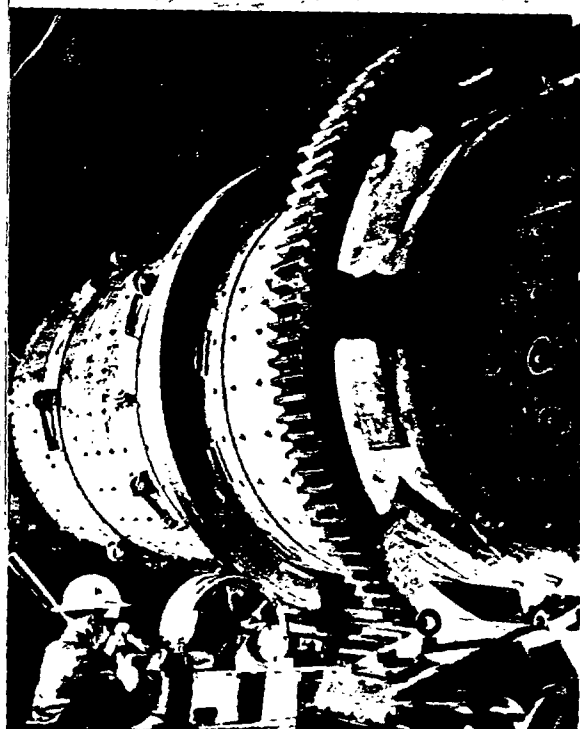
That all have done their job well will be plainly evident to those who attend the 1953 International Petroleum Exposition.

Light areas on this sketch (foreground, upper right) represent land added to the site for this year's IPE



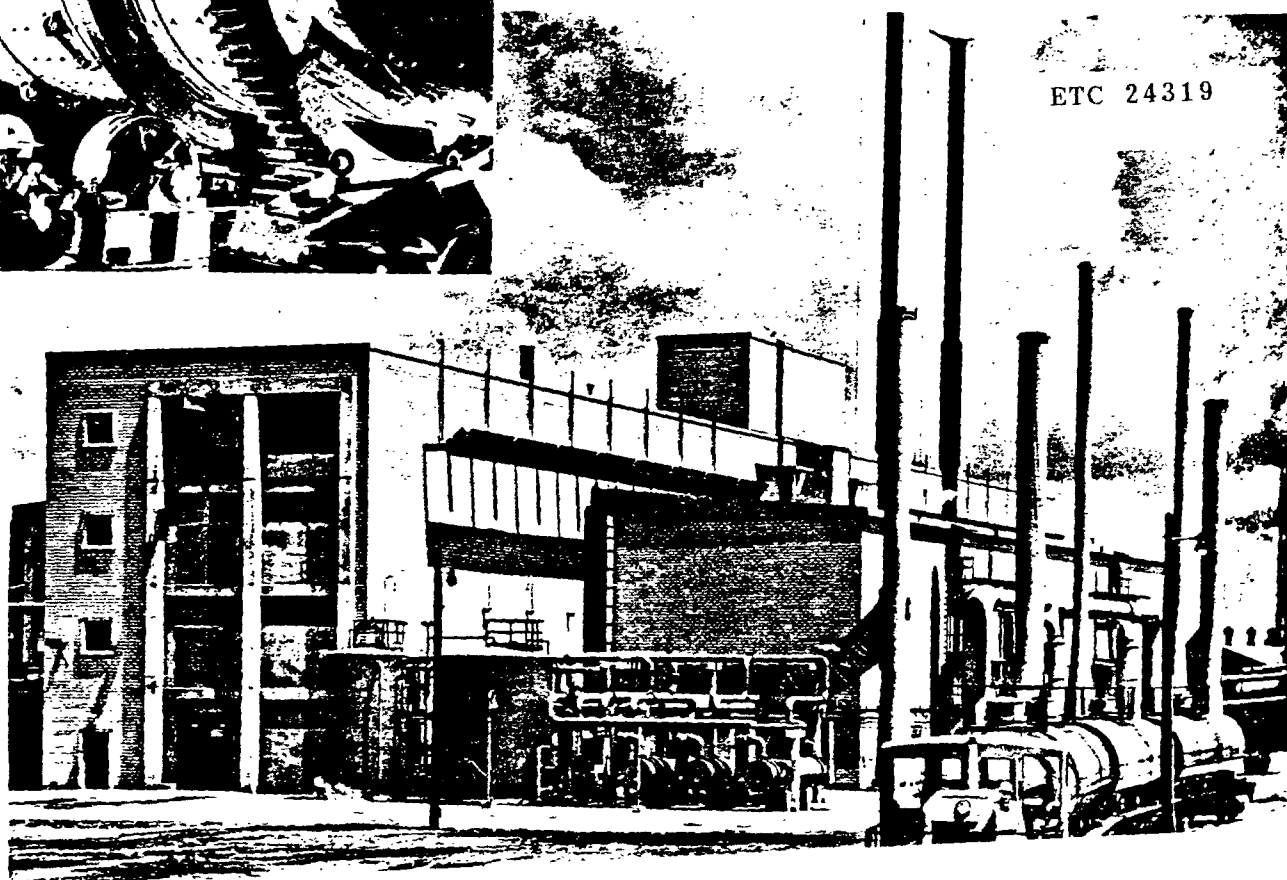


Scenes from the three major operating areas at Ethyl's Houston plant: Pictured above is the ethyl chloride unit



One of the revolving ovens used for drying salt, a preliminary step in the manufacture of sodium

A train of "Ethyl" antiknock compound tank cars moves past the big modern tetraethyl lead building



ETC 24319

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MADE IN HOUSTON

In its first year of operation, Ethyl's new manufacturing plant has achieved its production goal

THE FIRST BIRTHDAY of a manufacturing plant is a lot like that of a small child. It's a sure sign the youngster is well established in the world and an indication that many years of productive life lie ahead.

Ethyl Corporation's manufacturing center at Houston, which is now completing its first full year of operation, is a good example. Since it went into production in April 1952, the plant has become an important source of antiknock compounds for many of the nation's oil refiners, particularly those in the Southwest. Within its first 12 months, it has achieved its goal of increasing the company's antiknock compound production capacity by one-third. One out of every four gallons of gasoline containing "Ethyl" fluid now is improved by antiknock compound manufactured in Houston. The bulk of Ethyl's production, of course, is from the company's manufacturing plant at Baton Rouge, La., the largest of its kind in the world.

Plant's Significance

In an era of unprecedented gasoline consumption, and in anticipation of even greater demands in the future, the added production facilities of the Houston plant are especially significant.

In each succeeding postwar year,

calls for gasoline have been progressively greater, both quantity and quality-wise. In 1951, the year before the new Ethyl plant went "on stream," automotive vehicles, aircraft, farm tractors, and other gasoline-powered equipment used a total of 44.7 billion gallons. Last year, when that figure jumped to 47.5 billion, the "Ethyl" antiknock compounds produced at Houston helped meet the demand for modern gasoline. The plant's importance this year, when gasoline demand is expected to set a new high, promises to be even greater.

"Ethyl" Fluid's Role

As they are called upon to supply more and more gasoline, refiners also must meet demands for fuels of higher antiknock quality. Since 1946, the average compression ratio of new cars has increased from a little over 6.5 to 1 to almost 7.5 to 1. Translated into terms of gasoline quality, this has meant increases in the octane rating of gasoline — increases made possible in a large measure by sufficient supplies of "Ethyl" fluid.

Completion of the new Ethyl plant a year ago was an important milestone in the use of "Ethyl" antiknock compounds in gasoline — a use that has grown progressively larger over the last 30 years. But equally important as the new pro-

ductive capacity is the assurance it provides that oil refiners will be able to supply gasoline of adequate antiknock quality in war or in peace.

Part of the assurance of an uninterrupted supply of "Ethyl" antiknock compounds stems from the fact that, like Ethyl's manufacturing center at Baton Rouge, the Houston installation is completely integrated for the manufacture of tetraethyl lead. From a relatively few basic raw materials, most of which are obtainable nearby, the plant is able to produce practically all of the intermediate chemicals needed to complete the highly complex manufacturing processes.

Room to Expand

Plant facilities enable Ethyl to supply present needs and those of the foreseeable future, but ample space is available for further expansion as may be required. Installations occupy only about 80 acres of the 400-acre property.

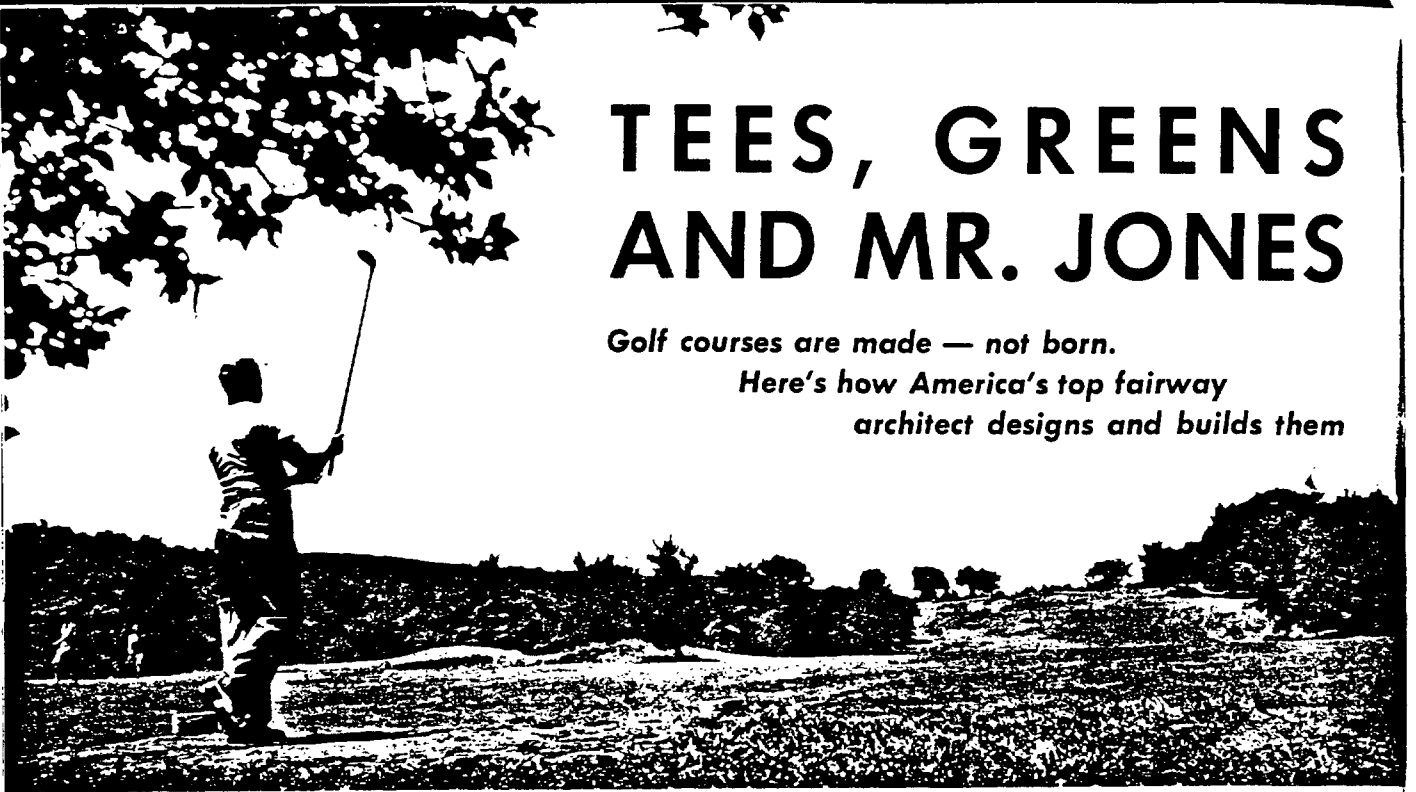
The Houston plant incorporates many technological improvements, process changes, and new engineering designs which Ethyl's long experience in the manufacture of antiknock compounds makes possible. In spite of this, construction work will never cease completely. As at the plants of other forward-looking manufacturers, workmen are constantly on the job adding facilities to increase the plant's productive capacity and efficiency.

With a year of successful operations behind it, the Houston plant has established itself beside Ethyl's plant at Baton Rouge as a major producer of "Ethyl" antiknock compounds. In the face of progressively greater demands, this means that the oil industry is assured of another source of supply of this essential ingredient of gasoline.

TEES, GREENS AND MR. JONES

Golf courses are made — not born.

*Here's how America's top fairway
architect designs and builds them*



THIS WAS NO verbal 19th hole post-mortem of a routine round of golf.

The fourth hole on the lower course at Baltusrol Golf Club, near Springfield, N. J., was up for serious discussion. The club president and the pro were telling Robert Trent Jones that by adding yardage, enlarging the water hazard, and restyling the green, he had made the hole too difficult.

"I'm afraid I can't agree with you," was Jones' calm reply. "If

you hit your shot right, the green will take care of you."

When his foursome reached the hole, Jones more than proved his point. He selected an iron from his bag, addressed the ball, and swung. The ball arched through the air, struck the green, bounced once, and plopped into the cup for a brilliant hole-in-one.

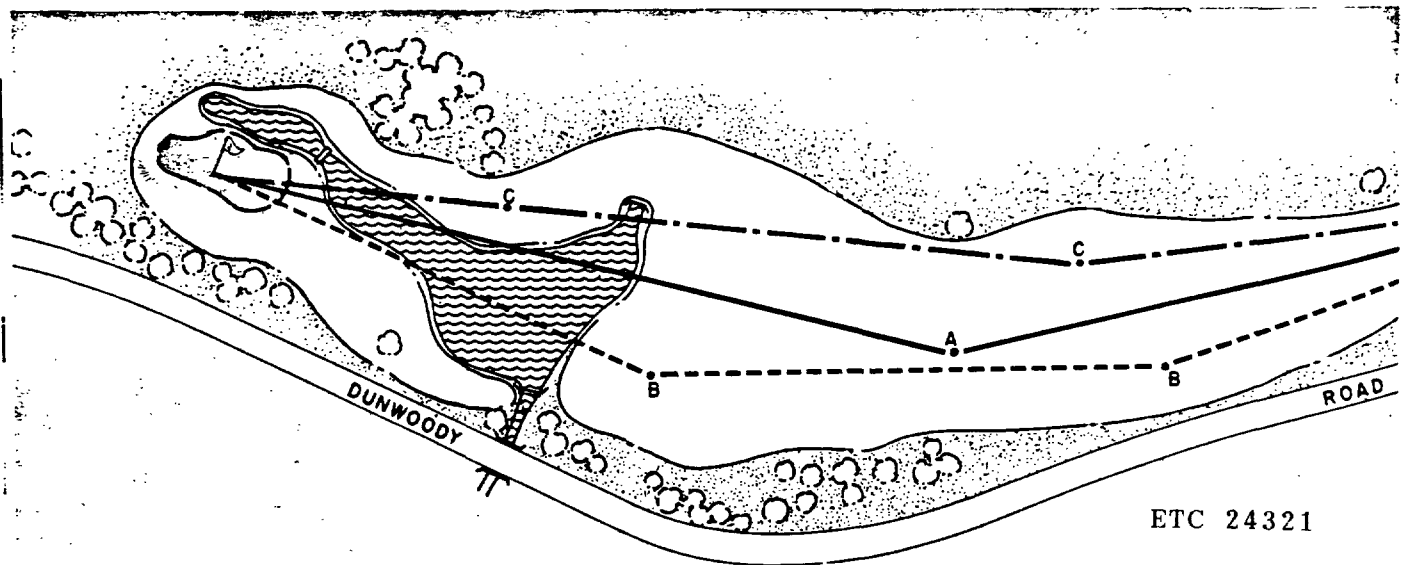
Exceptional golfing ability (he shoots in the low 70s), a good schooling, years of experience, and an effervescent enthusiasm for his

work have made Robert Trent Jones an outstanding member of a distinctive profession — golf course architecture.

In spite of their almost religious fervor for the game, many of the country's five million golfers don't realize that there is such a profession, or that golf courses are designed and just don't happen. They pit their skill and patience against long fairways, treacherous traps, and tricky water holes, and rarely stop to think of their origin.

The 555-yard, par 5, second hole of the Peachtree course in Atlanta. For the professional (A), shooting

for a sub-par score, the hazards are formidable. But average golfers (B and C) are not unduly penalized



Some courses are little better than reclaimed cow pastures. But a large number of the better ones are the product of a thorough knowledge of golf plus a skillful blending of landscape architecture, engineering, agronomy, and several other sciences.

The swing is to more courses of this type.

There is, as a matter of fact, an American Society of Golf Course Architects (of which Mr. Jones is a past president), made up of those experts who design and redesign courses. These men are concentrating on combining tee, hazard, fairway, and green in a way that is commensurate with the ability and the equipment of today's golfer. One of their goals is to put the weekend golfer and the skilled professional on a more equal footing in the links game.

More Strategy

Resolutions passed at the Society's 1953 meeting give an indication of how golf architects hope to accomplish their aims. They call for golf courses that put more emphasis on strategy and accuracy and less on power.

Affable Robert Trent Jones is a prime exponent of this school of golf course design and has an unusual talent for applying it. Al-

though he approaches courses from a different angle, it has been said that he is applying as magical a touch to golf today as golfer Bobby Jones did two decades ago. Currently planning courses in the Bahamas, Jamaica, Florida, Virginia, and New York, among other places, the ubiquitous Mr. Jones also has on his desk requests for his services in such far-off places as Germany, Greece, and Japan.

In more than 25 years in the business, Cornell-educated Robert Trent Jones has left his mark on some 200 courses and, through them, thousands of golfers. But he speaks in tones of deep affection

by playing from the forward part of the tee and employing the right strategy.

The Peachtree greens, too, reflect architect Jones' magical touch. While they are not heavily trapped, they are very large and contoured. Building the putting surfaces in two, three or more sections, each at a slightly different level, adds versatility, Jones feels. By placing the flag in various positions, course officials can change the character of each hole in as many as 40 different ways.

Placing traps and other hazards where they are likely to penalize long-ball-hitting professionals is a

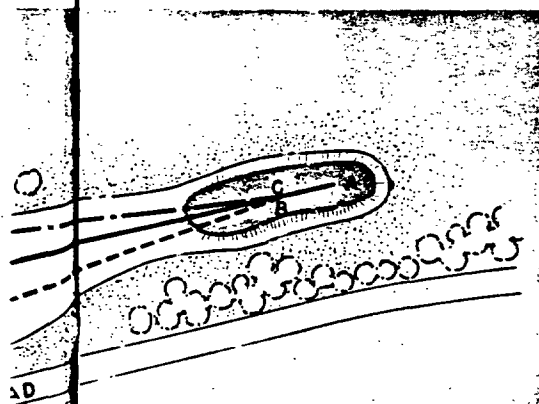


At a drawing board in his office, architect Jones ponders a new course

when he talks of his favorite — the beautiful but little-publicized Peachtree course in Atlanta.

Architect Jones points admiringly to Peachtree as the ultimate in golf course design for several reasons. The hazards are placed to make it an exacting test for the professional who must play the holes from the back of the long (up to 80 yards) tees. Yet Mr. Average Golfer can get a respectable score

favorite Jones measure. He learned his golf in the days before par-busting was commonplace, and disagrees that phenomenal scores mark today's professionals as the golfing superiors of champions of the Bobby Jones-Walter Hagen era. Improved equipment — notably the steel-shafted club and high-compression ball — is responsible, in Jones' estimation. He aims to restore the sanctity of par by moving



obstacles out to the 240 to 270-yard range where most professional drives now land.

When he did just this at Oakland Hills, in Birmingham, Mich., for the National Open in 1951, many pros raised such a howl that it looked as though Jones might have to seek shelter in the deepest sand trap. He stood his ground, however, and pointed out that the improved course had produced better golf. Many experts supported him. They agreed with Jones that the final round 67 with which Ben Hogan won the tournament was one of the finest games of golf ever played anywhere.

From site selection through designing, construction, completion, and often maintenance and alterations, Jones carefully guides the destiny of many courses. His ability to envision 18 interesting golf holes where there is nothing but hills, trees, swamps, and rocks is one of the principal reasons for his success.

Generally, his philosophy is that you can't improve on nature. He makes as few major topographical changes as possible, preferring to adapt the holes to the natural lay of the land. But he doesn't toss holes helter-skelter over the landscape either.

After the site is selected, his plans proceed systematically through a series of detailed topographical maps, aerial photographs, and drawings of all the elements that will be included in each hole. Each green — one of the most important parts of any course — is built in miniature from modeling clay. This enables Jones, his staff, and his clients to study with care the approaches, contours, and traps.

Once plans are approved by the client, Jones goes into the field and painstakingly directs construction

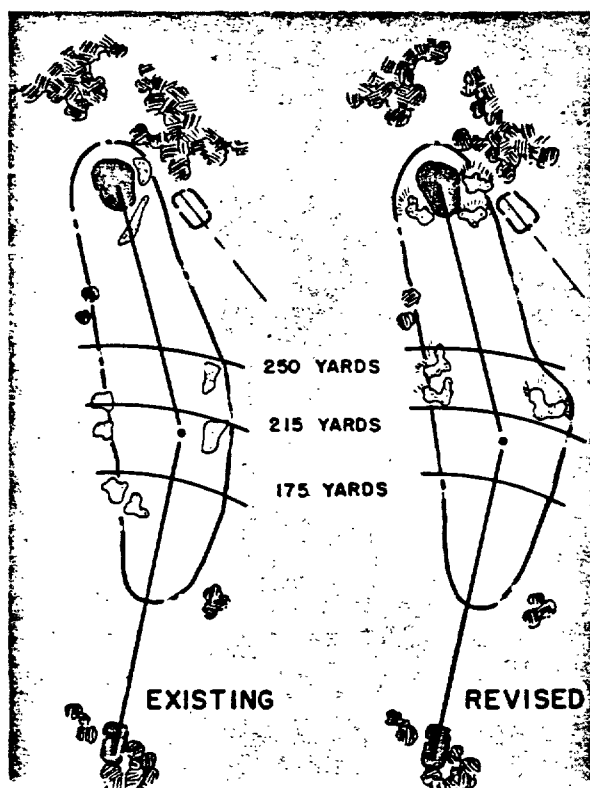
gangs and earth-moving equipment. Tees, fairways, traps and greens are shaped and molded under his careful supervision.

When grading is completed, Jones tests the soil, selects the proper grass, and supervises fertilizing, cultivating, and planting. Anywhere from a year to a year and a half after the site was selected, he proudly presents the finished course, ready for the first anxious foursome to tee off.

New golf course construction, a casualty of the Depression of the 1930s and of World War II, has picked up appreciably in the last few years. Now, with an avid golf enthusiast in the White House, the game is expected to become even more popular and create a demand for more new courses and improvements in existing ones.

President Eisenhower's enthusiasm for golf promises to add even more devotees to the already-popular sport

These sketches of the first hole at the Detroit Golf Club reflect Jones' ideas in relocating sand traps



ETC 24323

The Consumer Looks at Lead

By Joseph A. Costello



(Mr. Costello, vice president of Ethyl Corporation, delivered before the 25th annual meeting of the Lead Industries Association at White Sulphur Springs, West Virginia, on April 10 an address entitled "The Consumer Looks at Lead." The following condensation of that talk is presented as a matter of reader interest.)

AN EXAMINATION of the broad trends in lead consumption over the past 25 years shows a steady increase in total lead demand. Without taking into account metal for the stockpile, domestic lead consumption has increased from an average just under 800,000 tons in the 1920s to over 1.1 million tons in the 1950s.

While this increase is substantial, its greatest significance lies not in the statistics themselves, but in the play of economic forces that accounts for them. Lead for batteries, lead for gasoline, lead for protection against the elements, lead as a construction material—these are only a few of the many applications that have been found for lead which have demonstrated proven economic usefulness.

The Meaning of Tetraethyl Lead

I do not feel qualified to discuss in detail the usefulness of other lead-consuming products, but I can tell you a little about what tetraethyl lead has come to mean to the national economy.

In the 30 years since it was commercially introduced, tetraethyl lead has come to be used in over 95 percent

of all motor and aviation gasolines. Because of this fact tetraethyl lead has grown to become the second largest consumer of metallic lead in the country.

There was a reason for this—a sound reason, to be sure. Tetraethyl lead has demonstrated its economic usefulness in a widening orbit to the oil industry and in turn to the motoring public. Today, simply by taking the knock out of gasoline, tetraethyl lead sets in motion a chain reaction of progress in which our modern automotive economy operates efficiently, the consumption of petroleum and other natural resources is conserved, and substantial economic benefits accrue to the motoring public.

A recent study of the economic value of tetraethyl lead showed that its use in 1950 reduced effective gasoline consumption by at least 10 percent—or an estimated four billion gallons. That represented a cash saving to the American public of over one billion dollars on its annual gasoline bill. Stated another way, the use of perhaps 105,000 tons of metallic lead was sufficient to save some 12 million tons of gasoline.

Tetraethyl lead plays an important role in our economic life. And by its widespread use a vast amount of our natural energy resources is conserved. This saving far outweighs the resource value of the lead that is consumed in its manufacture.

The economic value of other lead products can be similarly demonstrated. Indeed, the entire trend of lead consumption in recent decades has been dictated primarily by the economic usefulness of the products made from it. In 1929, the five leading uses of lead were for cable coverings, batteries, white lead, build-



Lead from mines like this is used in the production of modern gasoline, batteries, and many other items

ing material, and ammunition. By 1950 three other uses — tetraethyl lead, solder, and oxides for uses other than batteries — moved into the first five.

The comparisons illustrate some of the technological developments that have affected lead demand. They demonstrate how lead has become more valuable for some products, less valuable for others. While lead has scored impressive gains in some consumption categories, it has lost ground in other directions due to the increased competition of other materials.

Because it represents the only comprehensive effort made to look into the future of our commodity and energy resources, the President's Materials Policy Commission Report, sometimes called the Paley Report, has now supplanted the well-known crystal ball for prognosticating what is to come.

Understanding the Paley Report

Without question, the aims and purposes of the Paley study are most laudable. A factual knowledge of the United States' raw materials position, and of production and consumption trends for the next quarter century, should prove to be of inestimable value in planning national policy. In this connection, a great number of its recommendations for legislation to give industry relief from taxes and other oppressive government regulations, as well as aid in exploration and development work, show that the Commission had a real grasp of the problems ahead.

It is unfortunate, however, that some of the materials projections in the Paley Report have been mistaken for flat predictions in some quarters. Indeed, the Commission itself carefully pointed out: "These projections do not predict how much of each material will actually be available and consumed. Instead they are an

estimate of what might be demanded if relative prices of various materials remain the same as in early 1950, which they are most unlikely to do. Moreover, these projections assume no unforeseeable new uses, substitutions, or technological improvements. They are intended only as a starting point in the analysis of prospective supply-demand relationships and give only a rough measure of magnitude."

It is these very considerations, cited in the Paley Report, which make it so difficult to attempt a long-range forecasting of lead demand with any degree of accuracy. A simple mechanical extrapolation of existing uses does not give the answer. Social changes, technological improvements, and competition between materials will dictate the future for any commodity.

Illustrative of this is the projection involving storage batteries. For this major use, the Paley Commission projects an increase in lead consumption from 416,000 tons in 1950 to 707,000 tons in 1975. And in making that projection, the Commission, in line with its stated objective, assumed the same average battery life in 1975 as in 1950.

While the average battery's life right now is only two years, many battery manufacturers feel that they can produce a battery which can be guaranteed for three years' service. In another direction, the battery companies have achieved a marked reduction in average lead content per battery from years ago, and they are confident a further substantial decrease will be seen in the years ahead.

Accordingly, if we assume an average battery life of two and a half years by 1975, instead of the present two years, and if we assume a reduction in average lead content per battery from 23 pounds to 20 pounds, which also seems conservative, it is possible to show a 1975 demand for lead in the battery field that is some 200,000 tons less than listed by the Paley Report.

Long-Range Forecasts Impossible

Effects on lead consumption might be explored from a technological standpoint on numerous other lead products. Add to this the important influence of raw material price on end-product use, and it is apparent why a 25-year forecast for lead demand cannot accurately be made. All that can be done is to indicate the general trend.

We are therefore not greatly concerned with the fact that the Paley Commission Report forecasts a demand of 1.95 million tons in 1975. The actual demand will be influenced by a number of factors, particularly of a technological nature, which are not now

apparent. Moreover, the price which consumers will be required to pay for lead in the future will have a substantial bearing on the volume of demand. Production capacity also will be influenced to a much greater extent than is contemplated in the Paley Report by the price of the commodity. There is little doubt in our minds but what the normal economic forces will work in the direction of bringing the demand and supply into balance.

Future Lead Supplies Adequate

As a substantial consumer of metallic lead, Ethyl Corporation has a serious interest in the long-term outlook for supplies. We have tried to compile such information as is available in order to assure ourselves that there is a sufficient potential productive capacity to meet any reasonable increase in the demand for lead. We believe that the potential not only exists, but we are confident that adequate supplies will be forthcoming in the future to meet all essential needs. We have expanded our manufacturing capacity and are gearing our present operations and future plans with the full confidence that this prediction will be a correct one.

Regardless of what we may think of the long-range outlook for lead, we still have the problems that are with us today and are likely to continue in the near future. The recent history of lead has been one of recurring short supply and high prices, followed by long supply and concurrent low prices. We have never liked this situation, but we have come to believe that

it is the "nature of the beast." We consumers would rather have low-priced lead than excessively high-priced lead, but what would be best for both consumers and producers would be for the supply of lead to remain in balance and the price to be reasonably constant at a level where both the consumers and producers can make a profit.

If we agree that the general trend in lead demand is upward, then it must be admitted that this country will continue to follow the experience of the past several years and remain a net importer of lead. Consumers must face this fact and make their plans accordingly. While all U. S. consumers have a full appreciation of the desirability of keeping the American mining industry strong, they must also accept the responsibility for encouraging and supporting the foreign production of lead, upon which they must now in part depend. It therefore follows that any government action that will have the effect of discouraging imports and reducing the expansion of foreign mining properties is undesirable from a consumer standpoint.

The great need in the lead industry is for a reasonable balance to prevail between supply and demand. This balance, which is so necessary for the continued health and well-being of the industry, can be attained — but only if the industry is permitted to work out its own economic problems and is not hampered either by restriction on the uses to which the product is put or excessive taxation on either domestic or foreign production.

Lead bars at one of the Ethyl manufacturing plants. Pig lead is the prime raw material of tetraethyl lead



ETC 24326



An Indu Tale of

By Slim Barnard
Automotive Editor,
Los Angeles Examiner

TO MOST PEOPLE Southern California means Los Angeles. And Los Angeles means movie stars, aircraft factories, oil production and refining, citrus groves, and sunshine. Not always in that order.

But that's only the beginning. The industrial face of America is changing more rapidly than is realized, and Los Angeles is very definitely in on the face-lifting. Automobile production is an example.

Los Angeles, which overtook Detroit in the 1950 census as the fourth largest city, now is the No. 2 center of automotive production. It is several leagues behind the Motor City in over-all automobile and truck output, but it has surpassed Detroit proper in at least one phase.

More different makes of automobiles are assembled in the West Coast city than any other place in the United States. The Los Angeles area produces 13 makes of cars to Detroit's 10. Only Cadillac, Henry J, Hudson, Kaiser, Lincoln, and Packard are not assembled in California.

Automotive plants in Los Angeles—or more specifically, Los Angeles County—have a capacity of 2,000 units a day. Actual production, of course, is less than that; probably about 1,500 cars daily. The estimate is that California built some one million vehicles last year. About 650,000 of these were assembled in Los Angeles County. The rest were produced in the San Francisco Bay region, another fast-growing center of automobile production.

Largest of the Los Angeles area producers is General Motors, which assembles four of its five different makes of cars at two plants. Buicks, Oldsmobiles, and Pontiacs are made at South Gate and Chevrolets are turned out in Van Nuys. All four Chrysler Corporation products—Chrysler, DeSoto, Dodge and Plymouth—are assembled in Los Angeles. Ford assembles at a plant in Long Beach and Mercurys roll off an assembly line in suburban Maywood.

Among the independents, Willys-Overland, which pioneered West Coast automobile production 25 years ago, operates a Los Angeles plant that is shooting for an output of 18,000 passenger cars this year. Nash, at El Segundo, expects to produce only a few thousand less. The Studebaker plant at Vernon currently is assembling about 30,000 units.

Ready Market for Vehicles

There are many reasons for the growth of the automobile industry in Los Angeles County—favorable weather, availability of labor, etc. One of the most important single reasons is the ready market for automobiles and trucks that exists in the region. Against the national average of one automobile for every 3.48 people, Southern California's ratio last year was a car for every 2.43 persons. In mid-1951, the latest figures available, almost 1.6 million automobiles and nearly 174,000 trucks were registered in Los Angeles County. This was far in excess of automotive registrations in any of the other 114 leading counties of the United States reported by the Automobile Manufacturers Association.

So, to Los Angeles' long list of other descriptions, add the accolade "Detroit of the West."



Industrial of Two Cities

By J. Alex. Crothers
Director, Port Development Dept.
Delaware River Port Authority



FOR SOME TIME NOW Philadelphia has been feeling the hot breath of Los Angeles on its municipal neck in the race for honors as America's fourth ranking city in population, manufacturing, and several other categories. Turning the tables, the City of Brotherly Love is hard-pressing the City of the Angels for the No. 2 position among the nation's oil refining centers behind the Port Arthur, Texas, area.

On the basis of a quarter-of-a-billion dollar building program by the six oil companies that have refineries in the area, Philadelphia expects to reach that goal this year.

Capacity-wise, the building program at the Gulf Oil refinery is the most extensive in the Philadelphia area. Spending an announced "well in excess of \$25 million," the Gulf plant is raising its output by nearly 75 percent, chiefly through the erection of an atmospheric and vacuum topping unit, a fluid catalytic cracking plant, a catalytic reforming unit, a cat poly unit, and a steam and generating plant. The expanded refinery will be the biggest on the East Coast.

Special Units Being Added

Atlantic Refining's \$60-million expansion will raise the crude capacity of its Philadelphia refinery by almost one-fourth. Crude distillation and "cat cracking" units are being added and so is a sulfuric acid alkylation plant. Atlantic also is building the only by-product ammonia plant in the area, and is putting in units to increase production of petroleum chemicals.

Some \$20 million is being spent by Sun Oil at its Marcus Hook refinery, down the river from Philadelphia. Capacity of the 145,000-barrel-a-day plant, presently the region's largest, is not being increased.

However, units are being added to step up the output of asphalt, lubricating oils, and other similar products. Sun also is increasing its chemicals-from-oil production.

The Sinclair Oil refinery, also at Marcus Hook, has boosted crude capacity to over 100,000 barrels a day and has erected a plant for the recovery of elemental sulphur. Now Sinclair announces that it will build a large-capacity catalytic reforming unit. Based on the company's own process, this unit will produce gasolines of better quality and will make toluene and xylenes as by-products. Improved docking facilities also have been part of the Sinclair expansion. Recently two tankers bearing a total of almost half-a-million barrels of crude were unloaded simultaneously at the rate of 20,000 barrels an hour.

On the New Jersey side of the Delaware are the Socony-Vacuum and The Texas Company refineries, both of which are being expanded.

The Socony-Vacuum plant at Paulsboro, it is acknowledged, manufactures one of the most complete lines of petroleum products of any refinery in the world. It is now enlarging its facilities for the manufacture of gasolines and lubricating oils.

Texaco's 60,000-barrel Eagle Point refinery was completed in 1949 and has been undergoing almost continuous expansion ever since. The company plans to start construction of a catalytic reforming unit at Eagle Point this year, to step up both the quantity and quality of automobile and aviation gasolines.



"Send Us a Postcard"

LIKE YOU, I'm all in favor of vacations. Except for one thing, which shall be related a few words hence, I'd like to see us reach the point where 52-week vacations are the accepted thing each year.

It's not the routine petty annoyances about vacations that distress me. We can always tie Junior to the back seat of the car and stretch cellophane tape over his mouth if he gets too boisterous and loud as we ride along to the family vacation spot. And I can take it in stride if one of the suitcases pops open and

By Ralph Green

street on the start of our vacation jaunt. What happens when you stick a pin in a balloon happens to me when the "postcard chorus" hits high C. Gone are my pep, my verve, my enthusiasm for the two-weeks-with. The family and I are going to be away only a fortnight, but you'd think we were moving to Guadalajara. We'll be home before the vacation postcards are delivered, no doubt, but they still want them.

Or do they?

And Hank Jones. That loafer won't even be home to see my postcard. He and his wife and kids will be living on my new screened-in patio all the while we're gone.

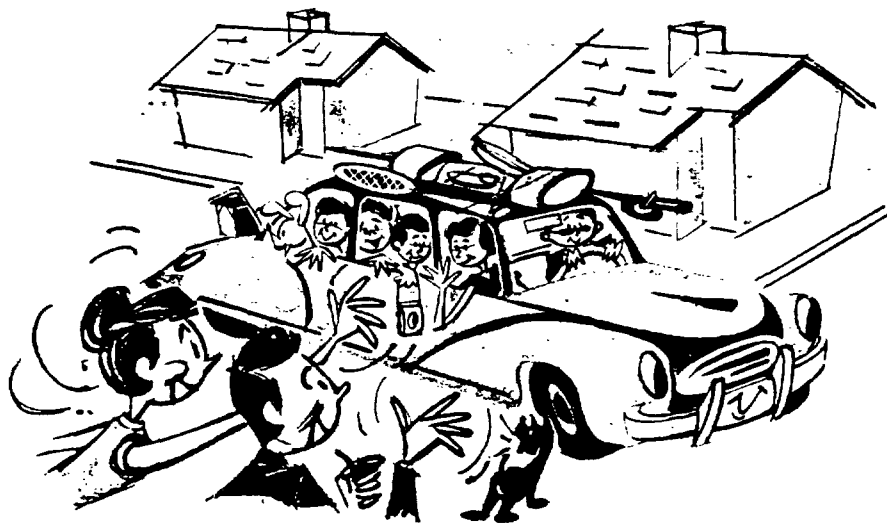
The people who make postcards will hate me for this, but I think the whole thing is a vicious habit. Answer truthfully. When you get a vacation card, do you really look at the picture and read the message? Well, do you? If you're like me, you give the postcard a quick flip, take a two-second look at the signature, and then grunt something about "Here's a card from good old Fred and Lucy." That's the end of it.

Wasting a Day

A man can spend a whole day or more sending postcards back home. This, of course, does not include the sweltering three or four hours spent in the five-and-ten or a cut-rate drug store picking out just the right card for just the right person. A view of the art museum for Aunt Sarah, a picture of Cherokees doing a tribal dance for 6-year-old "Hopalong" Smith, Market Street at night for Bill Floyd, who is quite a night-lifer himself, etc., ad infinitum.

Even if you survive the ordeal of selecting the proper cards for everybody on your list, the terrible task of writing original messages still confronts you. I'm pretty handy with words at a baseball game or in chatting with that sweet young thing of a secretary back at the office. But what in creation do you say in that blank space headed "This Side for Message"?

There's always "Having a won-



"We leave with the neighbors' cries of 'send us a postcard' filling our ears"

spills its contents all over the lobby just as we're trying to make a sophisticated entrance into a swanky resort hotel.

No, things like screaming children and spilled luggage never upset me. But what does are my neighbors' soprano shrieks and baritone booms of "Be sure to send us a postcard" as we glide down the

Bet if I pinned any of my neighbors down, none of them could say he honestly was looking forward to receiving a card from us. Take Pete Thompson. He couldn't tell you whether we're headed for the mountains or the seashore. All my vacation means to him is that he can have unrestricted use of my lawn mower for two whole weeks.



"A museum card for Aunt Sarah"

derful time. Wish you were here." But I have the fear that might be a bit overworked. A couple of years ago, though, I thought I hit upon an idea that was rather clever. I got a picture card of the hotel in which we were staying to send to Ed Mahoney back home. I drew an ink circle around one of the hotel windows on the front of the card. Then, on the back, I informed Ed that "this is our room." He wasn't as amazed as I thought he would be. Claims he mailed a "this is my room" card when he was in New York with his high school senior class 23 years ago.

I had special postcards picked out last year for Pete Thompson and Hank Jones. But I lost my nerve and never sent them. We were sightseeing in Washington and I bought two views of Arlington Cemetery. Thought I'd send them

to Pete and Hank with the usual "Wish you were here." But then I was afraid they would misunderstand. In which case, I might not get (1) my lawn mower back, or (2) Hank and his trespassing family off my beloved patio.

It's Expensive

This postcard-sending gets to be mighty expensive. The vacation cabin I'm renting this year will squeeze \$84 out of my wallet each week. So that day I'll have to spend addressing cards will cost me \$12. On top of that, there's postage and the cost of the cards themselves. Used to be Uncle Sam's couriers got this type of mail through for a penny apiece and you bought five cards for a nickel.

Now postage is up to two cents, and you're—well, nothing but a cheapskate if you mail back anything less than those shiny color postcards. These can set a fellow back as much as 10 cents per.

But enough of my griping. How about you? Taking a vacation this

year? Wherever you go, have fun.

And don't forget to send us a postcard.

• • •

(Ed. Note—If many people share the author's views about postcards, purchases aren't reflecting it.

Each year the dozen or so firms in the business print about 160 million cards. Presumably all get sold—either for mailing or for stashing away as vacation mementoes. Miami, New York, Atlantic City, San Francisco, and similar favorite vacation spots are the big mailing points. During the winter season, for instance, more than 80,000 postcards are mailed from Miami and Miami Beach daily.

What cards do people buy? The big seller in New York is the Statue of Liberty, trailed by the Empire State Building and Rockefeller Center. San Francisco retails more views of the Golden Gate Bridge than any other. The Capitol, Washington Monument, and Lincoln Memorial are the favorites in the nation's capital city.)



"While all the others relax and play, I address my postcards (at \$12 a day)"



An airplane sprays the new chemical herbicide on a stand of hard-to-kill mesquite

2,4,5-T

A LONG WITH INSECTS, obnoxious weeds are the scourge of the farm, the ranch, and the home garden. Unwanted weeds cause crop losses that run into the hundreds of millions of dollars annually. Many of the weeds cause human distress and suffering. Almost all interfere with constructive use of the land.

As a weapon against many broad-leaved bushes and "woody weeds," Ethyl Corporation is now producing the chemical 2,4,5-trichlorophenoxyacetic acid. When formulated into an herbicide, this chemical is particularly effective against mesquite, poison ivy, poison oak, barberry, and brambles.

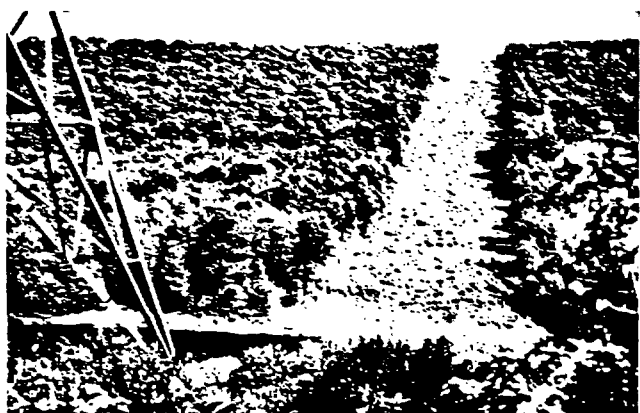
Formulations containing Ethyl's 2,4,5-T destroy these unwelcome plants by stimulating them to excessive growth, thereby causing them to die off.

Ethyl is making 2,4,5-T in two technical forms — as the acid and as the butoxy-ethoxy-propanol ester for the preparation of low volatile ester formulations. These products are marketed to agricultural chemical compounds who formulate the finished herbicides.

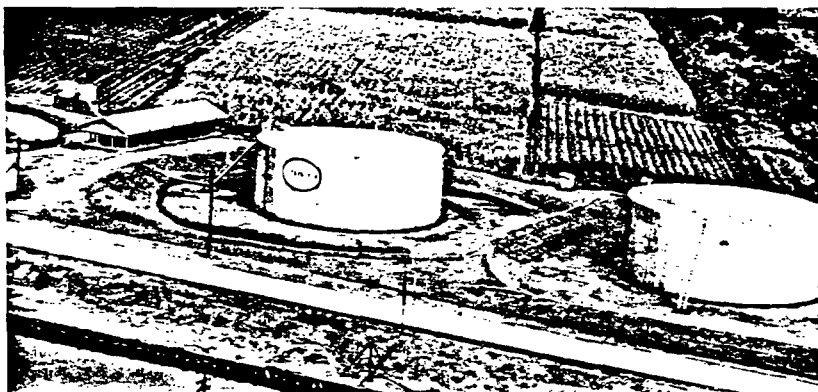
Never welcome is poison ivy. 2,4,5-T controls this weed



Weed control is especially vital on airports



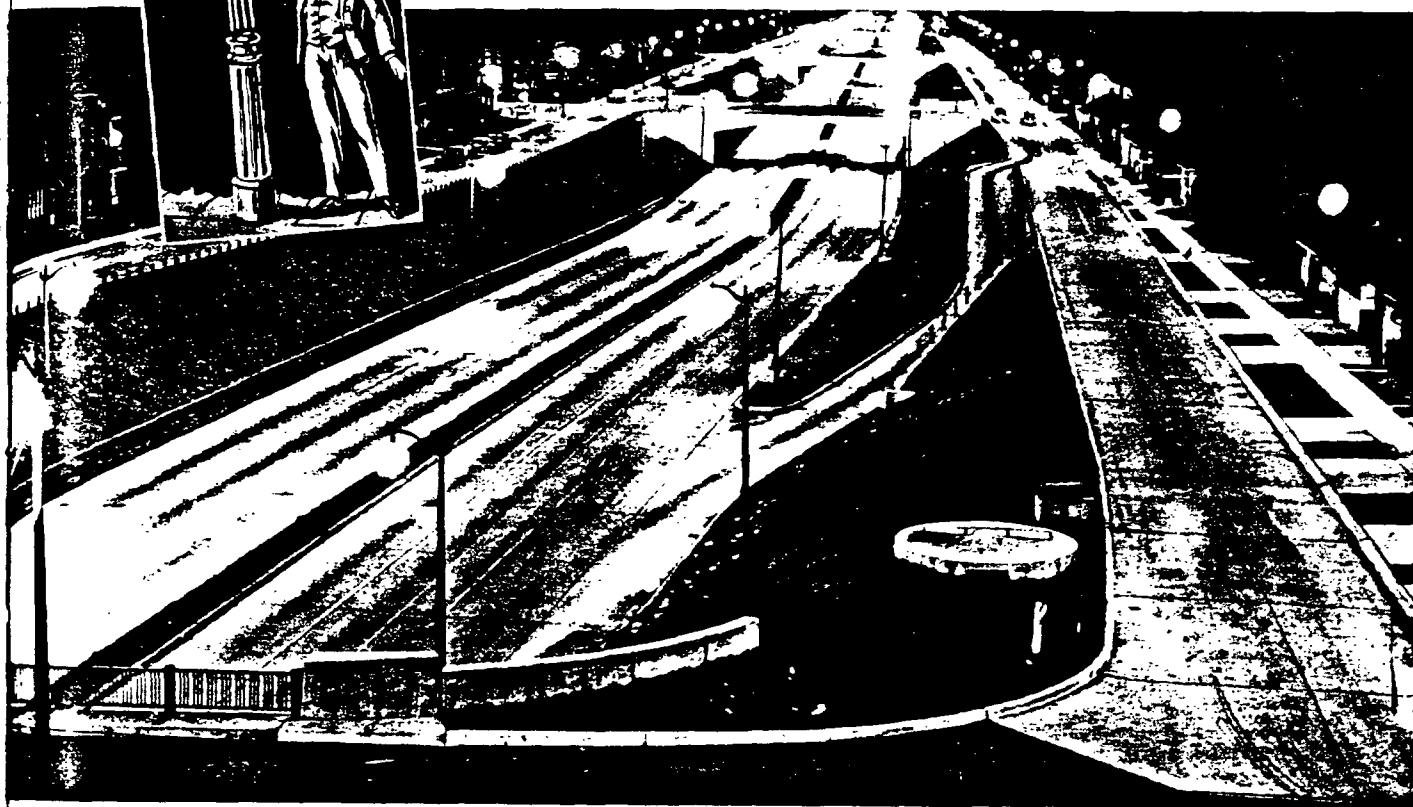
2,4,5-T helps keep rights-of-way and oil installations clear of weeds



ETC 24331

LET THERE BE LIGHT

Proper illumination of streets and highways saves lives, reduces crime, aids business



This well-lighted superhighway illustrates how modern street lights can increase after-dark visibility

TELEVISION, RADIO, bridge, and home movies may tend to keep us closer to the fireside these evenings, but the confinement is only relative. The truth is present-day Americans get around nocturnally far more than any previous generation. Nightfall stays neither men nor women from the swift completion of a busy round of after-dark shopping, meetings, travel, recreation, and night-shift work.

What's responsible for the change in our nocturnal habits? A combination of two things: the automobile,

and the better street and highway lighting that naturally followed in the wake of widespread use of the family car.

Satisfactory in its day was the dim gaslight, lit by the picturesque lamplighter of song and story. But it and its successor, the solitary electric light bulb hanging beneath a white enamel reflector, are not considered adequate in an era that finds some 53 million cars, trucks, and buses on the road.

No hit-or-miss proposition, the production, selection, and installa-

tion of adequate street lighting systems has become a science in itself. It is the subject of continuous studies by specialized groups within the National Safety Council, the Illuminating Engineering Society, the Institute of Traffic Engineers, the President's Highway Safety Conference, and The National Street and Traffic Safety Lighting Bureau.

In lighting studies, streets are analyzed for the volume of vehicular and pedestrian traffic they carry. Highways are further classified into



Crime thrives on darkness

undivided and dual types. Railroad crossings, intersections, bridges, tunnels, viaducts, depressed roadways, heavy pedestrian traffic, and dense forestation all call for special study and treatment.

Lights are selected not simply for their brightness or the appearance of the fixtures. Many factors must be considered. For instance, the efficiency with which they throw their rays downward toward the pavement; their ability to diffuse light both up and down the street and on to the curb and sidewalk; the height of the light; and the glare in the passer-by's eyes.

Penetrating the darkness and dispelling the gloom, modern street lights make the way safer for motorist and pedestrian alike, aid in the

swift flow of traffic, and reduce crime.

Scores of municipalities from Amarillo, Texas, to Waterbury, Conn., have reported substantial reductions in traffic accidents and crime after modernizing their street lighting.

Cleveland Heights, Ohio, is a typical case history. That city recently completed a lighting improvement program and the results have been a revelation to everyone. Well-lighted Cleveland Heights now has fewer night accidents; better property protection; and a brighter, cleaner, safer city that has increased the civic pride of all its people.

A Heavy Toll

One group of statistics emphasizes the close relationship of street lighting and safety. About 65 percent of all fatal automobile accidents throughout the nation occur during the hours of darkness. Still, only 25 percent of all potential traffic is in motion at this time. Inability to see or be seen on streets and highways, because of insufficient light, is a major factor in the death of almost 10,000 Americans each year. Surveys indicate that better lighting could virtually eliminate this unnecessary toll.

Prime mover for better street lighting is The National Street and Traffic Safety Lighting Bureau. The

Bureau points out that while much has been accomplished America still has a long way to go in lighting its streets to reach standards set by illuminating engineers. A recent survey discloses that 90 percent of the country's streets and highways are inadequately lighted for safety after dark. Included in this estimate are only five percent of the total mileage of rural roads — the five percent which contains potentially dangerous areas.

Besides promoting safety, light helps fight crime. In the words of FBI Director J. Edgar Hoover, "Police from all parts of the country report that crimes which occur most frequently at night are most common in areas lacking adequate street lighting." Better lighting, it is estimated, could prevent 50 percent of our nocturnal crimes.

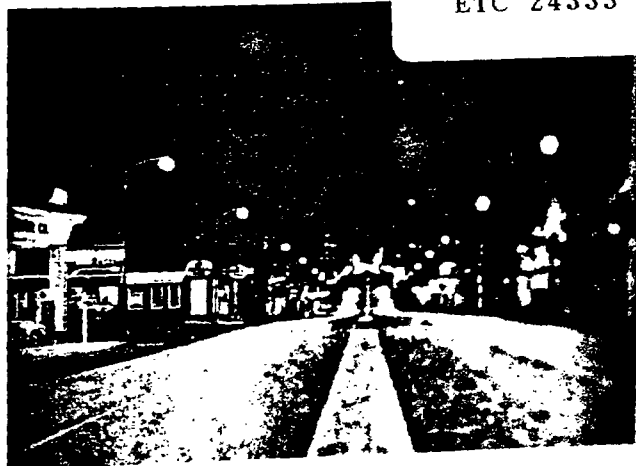
Too, more light means more business. People naturally prefer to shop along bright, well-lighted streets. Greensburg, Pa., can attest to that. There, per capita retail sales increased 200 percent over the average for the state after better street lighting was installed.

The National Street and Traffic Safety Lighting Bureau believes that its slogan summarizes the many benefits of adequate street lighting in a few words. "Bring the people the light," it goes, "and they will find their own way — SAFELY!"

A street in a southern town, before relighting



... and after



ETC 24333



Farming on the airport

Baltimore's big field almost blew away

OF ALL THE AIRPORTS in the world, few surpass Baltimore's giant Friendship International in size and beauty.

Laid out on a 3,200-acre, fog-resistant plateau, Friendship is five times as big as National Airport in nearby Washington and four times the size of New York's LaGuardia. Its main runway stretches almost two miles. Its nine-story control tower is the second tallest in the nation. As terminal buildings go, Friendship's is a showplace.

That's the picture today. It wasn't always as pretty. More than \$15 million and some seven years of planning and construction had gone into the airport. Baltimore almost saw that heavy investment of money and time blown away right before its eyes. Soil erosion, the great natural enemy of the farmer, was having a field day at Friendship. The airport had been thrown open on schedule in June 1950, but it was a good question how long it could remain in operation if it didn't get entirely "tied down" — and soon.

During construction, great clouds of fine, powdery dust had departed in noxious clouds with every passing gust of wind. When the rains came in from Ches-

apeake Bay, tons of "sugar sand," washed off down the creeks, plugged surface drains, and tore deep gashes in the shoulders of the field's runways. Linthicum, Glen Burnie, and other neighboring communities grumbled about the "dust bowl." Special police details sometimes had to untangle traffic on U. S. Route 1, six miles away, in the midst of dirt-laden easterly winds.

Two Types of Soil

The original soil analyses showed some of the meanest stuff in Anne Arundel County. Two types dominated. One was light, powdery material that blew or washed away like fury. The other was sticky clay that formed stubborn pools of rain, then caked and cracked when dry.

Shopping around for a solution, Baltimore Airport Board members learned that several Eastern seaboard airports had ironed out "tie down" jobs fully as complicated as Friendship's. Would these same methods work for Baltimore?

Out went an appeal for help to the Soil Conservation Service office of the U. S. Department of Agriculture at Annapolis.



Before and after: Construction of Friendship International exposed hundreds of acres of fine, white clay and "sugar sand" (above). Weeping lovegrass (below) now protects the drainage system and eroding areas



Clarence Britt, SCS project supervisor at the world-famous Beltsville agricultural experimental station, inspected Friendship's ailing acres in company with an airport official. Mr. Britt silently checked the yawning expanse of nude earth, measured slopes, and bored into the shifting sands.

"Lovegrass," he said finally. "Lovegrass and a soil-builder like the lespedezas would do the best job."

"Weeping lovegrass is one of the hardiest plants we use in problem areas of this sort," Mr. Britt explained. "The roots go deep and really grab hold of the soil. The lespedezas should build up the organic matter and nitrogen this soil needs."

Soil conservation district men then did a complete conservation survey of the entire airport, plotting the results with colored crayon and symbols on a large photo-map. The data would serve as a basic guide to managing the soil and watersheds of the big field for years. Then they got down to cases.

With the city's already hard-pressed budget in mind, the specialists worked out seeding specifications — enough poundage per acre to get a good "catch" stand but short of amounts that would result in seedlings choking each other to death. Korean and sericea lespedezas and weeping lovegrass were planted where hardy growths were needed. Erosion-proof but "softer" grasses — alta fescue, rye, red top and orchard grass — were seeded on the more favorable areas.

Improving the Seed Bed

Before the seeds were broadcast, the farm-trained technicians went into a huddle. Some kind of seed bed improvement was necessary. Lime it, of course, like any sensible farmer would do. But they were stumped by the terrific poverty in organic matter — the material that is needed to blot up and feed moisture to plant roots, and hold soil protectively around delicate seeds and roots. Topsoil could be used but the price was out of sight.

One of the soil conservation team members had been thinking about the problem on Sunday drives around the airport. What about the processed sludge that was stockpiled at the city's "back river" sewage plant, he suggested. Surely it would be hard to find anything more organic. Harry Sheirburn, maintenance manager at Friendship, jumped at the idea. He got on the phone and found he could get all he wanted. Machines soon were working back and forth across the waste areas not previously tied down, disking in lime and the rich, brown sludge.

As plants grow, the soil conservation program at Friendship International was no overnight proposition, even though weeping lovegrass roots dug almost two inches deeper into the ground every 24 hours. Long before the summer of 1951 ended, however, airport officials could see what the conservation men were driving at.

For one thing, the unsightly spoils area was almost completely invisible. Over it, foot-high, graceful crowns of the weeping African lovegrass marched off to the horizon. Between the crowns, tall and erect, the lespedezas spread their leafy stalks. Anne Arundel County farmers enviously observed that the airport was beginning to look like brand-new pastureland.

With Fingers Crossed

But it was still too soon for airport officials and the SCS planners to analyze the results. Crossing fingers, they went on with a twice-a-year fertilizing program, the liming, and the reseeding of "light catch" spots. Sludge hauling built up toward a 500-cubic yard per year level during the winter.

By last May it looked as though the soil conservationists might have something to crow about. The dormant green that had dropped to the root level of the lovegrass during the winter was flushing slowly back into the crowns. Underneath them, the first tender shoots of perennial lespedezas were poking timidly

through the protective plant litter that obscured treacherous sand and clay.

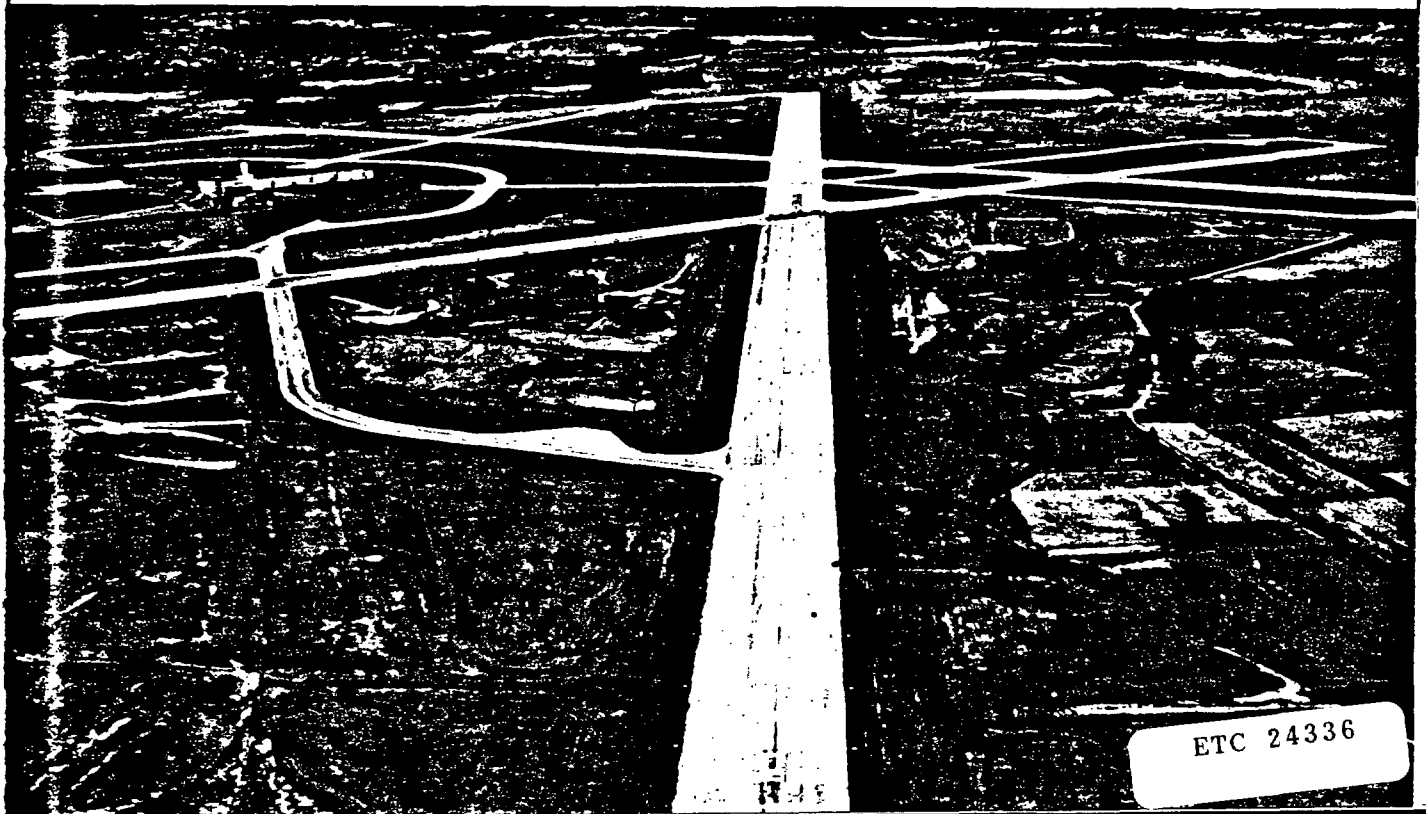
In 1952, the skies emptied the wettest spring in years on west-central Maryland. Six inches of rain pelted the field in five days. Daily the airport staff sloshed around in the murk, peering anxiously at the drainage channels, flumes, and especially the all-important grassland. The runoff level mounted slowly, but only time would tell. You couldn't be sure about the grass. Few spots could be checked closely.

When the clouds lifted, John Morgan, airport engineer, and Marshall Augustine, one of the soil conservationists, went over the place microscopically. Not until they had at last examined the drainageways where they entered Stoney Run did either allow himself to believe what his eyes had been promising for several hours. That mud-free stream running into the Patapsco River, the moderate levels in the field drains, the complete absence of washouts — all added up to one grand and glorious conclusion.

The two men walked buoyantly through the gleaming lobby of one of the world's finest air terminals, then up a level, and finally down to the end of the sunset-lit observation deck. A sleek Constellation landed gracefully. They followed the ship's movements as it turned and throttled busily up to the parking ramp.

Augustine turned to Morgan and spoke softly. "Well, John, I guess we made it. Friendship's really tied down."

Soil-wash and dust-blows no longer threaten operations on the airport's long runways and other areas



ETC 24336

Students at this Navy school are . . .

*Earning Their P.H.D.s**

(**Petroleum Handling Degrees*)

SIXTY-FIVE PERCENT of all tonnage shipped to our armed forces in Korea is petroleum products.

When you say it fast like that, it seems routine. But "shipped" covers a multitude of operations. After they are delivered to the military in this country and before they are finally consumed at some far-off base, petroleum products must be stored, pumped, tested, transported, re-stored, re-pumped, and otherwise handled in many ways.

As with almost every item, there is a proper way to deal with gasolines, lubricating oils, and the many other products of petroleum. Through decades of experience, the

oil industry has perfected sound methods and techniques for doing so. As a patriotic service, the industry cooperates to the fullest in passing along this valuable know-how to interested military personnel.

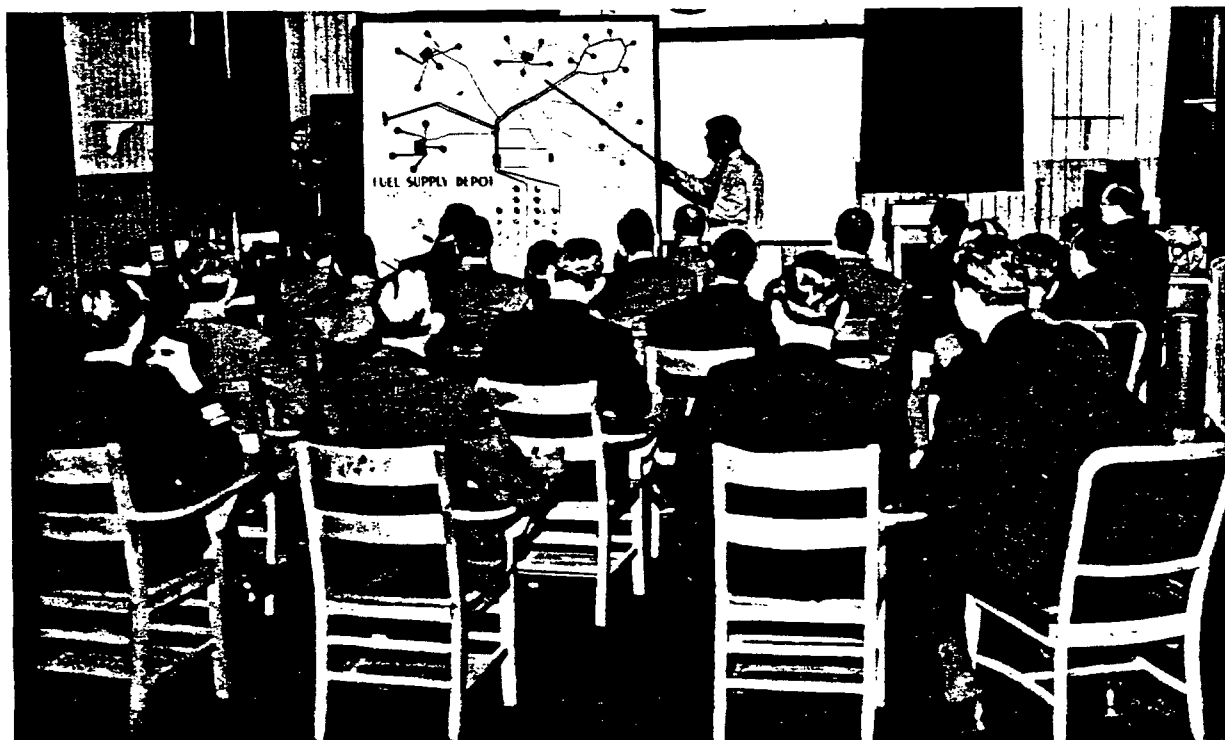
One place where this cooperation is immediately evident is the Petroleum Operations school at the Naval Supply Center in Norfolk, Va. There, in a compact two-week course, men of all branches of the armed forces are instructed in the safe and efficient handling of petroleum products. Much of the instruction is by naval officers on leave from oil industry positions and guest civilian instructors from within the

industry. Motion pictures, special presentations, equipment, and booklets — all supplied by oil companies — supplement the instruction.

The course is divided into two parts. During the first week students are given the background of the petroleum industry. They learn how oil is discovered and produced, and how it is refined and transported. They delve into the safety factors of petroleum operations. In the Supply Center's Fuel Depot laboratory, they study and test oil to fathom its chemical and physical characteristics.

First-week classroom work consists of a series of lectures and dis-

Instruction during the first week of the Petroleum Operations course consists of lectures and discussions



looked as though Jones might have to seek shelter in the deepest sand trap. He stood his ground, however, and pointed out that the improved course had produced better golf. Many experts supported him. They agreed with Jones that the final round 67 with which Ben Hogan won the tournament was one of the finest games of golf ever played anywhere.

From site selection through designing, construction, completion, and often maintenance and alterations, Jones carefully guides the destiny of many courses. His ability to envision 18 interesting golf holes where there is nothing but hills, trees, swamps, and rocks is one of the principal reasons for his success.

scape either.

After the site is selected, his plans proceed systematically through a series of detailed topographical maps, aerial photographs, and drawings of all the elements that will be included in each hole. Each green — one of the most important parts of any course — is built in miniature from modeling clay. This enables Jones, his staff, and his clients to study with care the approaches, contours, and traps.

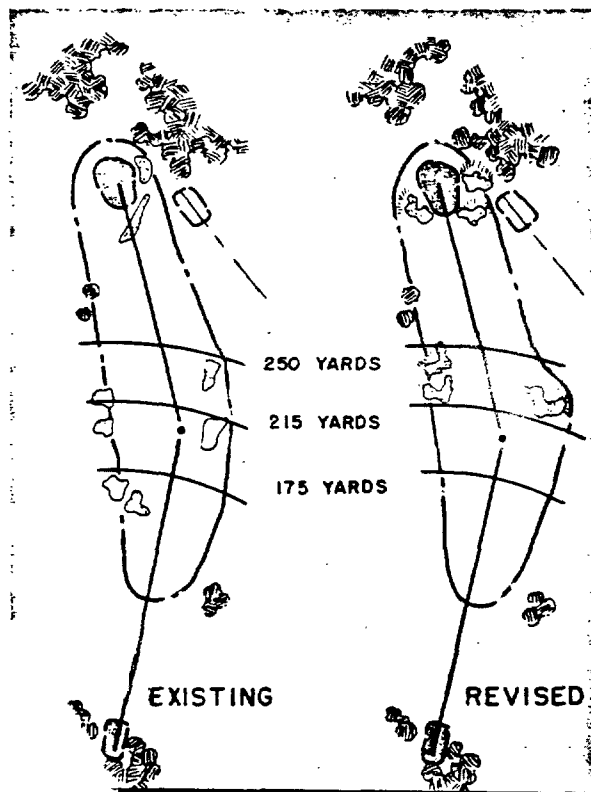
Once plans are approved by the client, Jones goes into the field and painstakingly directs construction

ing, cultivating, and planting. Anywhere from a year to a year and a half after the site was selected, he proudly presents the finished course, ready for the first anxious foursome to tee off.

New golf course construction, a casualty of the Depression of the 1930s and of World War II, has picked up appreciably in the last few years. Now, with an avid golf enthusiast in the White House, the game is expected to become even more popular and create a demand for more new courses and improvements in existing ones.

President Eisenhower's enthusiasm for golf promises to add even more devotees to the already-popular sport

These sketches of the first hole at the Detroit Golf Club reflect Jones' ideas in relocating sand traps



The Consumer Looks at Lead

By Joseph A. Costello



(Mr. Costello, vice president of Ethyl Corporation, delivered before the 25th annual meeting of the Lead Industries Association at White Sulphur Springs, West Virginia, on April 10 an address entitled "The Consumer Looks at Lead." The following condensation of that talk is presented as a matter of reader interest.)

AN EXAMINATION of the broad trends in lead consumption over the past 25 years shows a steady increase in total lead demand. Without taking into account metal for the stockpile, domestic lead consumption has increased from an average just under 800,000 tons in the 1920s to over 1.1 million tons in the 1950s.

While this increase is substantial, its greatest significance lies not in the statistics themselves, but in the play of economic forces that accounts for them. Lead for batteries, lead for gasoline, lead for protection against the elements, lead as a construction material—these are only a few of the many applications that have been found for lead which have demonstrated proven economic usefulness.

The Meaning of Tetraethyl Lead

I do not feel qualified to discuss in detail the usefulness of other lead-consuming products, but I can tell you a little about what tetraethyl lead has come to mean to the national economy.

In the 30 years since it was commercially introduced, tetraethyl lead has come to be used in over 95 percent

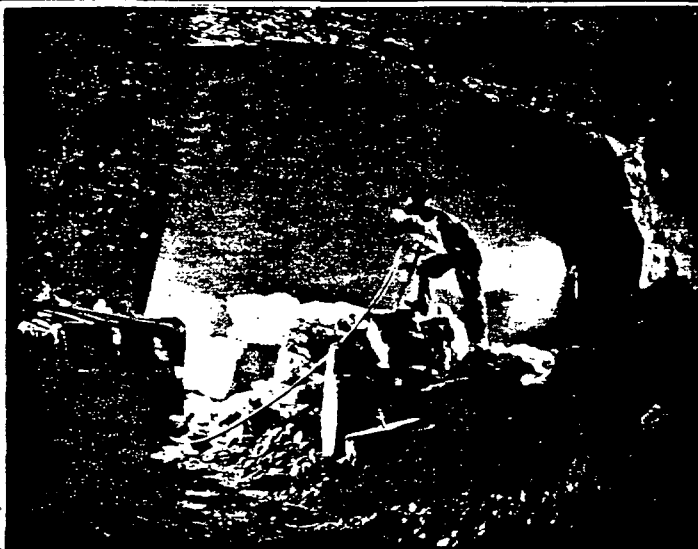
of all motor and aviation gasolines. Because of this fact tetraethyl lead has grown to become the second largest consumer of metallic lead in the country.

There was a reason for this—a sound reason, to be sure. Tetraethyl lead has demonstrated its economic usefulness in a widening orbit to the oil industry and in turn to the motoring public. Today, simply by taking the knock out of gasoline, tetraethyl lead sets in motion a chain reaction of progress in which our modern automotive economy operates efficiently, the consumption of petroleum and other natural resources is conserved, and substantial economic benefits accrue to the motoring public.

A recent study of the economic value of tetraethyl lead showed that its use in 1950 reduced effective gasoline consumption by at least 10 percent—or an estimated four billion gallons. That represented a cash saving to the American public of over one billion dollars on its annual gasoline bill. Stated another way, the use of perhaps 105,000 tons of metallic lead was sufficient to save some 12 million tons of gasoline.

Tetraethyl lead plays an important role in our economic life. And by its widespread use a vast amount of our natural energy resources is conserved. This saving far outweighs the resource value of the lead that is consumed in its manufacture.

The economic value of other lead products can be similarly demonstrated. Indeed, the entire trend of lead consumption in recent decades has been dictated primarily by the economic usefulness of the products made from it. In 1929, the five leading uses of lead were for cable coverings, batteries, white lead, build-



Lead from mines like this is used in the production of modern gasoline, batteries, and many other items

ing material, and ammunition. By 1950 three other uses — tetraethyl lead, solder, and oxides for uses other than batteries — moved into the first five.

The comparisons illustrate some of the technological developments that have affected lead demand. They demonstrate how lead has become more valuable for some products, less valuable for others. While lead has scored impressive gains in some consumption categories, it has lost ground in other directions due to the increased competition of other materials.

Because it represents the only comprehensive effort made to look into the future of our commodity and energy resources, the President's Materials Policy Commission Report, sometimes called the Paley Report, has now supplanted the well-known crystal ball for prognosticating what is to come.

Understanding the Paley Report

Without question, the aims and purposes of the Paley study are most laudable. A factual knowledge of the United States' raw materials position, and of production and consumption trends for the next quarter century, should prove to be of inestimable value in planning national policy. In this connection, a great number of its recommendations for legislation to give industry relief from taxes and other oppressive government regulations, as well as aid in exploration and development work, show that the Commission had a real grasp of the problems ahead.

It is unfortunate, however, that some of the materials projections in the Paley Report have been mistaken for flat predictions in some quarters. Indeed, the Commission itself carefully pointed out: "These projections do not predict how much of each material will actually be available and consumed. Instead they are an

estimate of what might be demanded if relative prices of various materials remain the same as in early 1950, which they are most unlikely to do. Moreover, these projections assume no unforeseeable new uses, substitutions, or technological improvements. They are intended only as a starting point in the analysis of prospective supply-demand relationships and give only a rough measure of magnitude."

It is these very considerations, cited in the Paley Report, which make it so difficult to attempt a long-range forecasting of lead demand with any degree of accuracy. A simple mechanical extrapolation of existing uses does not give the answer. Social changes, technological improvements, and competition between materials will dictate the future for any commodity.

Illustrative of this is the projection involving storage batteries. For this major use, the Paley Commission projects an increase in lead consumption from 416,000 tons in 1950 to 707,000 tons in 1975. And in making that projection, the Commission, in line with its stated objective, assumed the same average battery life in 1975 as in 1950.

While the average battery's life right now is only two years, many battery manufacturers feel that they can produce a battery which can be guaranteed for three years' service. In another direction, the battery companies have achieved a marked reduction in average lead content per battery from years ago, and they are confident a further substantial decrease will be seen in the years ahead.

Accordingly, if we assume an average battery life of two and a half years by 1975, instead of the present two years, and if we assume a reduction in average lead content per battery from 23 pounds to 20 pounds, which also seems conservative, it is possible to show a 1975 demand for lead in the battery field that is some 200,000 tons less than listed by the Paley Report.

Long-Range Forecasts Impossible

Effects on lead consumption might be explored from a technological standpoint on numerous other lead products. Add to this the important influence of raw material price on end-product use, and it is apparent why a 25-year forecast for lead demand cannot accurately be made. All that can be done is to indicate the general trend.

We are therefore not greatly concerned with the fact that the Paley Commission Report forecasts a demand of 1.95 million tons in 1975. The actual demand will be influenced by a number of factors, particularly of a technological nature, which are not now

apparent. Moreover, the price which consumers will be required to pay for lead in the future will have a substantial bearing on the volume of demand. Production capacity also will be influenced to a much greater extent than is contemplated in the Paley Report by the price of the commodity. There is little doubt in our minds but what the normal economic forces will work in the direction of bringing the demand and supply into balance.

Future Lead Supplies Adequate

As a substantial consumer of metallic lead, Ethyl Corporation has a serious interest in the long-term outlook for supplies. We have tried to compile such information as is available in order to assure ourselves that there is a sufficient potential productive capacity to meet any reasonable increase in the demand for lead. We believe that the potential not only exists, but we are confident that adequate supplies will be forthcoming in the future to meet all essential needs. We have expanded our manufacturing capacity and are gearing our present operations and future plans with the full confidence that this prediction will be a correct one.

Regardless of what we may think of the long-range outlook for lead, we still have the problems that are with us today and are likely to continue in the near future. The recent history of lead has been one of recurring short supply and high prices, followed by long supply and concurrent low prices. We have never liked this situation, but we have come to believe that

it is the "nature of the beast." We consumers would rather have low-priced lead than excessively high-priced lead, but what would be best for both consumers and producers would be for the supply of lead to remain in balance and the price to be reasonably constant at a level where both the consumers and producers can make a profit.

If we agree that the general trend in lead demand is upward, then it must be admitted that this country will continue to follow the experience of the past several years and remain a net importer of lead. Consumers must face this fact and make their plans accordingly. While all U. S. consumers have a full appreciation of the desirability of keeping the American mining industry strong, they must also accept the responsibility for encouraging and supporting the foreign production of lead, upon which they must now in part depend. It therefore follows that any government action that will have the effect of discouraging imports and reducing the expansion of foreign mining properties is undesirable from a consumer standpoint.

The great need in the lead industry is for a reasonable balance to prevail between supply and demand. This balance, which is so necessary for the continued health and well-being of the industry, can be attained — but only if the industry is permitted to work out its own economic problems and is not hampered either by restriction on the uses to which the product is put or excessive taxation on either domestic or foreign production.

Lead bars at one of the Ethyl manufacturing plants. Pig lead is the prime raw material of tetraethyl lead



ETC 24341



An Industrial Tale of

By Slim Barnard
Automotive Editor,
Los Angeles Examiner

TO MOST PEOPLE Southern California means Los Angeles. And Los Angeles means movie stars, aircraft factories, oil production and refining, citrus groves, and sunshine. Not always in that order.

But that's only the beginning. The industrial face of America is changing more rapidly than is realized, and Los Angeles is very definitely in on the face-lifting. Automobile production is an example.

Los Angeles, which overtook Detroit in the 1950 census as the fourth largest city, now is the No. 2 center of automotive production. It is several leagues behind the Motor City in over-all automobile and truck output, but it has surpassed Detroit proper in at least one phase.

More different makes of automobiles are assembled in the West Coast city than any other place in the United States. The Los Angeles area produces 13 makes of cars to Detroit's 10. Only Cadillac, Henry J, Hudson, Kaiser, Lincoln, and Packard are not assembled in California.

Automotive plants in Los Angeles—or more specifically, Los Angeles County—have a capacity of 2,000 units a day. Actual production, of course, is less than that; probably about 1,500 cars daily. The estimate is that California built some one million vehicles last year. About 650,000 of these were assembled in Los Angeles County. The rest were produced in the San Francisco Bay region, another fast-growing center of automobile production.

Largest of the Los Angeles area producers is General Motors, which assembles four of its five different makes of cars at two plants. Buicks, Oldsmobiles, and Pontiacs are made at South Gate and Chevrolets are turned out in Van Nuys. All four Chrysler Corporation products—Chrysler, DeSoto, Dodge and Plymouth—are assembled in Los Angeles. Ford assembles at a plant in Long Beach and Mercurys roll off an assembly line in suburban Maywood.

Among the independents, Willys-Overland, which pioneered West Coast automobile production 25 years ago, operates a Los Angeles plant that is shooting for an output of 18,000 passenger cars this year. Nash, at El Segundo, expects to produce only a few thousand less. The Studebaker plant at Vernon currently is assembling about 30,000 units.

Ready Market for Vehicles

There are many reasons for the growth of the automobile industry in Los Angeles County—favorable weather, availability of labor, etc. One of the most important single reasons is the ready market for automobiles and trucks that exists in the region. Against the national average of one automobile for every 3.48 people, Southern California's ratio last year was a car for every 2.43 persons. In mid-1951, the latest figures available, almost 1.6 million automobiles and nearly 174,000 trucks were registered in Los Angeles County. This was far in excess of automotive registrations in any of the other 114 leading counties of the United States reported by the Automobile Manufacturers Association.

So, to Los Angeles' long list of other descriptions, add the accolade "Detroit of the West."



Industrial of Two Cities

By J. Alex. Crothers
Director, Port Development Dept.
Delaware River Port Authority



FOR SOME TIME now Philadelphia has been feeling the hot breath of Los Angeles on its municipal neck in the race for honors as America's fourth ranking city in population, manufacturing, and several other categories. Turning the tables, the City of Brotherly Love is hard-pressing the City of the Angels for the No. 2 position among the nation's oil refining centers behind the Port Arthur, Texas, area.

On the basis of a quarter-of-a-billion dollar building program by the six oil companies that have refineries in the area, Philadelphia expects to reach that goal this year.

Capacity-wise, the building program at the Gulf Oil refinery is the most extensive in the Philadelphia area. Spending an announced "well in excess of \$25 million," the Gulf plant is raising its output by nearly 75 percent, chiefly through the erection of an atmospheric and vacuum topping unit, a fluid catalytic cracking plant, a catalytic reforming unit, a cat poly unit, and a steam and generating plant. The expanded refinery will be the biggest on the East Coast.

Special Units Being Added

Atlantic Refining's \$60-million expansion will raise the crude capacity of its Philadelphia refinery by almost one-fourth. Crude distillation and "cat cracking" units are being added and so is a sulfuric acid alkylation plant. Atlantic also is building the only by-product ammonia plant in the area, and is putting in units to increase production of petroleum chemicals.

Some \$20 million is being spent by Sun Oil at its Marcus Hook refinery, down the river from Philadelphia. Capacity of the 145,000-barrel-a-day plant, presently the region's largest, is not being increased.

However, units are being added to step up the output of asphalt, lubricating oils, and other similar products. Sun also is increasing its chemicals-from-oil production.

The Sinclair Oil refinery, also at Marcus Hook, has boosted crude capacity to over 100,000 barrels a day and has erected a plant for the recovery of elemental sulphur. Now Sinclair announces that it will build a large-capacity catalytic reforming unit. Based on the company's own process, this unit will produce gasolines of better quality and will make toluene and xylenes as by-products. Improved docking facilities also have been part of the Sinclair expansion. Recently two tankers bearing a total of almost half-a-million barrels of crude were unloaded simultaneously at the rate of 20,000 barrels an hour.

On the New Jersey side of the Delaware are the Socony-Vacuum and The Texas Company refineries, both of which are being expanded.

The Socony-Vacuum plant at Paulsboro, it is acknowledged, manufactures one of the most complete lines of petroleum products of any refinery in the world. It is now enlarging its facilities for the manufacture of gasolines and lubricating oils.

Texaco's 60,000-barrel Eagle Point refinery was completed in 1949 and has been undergoing almost continuous expansion ever since. The company plans to start construction of a catalytic reforming unit at Eagle Point this year, to step up both the quantity and quality of automobile and aviation gasolines.



"Send Us a Postcard"

LIKE YOU, I'm all in favor of vacations. Except for one thing, which shall be related a few words hence, I'd like to see us reach the point where 52-week vacations are the accepted thing each year.

It's not the routine petty annoyances about vacations that distress me. We can always tie Junior to the back seat of the car and stretch cellophane tape over his mouth if he gets too boisterous and loud as we ride along to the family vacation spot. And I can take it in stride if one of the suitcases pops open and

By Ralph Green

street on the start of our vacation jaunt. What happens when you stick a pin in a balloon happens to me when the "postcard chorus" hits high C. Gone are my pep, my verve, my enthusiasm for the two-weeks-with. The family and I are going to be away only a fortnight, but you'd think we were moving to Guadalajara. We'll be home before the vacation postcards are delivered, no doubt, but they still want them.

Or do they?

And Hank Jones. That loafer won't even be home to see my postcard. He and his wife and kids will be living on my new screened-in patio all the while we're gone.

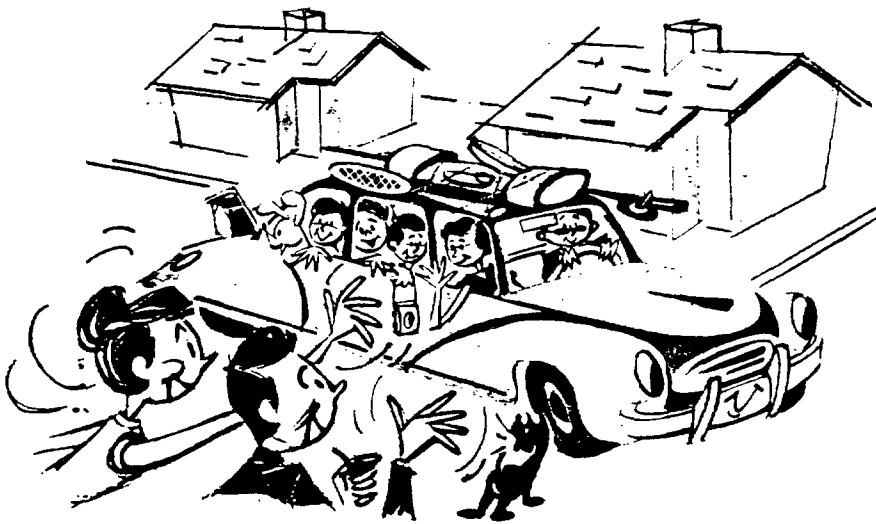
The people who make postcards will hate me for this, but I think the whole thing is a vicious habit. Answer truthfully. When you get a vacation card, do you really look at the picture and read the message? Well, do you? If you're like me, you give the postcard a quick flip, take a two-second look at the signature, and then grunt something about "Here's a card from good old Fred and Lucy." That's the end of it.

Wasting a Day

A man can spend a whole day or more sending postcards back home. This, of course, does not include the sweltering three or four hours spent in the five-and-ten or a cut-rate drug store picking out just the right card for just the right person. A view of the art museum for Aunt Sarah, a picture of Cherokees doing a tribal dance for 6-year-old "Hopalong" Smith, Market Street at night for Bill Floyd, who is quite a night-lifer himself, etc., ad infinitum.

Even if you survive the ordeal of selecting the proper cards for everybody on your list, the terrible task of writing original messages still confronts you. I'm pretty handy with words at a baseball game or in chatting with that sweet young thing of a secretary back at the office. But what in creation do you say in that blank space headed "This Side for Message"?

There's always "Having a won-



"We leave with the neighbors' cries of 'send us a postcard' filling our ears"

spills its contents all over the lobby just as we're trying to make a sophisticated entrance into a swanky resort hotel.

No, things like screaming children and spilled luggage never upset me. But what does are my neighbors' soprano shrieks and baritone booms of "Be sure to send us a postcard" as we glide down the

Bet if I pinned any of my neighbors down, none of them could say he honestly was looking forward to receiving a card from us. Take Pete Thompson. He couldn't tell you whether we're headed for the mountains or the seashore. All my vacation means to him is that he can have unrestricted use of my lawn mower for two whole weeks.



"A museum card for Aunt Sarah"

derful time. Wish you were here." But I have the fear that might be a bit overworked. A couple of years ago, though, I thought I hit upon an idea that was rather clever. I got a picture card of the hotel in which we were staying to send to Ed Mahoney back home. I drew an ink circle around one of the hotel windows on the front of the card. Then, on the back, I informed Ed that "this is our room." He wasn't as amazed as I thought he would be. Claims he mailed a "this is my room" card when he was in New York with his high school senior class 23 years ago.

I had special postcards picked out last year for Pete Thompson and Hank Jones. But I lost my nerve and never sent them. We were sightseeing in Washington and I bought two views of Arlington Cemetery. Thought I'd send them

to Pete and Hank with the usual "Wish you were here." But then I was afraid they would misunderstand. In which case, I might not get (1) my lawn mower back, or (2) Hank and his trespassing family off my beloved patio.

It's Expensive

This postcard-sending gets to be mighty expensive. The vacation cabin I'm renting this year will squeeze \$84 out of my wallet each week. So that day I'll have to spend addressing cards will cost me \$12. On top of that, there's postage and the cost of the cards themselves. Used to be Uncle Sam's couriers got this type of mail through for a penny apiece and you bought five cards for a nickel.

Now postage is up to two cents, and you're—well, nothing but a cheapskate if you mail back anything less than those shiny color postcards. These can set a fellow back as much as 10 cents per.

But enough of my griping. How about you? Taking a vacation this

year? Wherever you go, have fun.

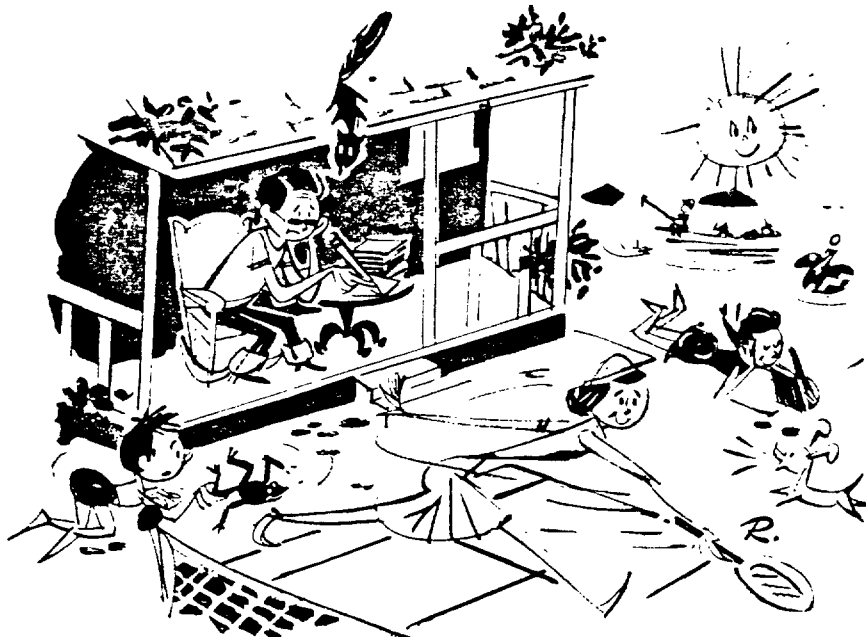
And don't forget to send us a postcard.

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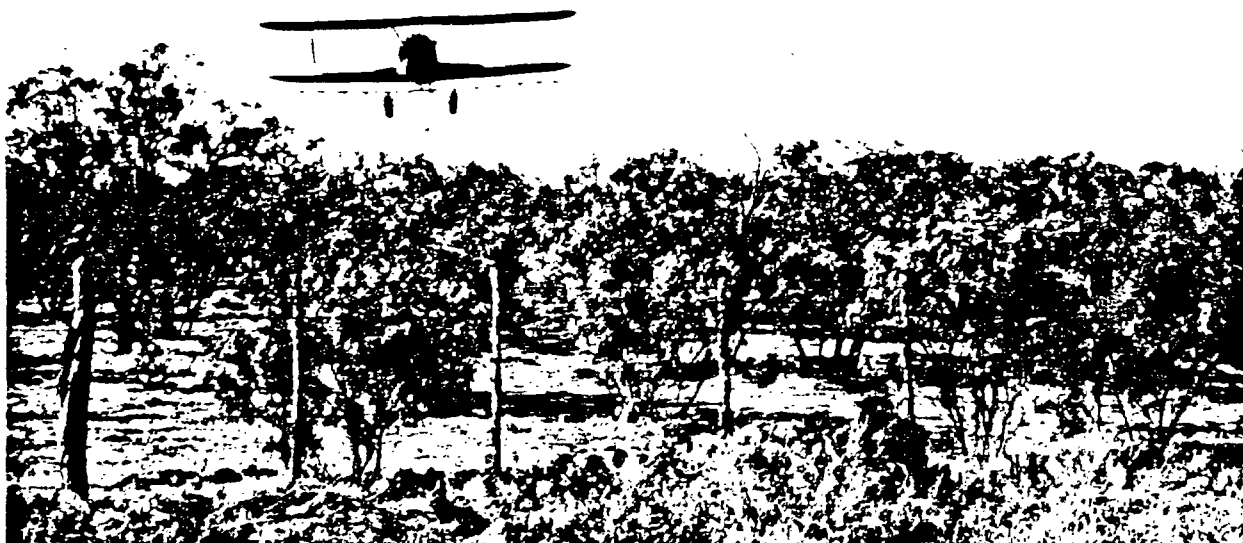
(Ed. Note—If many people share the author's views about postcards, purchases aren't reflecting it.

Each year the dozen or so firms in the business print about 160 million cards. Presumably all get sold—either for mailing or for stashing away as vacation mementoes. Miami, New York, Atlantic City, San Francisco, and similar favorite vacation spots are the big mailing points. During the winter season, for instance, more than 80,000 postcards are mailed from Miami and Miami Beach daily.

What cards do people buy? The big seller in New York is the Statue of Liberty, trailed by the Empire State Building and Rockefeller Center. San Francisco retails more views of the Golden Gate Bridge than any other. The Capitol, Washington Monument, and Lincoln Memorial are the favorites in the nation's capital city.)



"While all the others relax and play, I address my postcards (at \$12 a day)"



An airplane sprays the new chemical herbicide on a stand of hard-to-kill mesquite

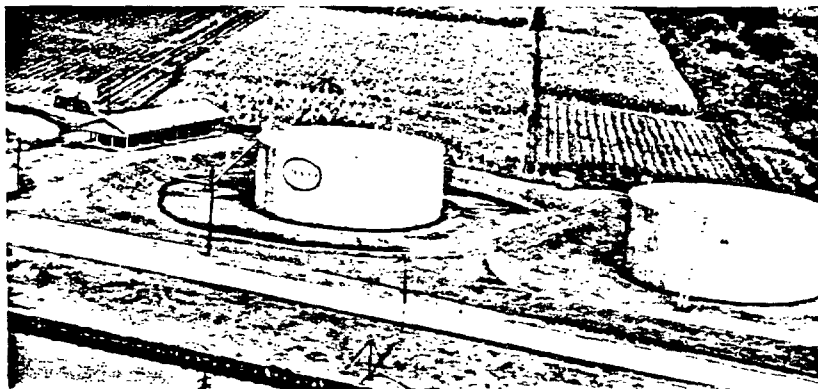


Weed control is especially vital on airports



Never welcome is poison ivy. 2,4,5-T controls this weed

2,4,5-T helps keep rights-of-way and oil installations clear of weeds



2,4,5-T

A LONG WITH INSECTS, obnoxious weeds are the scourge of the farm, the ranch, and the home garden. Unwanted weeds cause crop losses that run into the hundreds of millions of dollars annually. Many of the weeds cause human distress and suffering. Almost all interfere with constructive use of the land.

As a weapon against many broad-leaved bushes and "woody weeds," Ethyl Corporation is now producing the chemical 2,4,5-trichlorophenoxyacetic acid. When formulated into an herbicide, this chemical is particularly effective against mesquite, poison ivy, poison oak, barberry, and brambles.

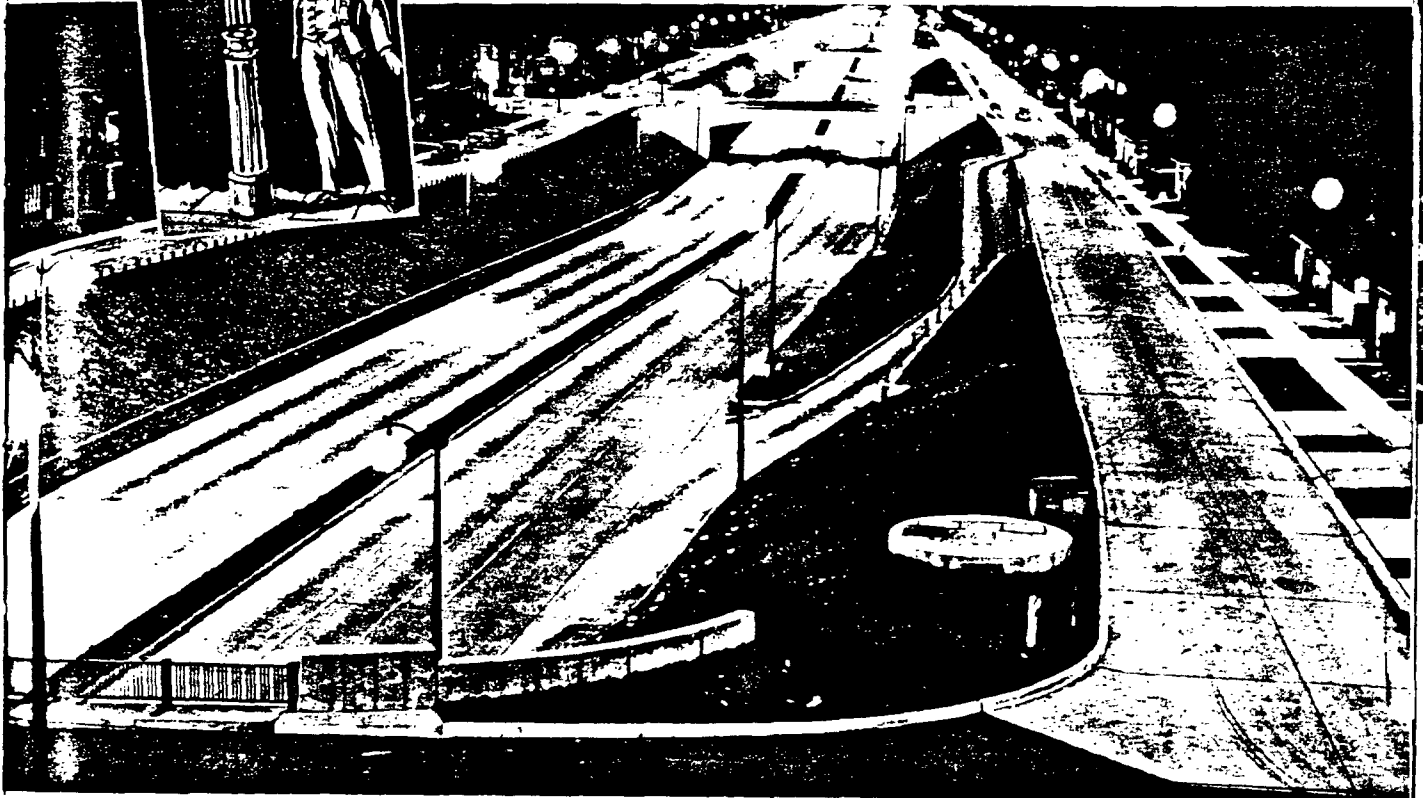
Formulations containing Ethyl's 2,4,5-T destroy these unwelcome plants by stimulating them to excessive growth, thereby causing them to die off.

Ethyl is making 2,4,5-T in two technical forms — as the acid and as the butoxy-ethoxy-propanol ester for the preparation of low volatile ester formulations. These products are marketed to agricultural chemical compounds who formulate the finished herbicides.



LET THERE BE LIGHT

Proper illumination of streets and highways saves lives, reduces crime, aids business



This well-lighted superhighway illustrates how modern street lights can increase after-dark visibility

TELEVISION, RADIO, bridge, and home movies may tend to keep us closer to the fireside these evenings, but the confinement is only relative. The truth is present-day Americans get around nocturnally far more than any previous generation. Nightfall stays neither men nor women from the swift completion of a busy round of after-dark shopping, meetings, travel, recreation, and night-shift work.

What's responsible for the change in our nocturnal habits? A combination of two things: the automobile,

and the better street and highway lighting that naturally followed in the wake of widespread use of the family car.

Satisfactory in its day was the dim gaslight, lit by the picturesque lamplighter of song and story. But it and its successor, the solitary electric light bulb hanging beneath a white enamel reflector, are not considered adequate in an era that finds some 53 million cars, trucks, and buses on the road.

No hit-or-miss proposition, the production, selection, and installa-

tion of adequate street lighting systems has become a science in itself. It is the subject of continuous studies by specialized groups within the National Safety Council, the Illuminating Engineering Society, the Institute of Traffic Engineers, the President's Highway Safety Conference, and The National Street and Traffic Safety Lighting Bureau.

In lighting studies, streets are analyzed for the volume of vehicular and pedestrian traffic they carry. Highways are further classified into



Crime thrives on darkness

undivided and dual types. Railroad crossings, intersections, bridges, tunnels, viaducts, depressed roadways, heavy pedestrian traffic, and dense forestation all call for special study and treatment.

Lights are selected not simply for their brightness or the appearance of the fixtures. Many factors must be considered. For instance, the efficiency with which they throw their rays downward toward the pavement; their ability to diffuse light both up and down the street and on to the curb and sidewalk; the height of the light; and the glare in the passer-by's eyes.

Penetrating the darkness and dispelling the gloom, modern street lights make the way safer for motorist and pedestrian alike, aid in the

swift flow of traffic, and reduce crime.

Scores of municipalities from Amarillo, Texas, to Waterbury, Conn., have reported substantial reductions in traffic accidents and crime after modernizing their street lighting.

Cleveland Heights, Ohio, is a typical case history. That city recently completed a lighting improvement program and the results have been a revelation to everyone. Well-lighted Cleveland Heights now has fewer night accidents; better property protection; and a brighter, cleaner, safer city that has increased the civic pride of all its people.

A Heavy Toll

One group of statistics emphasizes the close relationship of street lighting and safety. About 65 percent of all fatal automobile accidents throughout the nation occur during the hours of darkness. Still, only 25 percent of all potential traffic is in motion at this time. Inability to see or be seen on streets and highways, because of insufficient light, is a major factor in the death of almost 10,000 Americans each year. Surveys indicate that better lighting could virtually eliminate this unnecessary toll.

Prime mover for better street lighting is The National Street and Traffic Safety Lighting Bureau. The

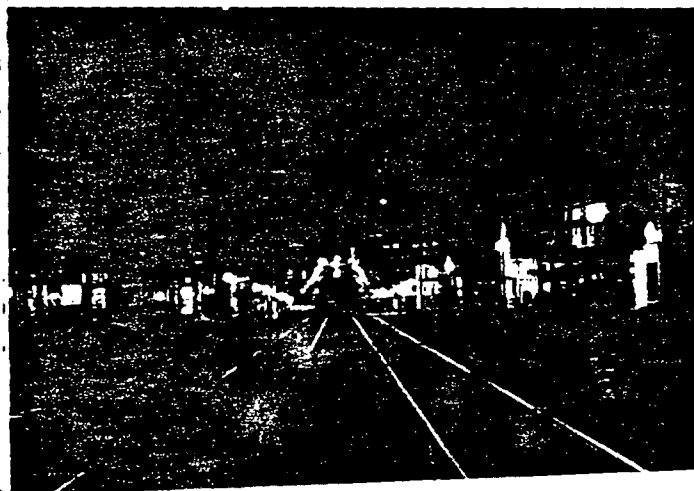
Bureau points out that while much has been accomplished America still has a long way to go in lighting its streets to reach standards set by illuminating engineers. A recent survey discloses that 90 percent of the country's streets and highways are inadequately lighted for safety after dark. Included in this estimate are only five percent of the total mileage of rural roads — the five percent which contains potentially dangerous areas.

Besides promoting safety, light helps fight crime. In the words of FBI Director J. Edgar Hoover, "Police from all parts of the country report that crimes which occur most frequently at night are most common in areas lacking adequate street lighting." Better lighting, it is estimated, could prevent 50 percent of our nocturnal crimes.

Too, more light means more business. People naturally prefer to shop along bright, well-lighted streets. Greensburg, Pa., can attest to that. There, per capita retail sales increased 200 percent over the average for the state after better street lighting was installed.

The National Street and Traffic Safety Lighting Bureau believes that its slogan summarizes the many benefits of adequate street lighting in a few words. "Bring the people the light," it goes, "and they will find their own way — SAFELY!"

A street in a southern town, before relighting



... and after



ETC 24348



Baltimore's big field almost blew away

OF ALL THE AIRPORTS in the world, few surpass Baltimore's giant Friendship International in size and beauty.

Laid out on a 3,200-acre, fog-resistant plateau, Friendship is five times as big as National Airport in nearby Washington and four times the size of New York's LaGuardia. Its main runway stretches almost two miles. Its nine-story control tower is the second tallest in the nation. As terminal buildings go, Friendship's is a showplace.

That's the picture today. It wasn't always as pretty. More than \$15 million and some seven years of planning and construction had gone into the airport. Baltimore almost saw that heavy investment of money and time blown away right before its eyes. Soil erosion, the great natural enemy of the farmer, was having a field day at Friendship. The airport had been thrown open on schedule in June 1950, but it was a good question how long it could remain in operation if it didn't get entirely "tied down" — and soon.

During construction, great clouds of fine, powdery dust had departed in noxious clouds with every passing gust of wind. When the rains came in from Ches-

apeake Bay, tons of "sugar sand," washed off down the creeks, plugged surface drains, and tore deep gashes in the shoulders of the field's runways. Linthicum, Glen Burnie, and other neighboring communities grumbled about the "dust bowl." Special police details sometimes had to untangle traffic on U. S. Route 1, six miles away, in the midst of dirt-laden easterly winds.

Two Types of Soil

The original soil analyses showed some of the meanest stuff in Anne Arundel County. Two types dominated. One was light, powdery material that blew or washed away like fury. The other was sticky clay that formed stubborn pools of rain, then caked and cracked when dry.

Shopping around for a solution, Baltimore Airport Board members learned that several Eastern seaboard airports had ironed out "tie down" jobs fully as complicated as Friendship's. Would these same methods work for Baltimore?

Out went an appeal for help to the Soil Conservation Service office of the U. S. Department of Agriculture at Annapolis.



Before and after: Construction of Friendship International exposed hundreds of acres of fine, white clay and "sugar sand" (above). Weeping lovegrass (below) now protects the drainage system and eroding areas



Clarence Britt, SCS project supervisor at the world-famous Beltsville agricultural experimental station, inspected Friendship's ailing acres in company with an airport official. Mr. Britt silently checked the yawning expanse of nude earth, measured slopes, and bored into the shifting sands.

"Lovegrass," he said finally. "Lovegrass and a soil-builder like the lespedezas would do the best job."

"Weeping lovegrass is one of the hardiest plants we use in problem areas of this sort," Mr. Britt explained. "The roots go deep and really grab hold of the soil. The lespedezas should build up the organic matter and nitrogen this soil needs."

Soil conservation district men then did a complete conservation survey of the entire airport, plotting the results with colored crayon and symbols on a large photo-map. The data would serve as a basic guide to managing the soil and watersheds of the big field for years. Then they got down to cases.

With the city's already hard-pressed budget in mind, the specialists worked out seeding specifications — enough poundage per acre to get a good "catch" stand but short of amounts that would result in seedlings choking each other to death. Korean and sericea lespedezas and weeping lovegrass were planted where hardy growths were needed. Erosion-proof but "softer" grasses — alta fescue, rye, red top and orchard grass — were seeded on the more favorable areas.

Improving the Seed Bed

Before the seeds were broadcast, the farm-trained technicians went into a huddle. Some kind of seed bed improvement was necessary. Lime it, of course, like any sensible farmer would do. But they were stumped by the terrific poverty in organic matter — the material that is needed to blot up and feed moisture to plant roots, and hold soil protectively around delicate seeds and roots. Topsoil could be used but the price was out of sight.

One of the soil conservation team members had been thinking about the problem on Sunday drives around the airport. What about the processed sludge that was stockpiled at the city's "back river" sewage plant, he suggested. Surely it would be hard to find anything more organic. Harry Sheirburn, maintenance manager at Friendship, jumped at the idea. He got on the phone and found he could get all he wanted. Machines soon were working back and forth across the waste areas not previously tied down, diking in lime and the rich, brown sludge.

As plants grow, the soil conservation program at Friendship International was no overnight proposition, even though weeping lovegrass roots dug almost two inches deeper into the ground every 24 hours. Long before the summer of 1951 ended, however, airport officials could see what the conservation men were driving at.

For one thing, the unsightly spoils area was almost completely invisible. Over it, foot-high, graceful crowns of the weeping African lovegrass marched off to the horizon. Between the crowns, tall and erect, the lespedezas spread their leafy stalks. Anne Arundel County farmers enviously observed that the airport was beginning to look like brand-new pastureland.

With Fingers Crossed

But it was still too soon for airport officials and the SCS planners to analyze the results. Crossing fingers, they went on with a twice-a-year fertilizing program, the liming, and the reseeding of "light catch" spots. Sludge hauling built up toward a 500-cubic yard per year level during the winter.

By last May it looked as though the soil conservationists might have something to crow about. The dormant green that had dropped to the root level of the lovegrass during the winter was flushing slowly back into the crowns. Underneath them, the first tender shoots of perennial lespedezas were poking timidly

through the protective plant litter that obscured treacherous sand and clay.

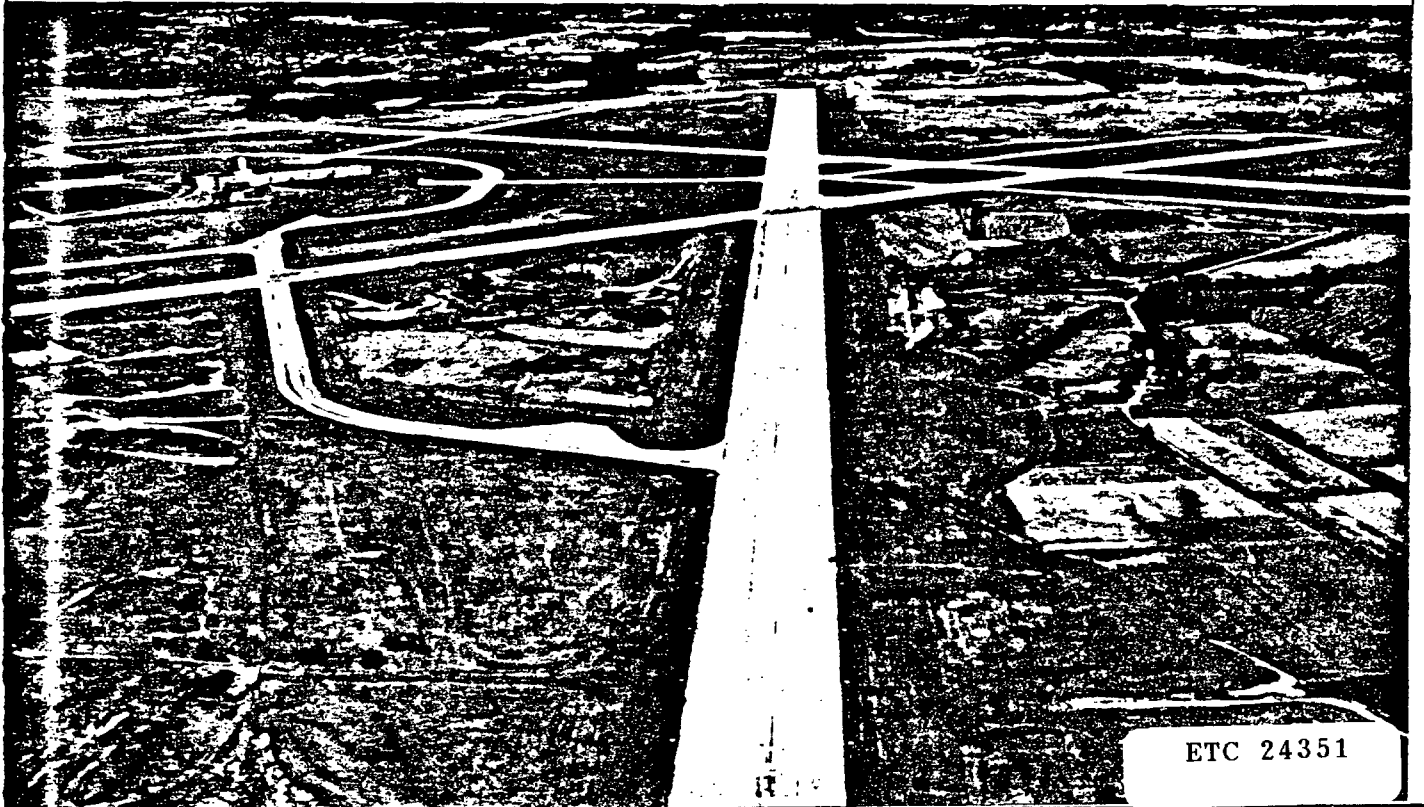
In 1952, the skies emptied the wettest spring in years on west-central Maryland. Six inches of rain pelted the field in five days. Daily the airport staff sloshed around in the murk, peering anxiously at the drainage channels, flumes, and especially the all-important grassland. The runoff level mounted slowly, but only time would tell. You couldn't be sure about the grass. Few spots could be checked closely.

When the clouds lifted, John Morgan, airport engineer, and Marshall Augustine, one of the soil conservationists, went over the place microscopically. Not until they had at last examined the drainageways where they entered Stoney Run did either allow himself to believe what his eyes had been promising for several hours. That mud-free stream running into the Patapsco River, the moderate levels in the field drains, the complete absence of washouts — all added up to one grand and glorious conclusion.

The two men walked buoyantly through the gleaming lobby of one of the world's finest air terminals, then up a level, and finally down to the end of the sunset-lit observation deck. A sleek Constellation landed gracefully. They followed the ship's movements as it turned and throttled busily up to the parking ramp.

Augustine turned to Morgan and spoke softly. "Well, John, I guess we made it. Friendship's really tied down."

Soil-wash and dust-blows no longer threaten operations on the airport's long runways and other areas



ETC 24351

Students at this Navy school are . . .

*Earning Their P.H.D.s**

(**Petroleum Handling Degrees*)

SIXTY-FIVE PERCENT of all tonnage shipped to our armed forces in Korea is petroleum products.

When you say it fast like that, it seems routine. But "shipped" covers a multitude of operations. After they are delivered to the military in this country and before they are finally consumed at some far-off base, petroleum products must be stored, pumped, tested, transported, re-stored, re-pumped, and otherwise handled in many ways.

As with almost every item, there is a proper way to deal with gasolines, lubricating oils, and the many other products of petroleum. Through decades of experience, the

oil industry has perfected sound methods and techniques for doing so. As a patriotic service, the industry cooperates to the fullest in passing along this valuable know-how to interested military personnel.

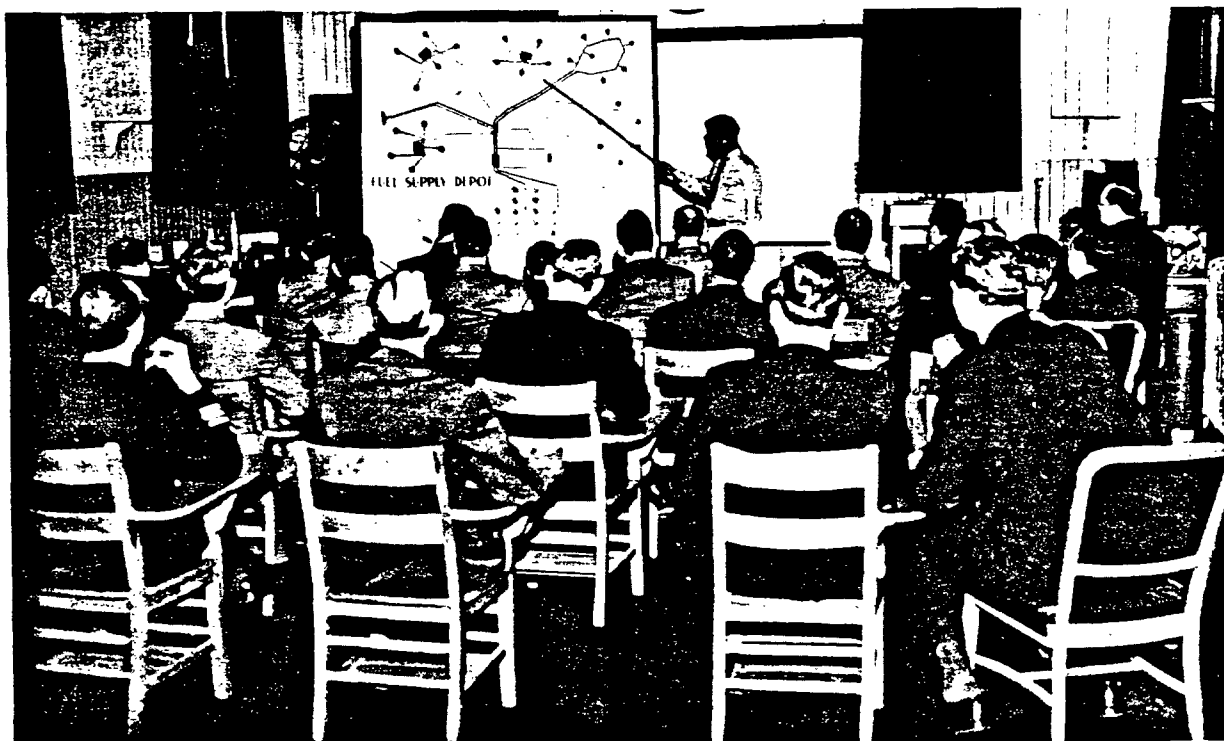
One place where this cooperation is immediately evident is the Petroleum Operations school at the Naval Supply Center in Norfolk, Va. There, in a compact two-week course, men of all branches of the armed forces are instructed in the safe and efficient handling of petroleum products. Much of the instruction is by naval officers on leave from oil industry positions and guest civilian instructors from within the

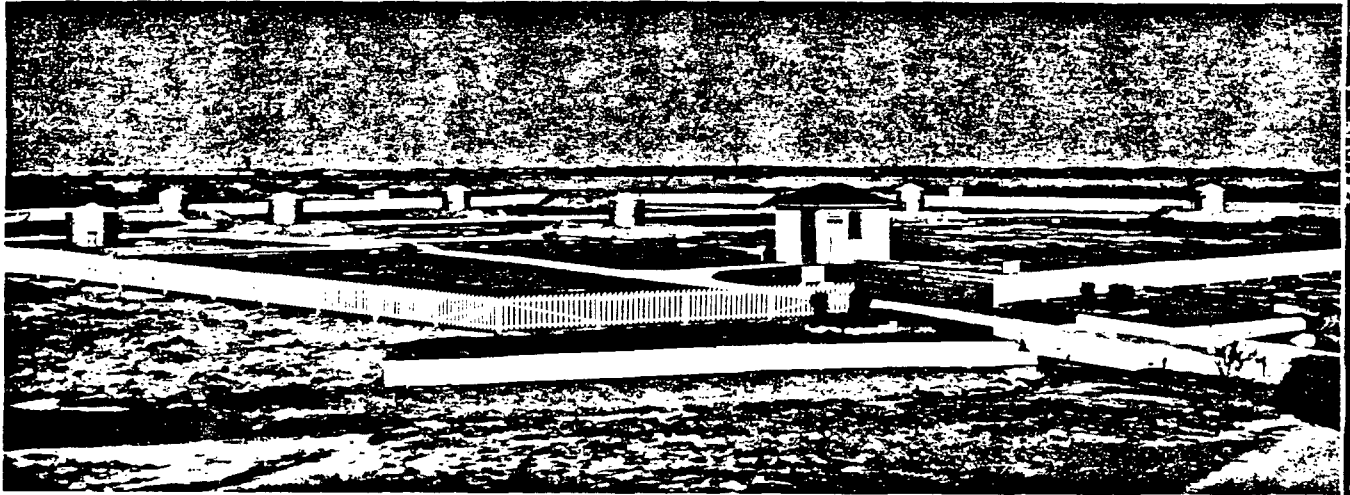
industry. Motion pictures, special presentations, equipment, and booklets — all supplied by oil companies — supplement the instruction.

The course is divided into two parts. During the first week students are given the background of the petroleum industry. They learn how oil is discovered and produced, and how it is refined and transported. They delve into the safety factors of petroleum operations. In the Supply Center's Fuel Depot laboratory, they study and test oil to fathom its chemical and physical characteristics.

First-week classroom work consists of a series of lectures and dis-

Instruction during the first week of the Petroleum Operations course consists of lectures and discussions





Typical military fuel-handling problems are studied on this model tank farm built especially for training purposes

cussions, plus training films. These cover the many phases and activities of petroleum industry and military petroleum supply operations.

During the second week, students are in the field — away from classroom, laboratory, and textbooks. They cross the Elizabeth River to the 1,000-acre Craney Island Fuel Branch, largest single government fuel storage installation in the land.

With extensive facilities at hand, students learn military petroleum operations by watching them being performed on the spot. Specifically, they concentrate on three operational problems — fueling of a yard oiler, operation of the main tank farm, and operation of a model tank farm built especially for training purposes.

A yard oiler, the unknowing soon learn, is a 6,000-barrel tanker that transports oil between shore installations and ships requiring fuel anchored offshore. Students study the loading of the yard oiler and then ride on it to its destination. There they witness the transfer of the liquid cargo.

At the main tank farm and the model tank farm, classes learn how to open and close valves, to start

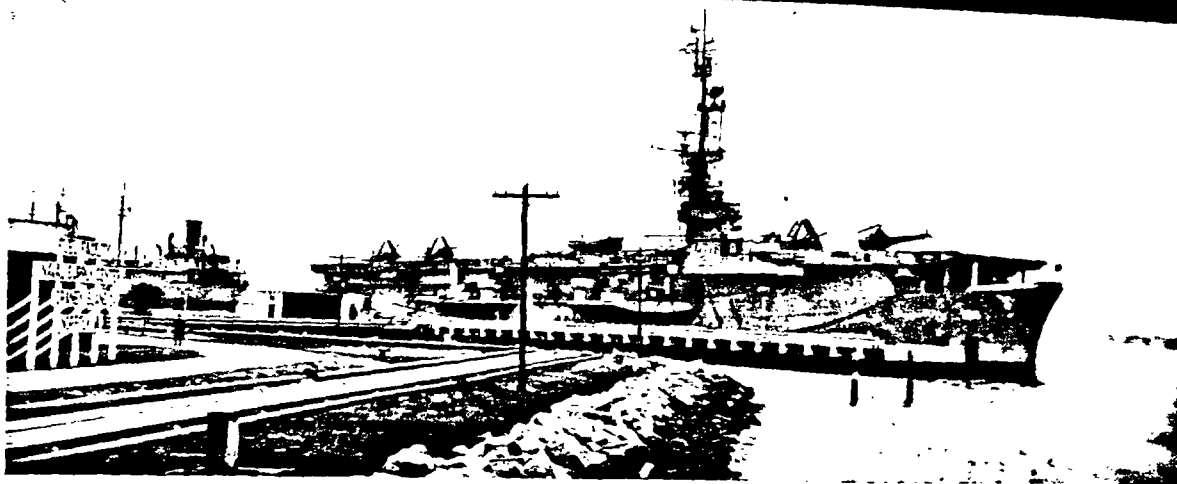


A miniature railroad tank car is examined by the civilian and officer students in connection with the naval school's model tank farm operations

A visit to the base's drum reconditioning plant is included in the course



ETC 24353



Craney Island facilities include piers for refueling all types of vessels, including the giant aircraft carriers

pumps, to pump fuel from one tank to another, and to read gauges.

The course concludes with a morning devoted to recent oil developments the world over.

Throughout each two-week course, the oil industry's many contributions to the Petroleum Operations school are evident. Officer in charge of the school is Lt. James S. McKemy, Supply Corps, U. S. Naval Reserve, who is on military leave of absence from The Texas Company. Other oilmen on active duty as naval officers assist in the instruction. They include Lt. Paul W. Stade, Jr., of Atlantic Refining, and Lt. Arthur R. Garabrant, of Esso Standard Oil.

Industry representatives who lecture at sessions of the school include R. M. Curtis, of American Flange and Manufacturing Company; M. C. Miller, of Ebasco Services, Inc.; W. W. Sweeney, of Ethyl Corporation; and G. G. Tucker, of Rheem Manufacturing Company.

In addition to the Navy's own publications, the faculty of the school relies heavily on pamphlets, booklets, and almost a score of movies supplied by, among others, the American Petroleum Institute.

Arabian-American Oil, Esso Standard, Ethyl Corporation, Humble Oil, Shell Oil, Sinclair Oil, and The Texas Company.

Besides oil industry know-how, experience in actual military service is also brought to the students. Lt. Comdr. I. C. Dockrey, officer in charge of the Fuel Depot at Norfolk, under whose jurisdiction the school is conducted, explains the operations of the military petroleum logistics system.

Other course instructors come from the Fuel Supply Depot, the

Atlantic Command Petroleum Office, the Bureau of Ships, the Munitions Board, and the Armed Services Petroleum Purchasing Agency.

When they return to their duty posts throughout the world, graduates of the Petroleum Operations school (100 of them so far) are under no illusion that they know all there is to know about it. But they are keenly aware that the petroleum industry and the Navy have made them far better qualified to handle petroleum problems than they were at the course's start.

The main tank farm's equipment is explained as a part of the instruction

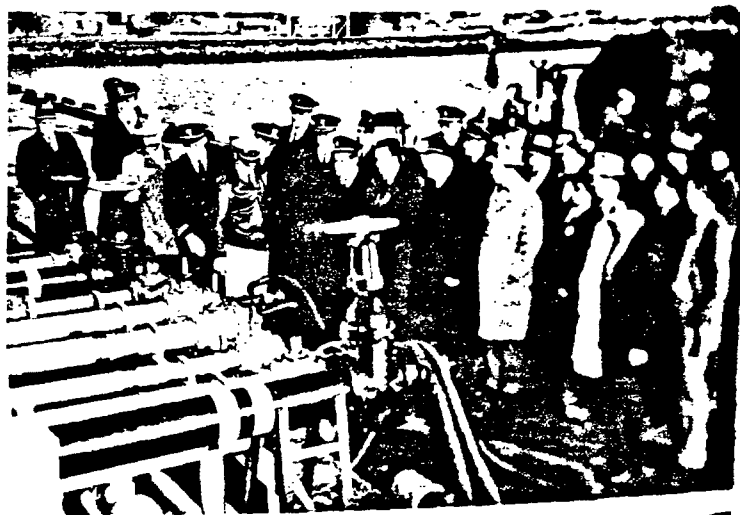
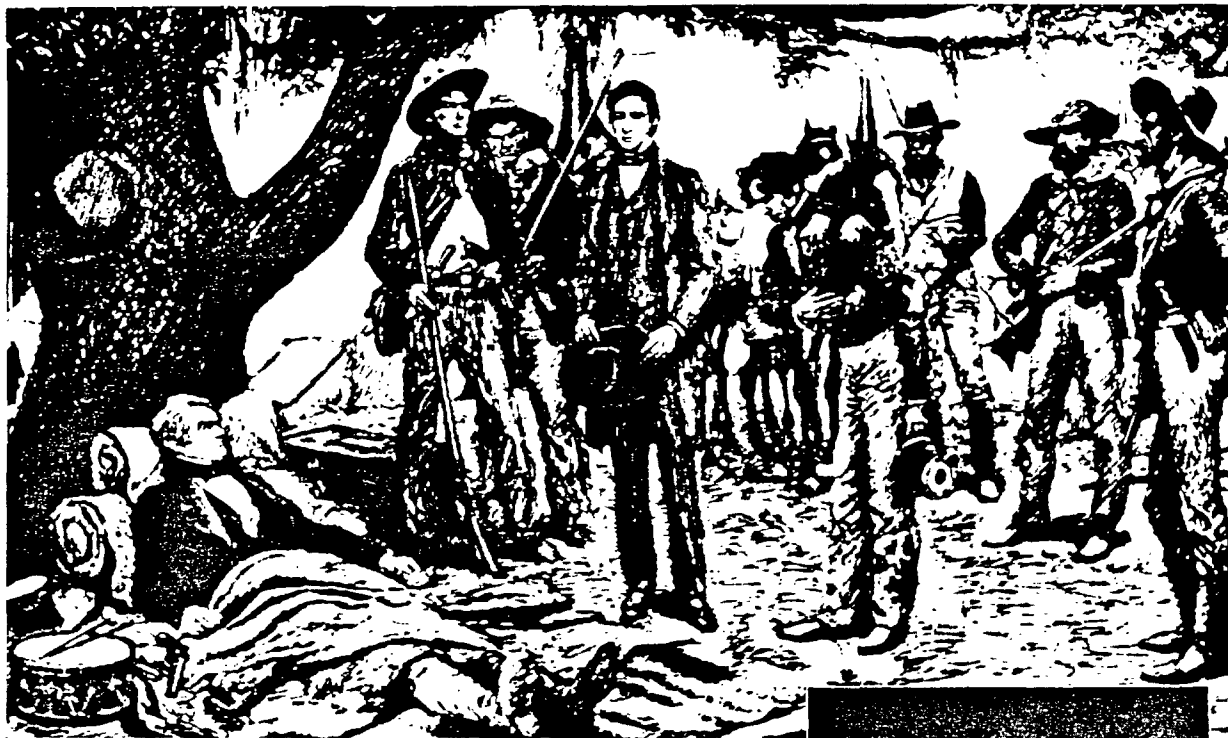


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"REMEMBER THE ALAMO!"

Standing apart from the many modern industrial establishments that also rim the Houston Ship Channel is a 460-acre greensward. This is hallowed ground. This is where the battle cry "Remember the Alamo!" was born. This is where Texas won its independence from Mexico in one of history's most dramatic and decisive conflicts. This is San Jacinto battlefield.

From their company's plants along the Ship Channel, a few miles away, employees of Ethyl Corporation and its industrial neighbors can look across the battlefield to the San Jacinto Memorial that reaches skyward almost one-ninth of a mile.

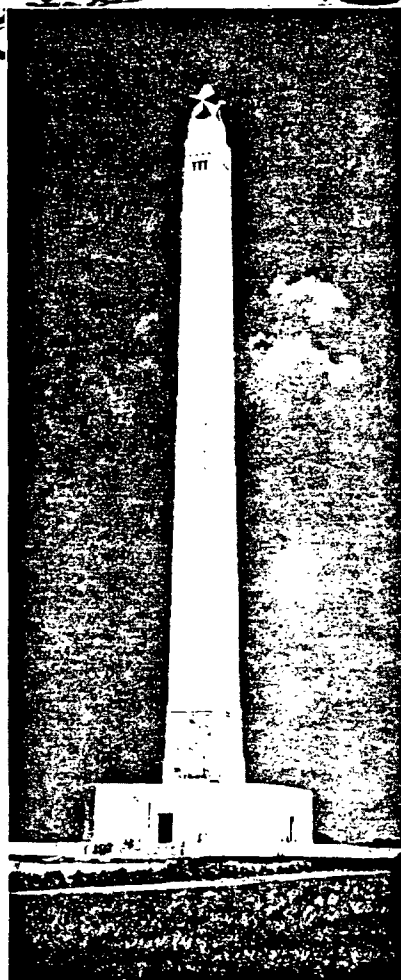
It is a towering reminder of the events that took place on that historic April 21, 1836. Barely six weeks before, during the siege of the Alamo in San Antonio, Texas had declared its independence.

General Sam Houston issued the attack order at San Jacinto late in the afternoon. His Texans were outnumbered almost two to one by the forces of Mexico's despotic president-general, Antonio Lopez de Santa Anna. But through keen military strategy, Sam Houston maneuvered his troops into a commanding position. Col. Sidney Sherman, a regimental commander, shouted "Remember the Alamo!" as the Texans advanced.

In 18 fierce minutes, the battle was won. The Mexicans never had a chance. Santa Anna was captured the following day and brought before the wounded General Houston, lying under a tree (see cut).

Two horses were shot from under Sam Houston during the skirmish. He survived his wounds well, however, and became the first president of the Republic of Texas and served as U. S. Senator for the first 13 years of Texas' statehood. He was elected governor of the Lone Star State in 1859, but was deposed two years later when Texas joined the Confederacy over his strong opposition.

Sam Houston died in 1863, midway through the Civil War he had tried so militantly to prevent. But everlasting fame, for the Battle of San Jacinto if nothing else, was his.





What's going on here?

If you would tap one of these gentlemen on the shoulder and ask him to move aside a little to make room for you — you'd see one of the interesting exhibits prepared for the coming International Petroleum Exhibit.

Of course, there will be many such exhibits — and quite a few of them will be larger, have brighter lights or more machinery. But we think our exhibit will be of very direct interest and importance to every visiting oilman.

For the Ethyl display will demonstrate why the one thing you needn't worry about is your supply of "Ethyl" antiknock compound. Today "Ethyl" fluid is being manufactured in two entirely separate, integrated plants. One in Texas, the other in Louisiana.

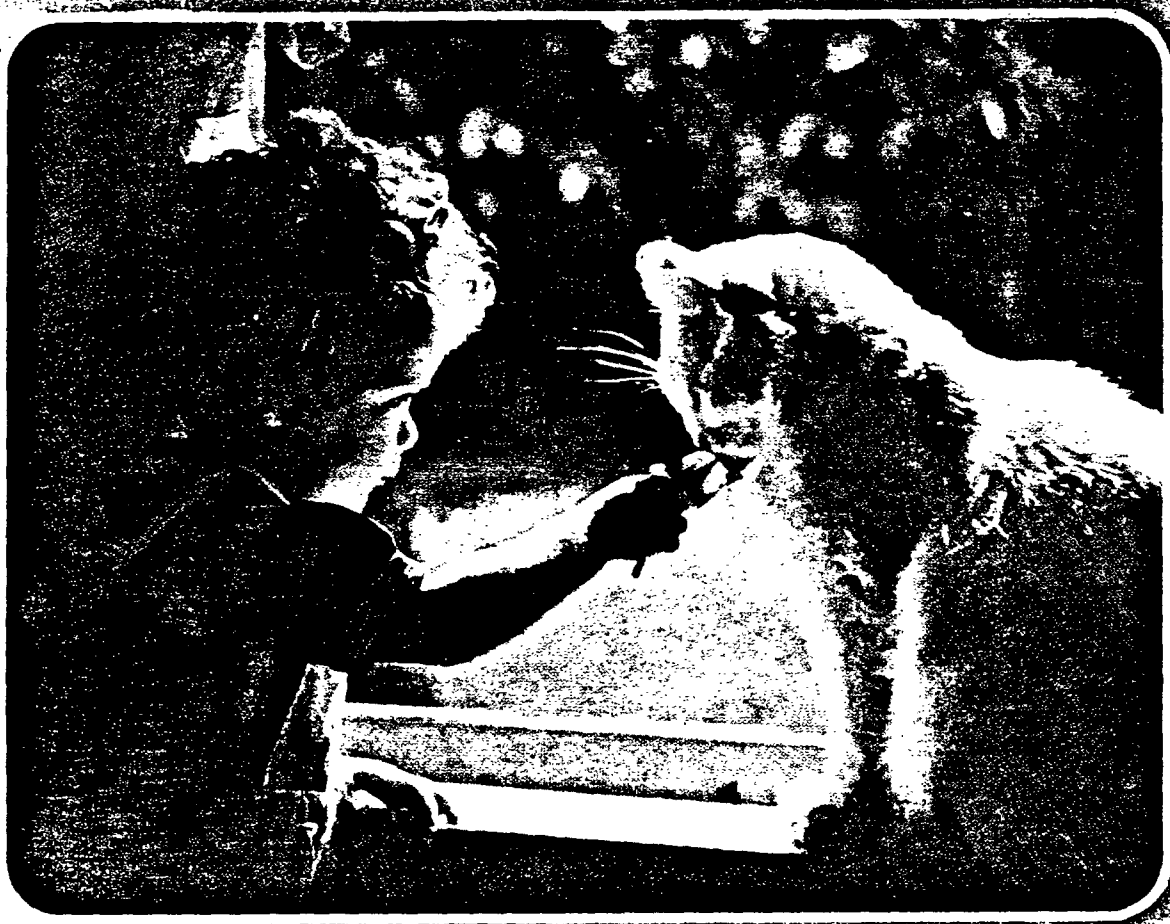
And there are also storage terminals in California and Delaware — so we can actually supply you from four locations.

We believe this ability to meet your needs from so many directions is one of the most important advantages enjoyed by Ethyl customers. In an emergency our four-point distribution setup could prove to be worth its weight in TEL. And — like Ethyl marketing services, research services and special programs in the farm, bus and truck, and aviation fields — it's all part of the "package" you get when you order antiknock fluid from Ethyl.

If you come to Tulsa to see the Exposition, we certainly hope you'll find time to drop in on us. Our exhibit is in the Kansas Building on the 21st Street side.

ETC 24356

ETHYL NEWS



MAY-JUNE • 1953

ETC 24357

ETHYL NEWS

Thom Yates, Editor

Richard F. Cook, Associate Editor

Hal Wohanka, Art Director

May-June ★ 1953

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Opinions expressed in signed articles are the authors'. Ethyl News welcomes articles of timely interest submitted from outside sources. Upon request, the editors are glad to grant permission to reprint material appearing in Ethyl News.

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Edward L. Shea, President

Stanley T. Crossland, Vice President and Treasurer

Herbert A. Savage, Secretary



Behind the NEWS

One of the unwritten rules of journalism is that nothing should prevent the reporter from getting his story.

Sometimes though it doesn't always work that way. Take the case of our writer who was in Tulsa a few months ago to interview Ruth Sheldon Knowles for her part of the "Bylines in Oil" story starting on page 8. At the same hour—almost the same minute—he was to begin the interview, a telephone call advised him that Mrs. Knowles would not be able to keep the appointment. It seems she had a more urgent date—with the stork at a Tulsa hospital.

We're glad to report a happy ending for all concerned. Infant Nora is, of course, a most welcome (and lusty) addition to the Knowles household. And we got our information about Mrs. Knowles in time to beat the deadline.

Usually the covers of ETHYL NEWS show an industrial scene or one of the countless beauty spots to be found in this grand and glorious land of ours. But we happen to know that children and animals have strong public appeal. So, we change pace this issue and offer a view that shows these popular subjects.

The photographer in this case was "Denny" Grant, Pennzoil Company vice president. It's a prize-winning picture (see "A Colorful Hobby" on page 20) and it's very much in demand at exhibitions throughout the country.

Like father, like son doesn't apply in the case of "Billy" Parker ("Parker's Pusher," page 25) and his offspring. In the four years just before World War I, Billy flew more than 400 exhibitions. He demonstrated night flying, stunting, and even wing-walking.

For anyone so fearless, you might think he is unconcerned about the hazards of any occupation. Not so. His son's work worries the life out of him. What does the younger Parker do for a living? He's a deep-sea diver in California.



SARNIA

24 B.M.I.V. on Stream

The city may become Canada's top oil refining center

WHEN CANADA sometime gets the chance to pause and take stock of its powerful industrial surge, it may well find that Sarnia has become its premier petroleum refining center.

More than one authority has predicted as much. Among them is W. Harold Rea, president of Canadian Oil Companies, Ltd. His company began operating a new \$23 million refinery at Sarnia last September, after having been located in Petrolia, not far from Sarnia, for more than half a century.

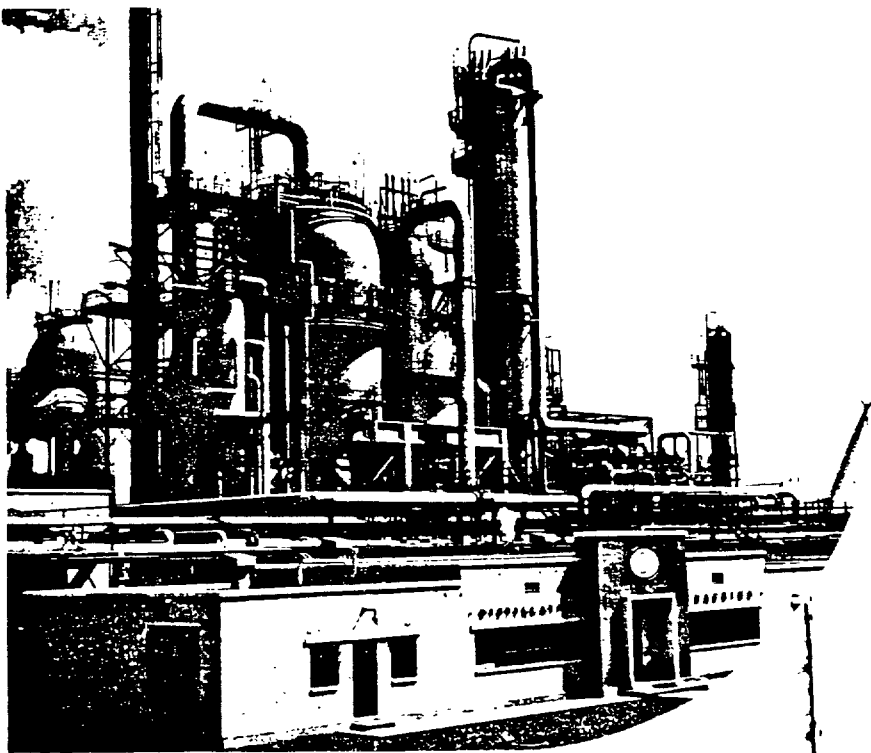
"This area will be the oil gateway to Canada's industrial east," Mr. Rea envisions. "Pipelines and, to a lesser extent, tankers will carry the finished products further eastward. Shouldn't Sarnia witness the same type of refinery expansion as other oil pipeline terminuses, such as Haifa in Israel and Toledo in Ohio? With greater refinery capacity in Ontario, it doesn't seem illogical to reason that refined products will move eastward from Sarnia and Toronto toward

the Quebec border, reversing the existing movement of products westward."

On paper at least, Sarnia has its work cut out for it if it is to fulfill the prophecy of Mr. Rea and others. Right now, five important Canadian cities have as many or more refineries, although only one surpasses Sarnia in capacity.

Montreal, of course, is Canada's No. 1 refining city. Situated there are the big refineries of British American Oil, Imperial Oil, McColl-Frontenac Oil and Shell Oil of Canada. Their combined crude capacity is 167,000 barrels a day, or just about 35 percent of the Dominion's total.

Sarnia has two operating refineries, with a third due to go on stream before year's end. The Imperial Oil refinery in the city long has been the Dominion's biggest in terms of capacity. A major expansion and modernization program has boosted this plant's handle from 57,000 to 71,000 barrels a day. The new Cana-

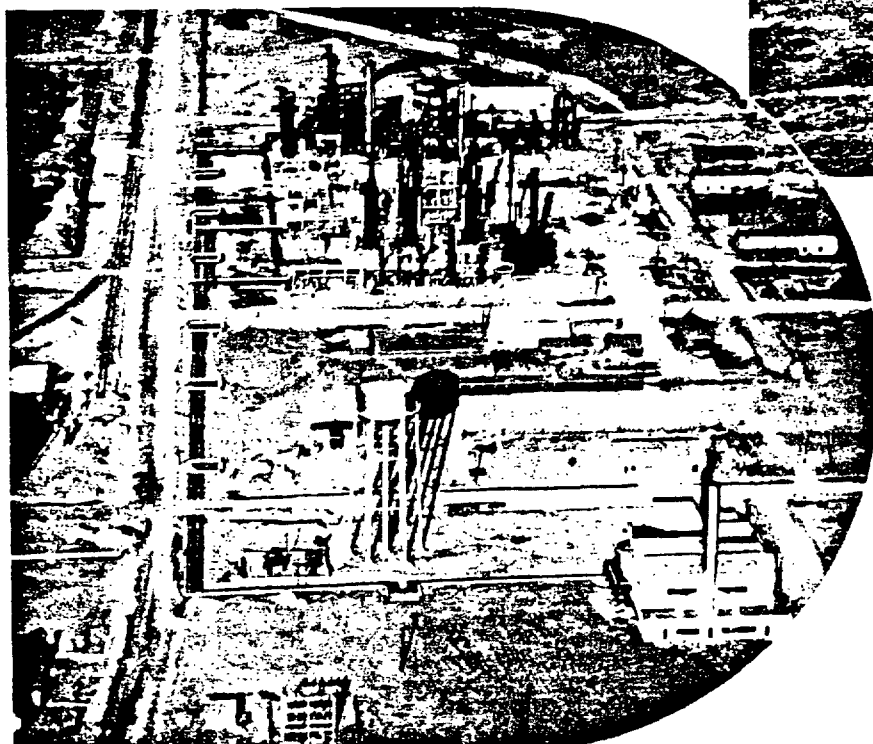


IMPERIAL Oil's refinery in Sarnia (left) is the largest in the Dominion. It can handle 71,000 barrels a day

On May 21, Sarnia and its twin city of Port Huron, Mich., across the St. Clair River, were struck by a tornado. The twister claimed several lives and caused millions of dollars of property damage. It came close to Sarnia's refineries, but, fortunately, did not damage them in any way.



ABOVE, now under construction, the refinery being built by Sun Oil is due to be in operation by year's end



AN AERIAL VIEW of the new Canadian Oil refinery in the Sarnia area. The plant cost 23 million dollars

dian Oil Companies refinery is a 20,000-barrel unit. By the end of 1953, the 15,000-barrel refinery that Sun Oil is now building will be in production. Then the city's total refining capacity will be about 106,000 barrels a day, second greatest in Canada.

Sarnia has many features in its favor to bolster predictions about its future as Canada's top refining center.

For one thing, it is the heart of what residents proudly refer to as "Chemical Valley," an area on the southern outskirts of the city in which are located many large chemical and petrochemical plants. Other factors that loom large as Sarnia rushes to meet its industrial destiny are: ample labor and raw material supply, excellent port and shipping facilities, and a rapidly expanding market for petroleum products. Sarnia's population of 40,000 is more than double what it was eight years ago, and one of every six residents of the sprawling province of Ontario now lives within a 100-mile radius of the city.

Crude From Alberta

While Sarnia is blessed with an abundance of most items required to make manufacturing a success, it can lay no claim to large oil fields. At one time it could, for oil in Canada was first found and produced in the Oil Springs-Petrolia area, 25 miles southeast of the city. Now virtually all the crude that Sarnia refines is brought in from Alberta, almost 2,000 miles away.

But in this age of miracles in petroleum transportation that is no hardship. In fact, hand-in-glove with predictions that Sarnia will rise as Canada's leading refining hub go forecasts that the city also will be the crossroads of the Dominion's fast-growing system of oil pipelines.

The latter prediction recently got a strengthening shot in the arm with announcement that the Interprovincial pipeline, which now stretches from Edmonton to Superior, Wisconsin, will be extended into Sarnia by late '53 or early '54. Then crude from the prairies of western Canada will be brought to the doors of Sarnia's modern refineries by the mere flip of a switch, as it were. Presently the crude travels by Great Lakes tankers, which pick it up at the Superior terminal.

The \$90 million extension of the Interprovincial line promises to be one of the epochal engineering feats in petroleum transportation. The 30-inch line will cut across northern Wisconsin and Michigan's upper peninsula. Then it will be strung across the

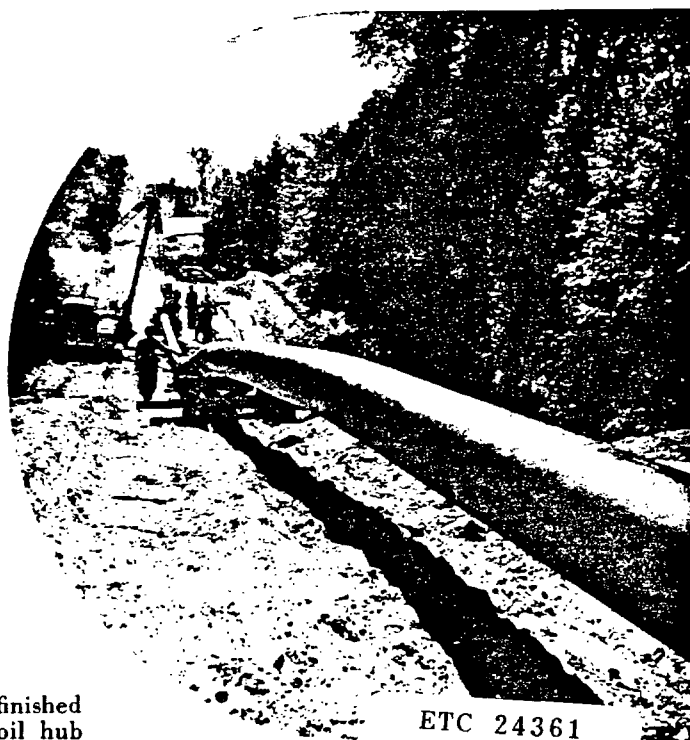
Straits of Mackinac for a distance of four miles and at a depth of some 230 feet, a world record for an underwater pipeline. After slicing down eastern Michigan, the line will cross the St. Clair River into Sarnia from Port Huron, Michigan.

Initial delivery of 83,500 barrels a day to Sarnia is planned. Construction of additional pumping stations will permit a flow of 300,000 bpd whenever needed — a total greater than present oil consumption in both Ontario and Quebec provinces.

Sarnia has, or is getting, other pipelines to bring crude oil to the city's refineries and to carry finished products to Toronto and the other markets.

Crude for the new Sun Oil refinery now abuilding will be received through an existing line from Toledo. Sun Canadian Pipe Line Company, Ltd., jointly owned by Sun and Canadian Oil Companies, Ltd., is constructing a 200-mile 8-inch products line from Sarnia to Toronto. The route of this roughly parallels that of Canada's first major products pipeline which Imperial Oil put into operation last fall. The latter presently can deliver 40,000 barrels of fuel oil and 44,000 barrels of gasoline daily to the Toronto-Hamilton area.

It has been said that "the 20th Century belongs to Canada." As it experiences its current boom in oil refining, pipelines and petrochemistry, Sarnia is tempted to alter that proclamation just a bit. "The 20th Century belongs to Canada," it agrees, "but the present decade belongs to us." #



PIPELINES that carry crude into the city and finished products out are vital to Sarnia's role as an oil hub

ETC 24361



Rotation is increasing the life expectancy of farm tractor valves

THE FARMER was in a jam. A wet late spring had put him two weeks behind in his planting and now his tractor was misbehaving. "Acts as though it needs another valve job," he complained to his local dealer as his tractor limped into the repair shop. "The expense is bad enough, but right now the lost time bothers me even more. I know I work it hard, but it always seems to break down when I need it the most."

Until a recent development — valve rotators — valve failures were a major farm tractor service problem. Often occurring at peak seasons, failures have caused delays in farm work and heavy crop losses.

Five Times Longer Life

But valve rotators have changed all that. A recent survey of leading farm equipment manufacturers shows that rotators have helped to eliminate the build-up of deposits, a major cause of unsatisfactory valve life in tractor engines. The majority of new tractors now are factory-equipped with valve rotators. For nearly all makes of tractors already in the field, rotators are available either through factory service or from engine parts suppliers.

The rapid growth in the use of valve rotators in farm tractor engines is a natural result of their outstanding performance. Under service conditions, rotators can extend valve life from three to five times — even longer in some cases.

With rotator-equipped tractor engines it often is

possible to achieve what is regarded as an ideal maintenance situation—valve life equal to or longer than piston ring life. This enables farmers and equipment dealers to establish regular servicing schedules.

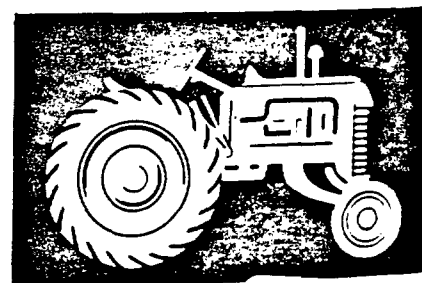
Exactly how do valve rotators extend valve life? Actually the principle is quite simple.

Everyone knows that the valves in any internal combustion engine take a beating. Scorched by the hot gases of combustion one instant and cooled by a fresh charge of the fuel-air mixture the next, plus opening and closing several hundred times a minute, they are "in the middle" in engine operation.

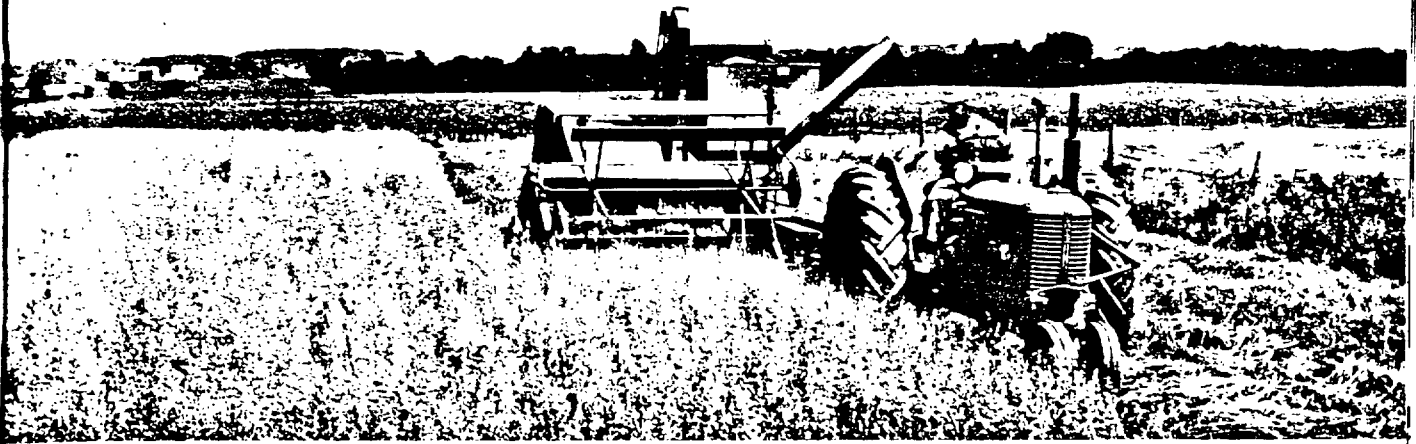
In tractor, truck and bus engines, where full-throttle operation under heavy loads is common, they are taxed even more. Under these conditions, deposits have a tendency to accumulate, causing valves to stick, burn and warp.

This is where rotators come in. By imparting a turning motion to the valves as they open and close, rotators help prevent the build-up of deposits. They also help eliminate other causes of valve failure.

The rotators now in general use are of two types. The positive type turns the valve a given amount



ETC 24362



TROUBLE-FREE tractor operation helps farmers meet the unprecedented demand for agricultural products

The release type allows normal engine vibration to turn the valve by relieving some of the pressure of the spring.

Although the widespread use of rotators in tractor engine valves is a comparatively recent development, the principle of valve rotation is not new. As long ago as 1933, the Ethyl Corporation Research Laboratories conducted a series of experiments to evaluate its possibilities. The results of these and other tests established that rotation could prolong valve life. But the extensive use of rotators had to await the development of satisfactory commercial devices and a better understanding of their application.

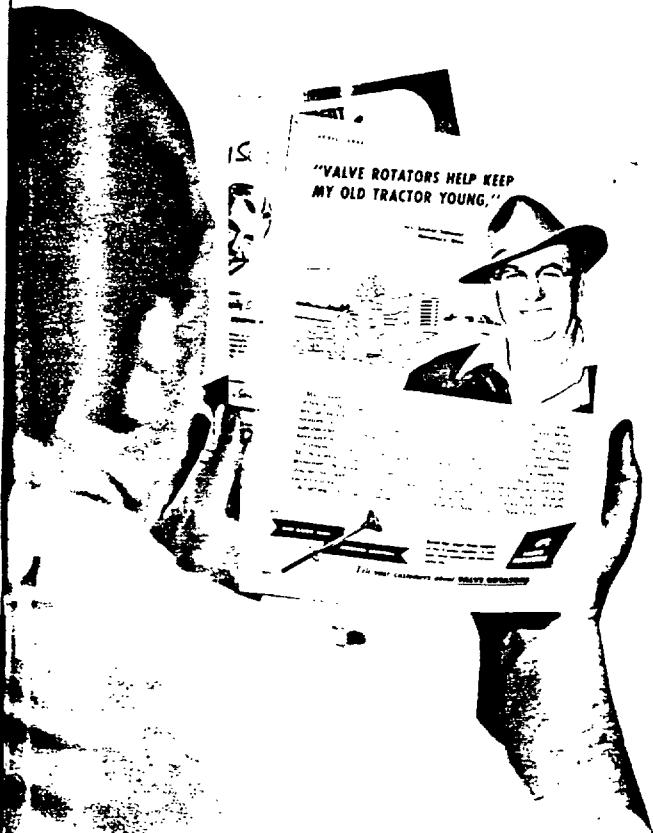
Then in 1943 Ethyl Corporation conducted a series of tests in cooperation with two major valve manufacturers. Hundreds of individual tests were conducted with 34 bus and truck fleets. The data obtained were the result of approximately 11 million miles of highway operation and 17,000 hours of stationary engine operation. They showed what actual use has borne out—that rotators can prolong valve life from three to five times.

Added Advantage

While the information gathered pertained to commercial and stationary engines, subsequent experience proved that rotators were equally valuable in farm tractors. Unlike heavy-duty truck engines, farm tractors have the added advantage of not generally requiring the use of hard-faced valves in combination with rotators.

Mindful of the far-reaching advantages of valve rotators, tractor manufacturers, farm equipment dealers, oil companies and Ethyl Corporation have joined in a campaign to acquaint more and more of the nation's farmers with the valve-saving device. For its part, in addition to national advertising on the subject, Ethyl Corporation has made available two informative booklets. One tells the valve rotator story in easy-to-read style, and the other lists rotator availability for various tractor makes and models. It also has produced a motion picture on rotation. Entitled "One Good Turn Deserves Another," the seven-minute film is for showing to oil company personnel and tractor dealers and mechanics. #

ETHYL CORPORATION is helping to tell the valve rotator story in farm equipment magazine ads



Ernestine Adams, Wanda Jablonski and Ruth Sheldon Knowles never brought in an oil field or developed a new refining technique, but few names are better known throughout the petroleum industry.

All three women have one thing in common. They write about oil. And what they write, the world reads.

A ready case in point is Ernestine Adams' famed article entitled "What's Wrong With Being an Oil Company?" This first appeared in the April 1951 issue of *The Petroleum Engineer*, of which Miss Adams is managing editor. Since then it has been published in countless other periodicals and has gone through five million reprints in several languages, including Japanese. Other Adams' writings that have reached widespread audiences more recently are her editorial called "What Is Profit?" and a similar treatment of the Naval Petroleum Reserves project.

Miss Adams prefers to stay in the background and let her literary efforts speak for themselves. Only a few weeks ago, however, she was forced into the public spotlight. By vote of a committee of oil industry executives, she was crowned "Oil Woman of the Year" during the 1953 International Petroleum Exposition in Tulsa.

Owned Weekly Newspaper

Missouri-born, Oklahoma-bred Ernestine Adams' success in her chosen field is all the more remarkable remembering that her exposure to anything associated with the oil industry was extremely limited until she joined the staff of *The Petroleum Engineer* ten years ago. She did some oil reporting during the seven Depression years she owned a weekly newspaper in Oklahoma, but there followed another seven years of non-petroleum magazine and advertising work.

Even her association with *The Petroleum Engineer* was a chance affair. Casting about in Dallas in 1943 for a writing job, she was taken on as an associate editor of the magazine. By 1948, she had risen to managing editor. In that position today, the entire petroleum industry is her beat.

Behind the byline W. M. Jablonski, oil editor of *The Journal of Commerce*, is a woman who never had any desire or intention of being a writer, a business analyst or an economist, but who is accepted as outstanding in all three endeavors.

Wanda Jablonski was born in Czechoslovakia. Her father's work kept the family constantly on the move, with the result Miss Jablonski had lived in a dozen or more lands and two states of this country before arriving in the United States in 1938 for keeps.

Bylines in Oil

**What these women write about
petroleum, the world reads**

When she came to the United States 15 years ago it was to take a few years schooling at Cornell until she was old enough to be admitted to Cambridge in England. The war changed those plans. She remained in this country, and as in Ernestine Adams' case, just "stumbled into" her job with *The Journal of Commerce*. In two years, 1945, she was oil editor.

As such, she ranks among the nation's most respected women journalists. Wherever there is news about petroleum, or apt to be, there is Miss Jablonski. One incident establishes her determination to ferret out oil news whenever and wherever it develops. On a New York-Miami motor trip a few years ago, she began asking service station attendants random questions about competition within the industry and ownership of the various oil companies. The illogical and false answers she received amazed her. She

WANDA JABLONSKI



printed the results of her vacation "survey" and immediately it was hailed by all segments of the industry.

One indication of the international esteem in which Miss Jablonski is held is the visit she made to Venezuela as the official guest of that country's oil minister in 1948. She was invited to see and write about anything of Venezuelan oil she cared to. So thorough was her probing that upon her return to the United States she was asked to address the board of a major oil company on the subject.

If Wanda Jablonski and Ernestine Adams picked up their knowledge of oil lately and "on the run," Ruth Sheldon Knowles can be called a "child of oil." Her introduction to petroleum came at the age of five when her father began wildcatting out of Tulsa after a career as a lead miner in Missouri.



RUTH SHELDON KNOWLES

Now Mrs. Knowles is a recognized "oilman" in her own right. She made up her mind long ago to become a writer, specializing in oil, and her entire college education was based on subjects that would enable her to interpret the industry to the layman.

That she has succeeded is obvious. She has authored countless articles for the nation's leading newsstand and business magazines. Her latest, entitled "A Gallon of Gasoline," appeared in the April issue of *Coronet*. The Oil Industry Information Committee has distributed reprints of this article throughout the nation, and one oil company has ordered half-a-million reprints for its own use and distribution.

Mrs. Knowles also is the author of the series of 13 radio programs aired last year and this by the OIIC



ERNESTINE ADAMS

over many U. S. stations. The series relates the "romance of oil," the first time the industry's story has ever been told in this way.

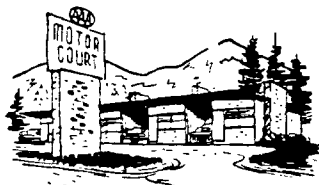
While writing is her forte, it is by no means Mrs. Knowles' sole contribution to the advancement of the petroleum industry. She follows a busy schedule of speeches before clubs, conventions, and various public groups. She completed last year a special survey of exploration in Western Canada and of the oil potentialities of Cuba.

Specialist on Ickes' Staff

In 1939, at the invitation of the Mexican government, she surveyed all fields and refineries in that country — the first foreigner permitted to do so. She was a petroleum specialist on the personal staff of Secretary Ickes during the early war years, during which time one of her assignments was a survey of the oil fields and refineries of South America.

"I feel that my most important contribution to the industry which I love has been the opportunity to help create a better understanding and a greater interest in the industry and its men and women amongst thousands of people who do not know about oil. The oil industry demonstrates the fruits of freedom and, as a student of liberty, I feel compelled to convey that message to the best of my ability wherever and however I can."

So speaking, Ruth Sheldon Knowles sums up for herself, Ernestine Adams and Wanda Jablonski the guiding principles that have made these three women outstanding in their profession. #



OFF



TWO NEW tourist attractions: The Logging Museum in Oregon's Collier State Park and (below) Chimney Rock on Lake Greason in southwest Arkansas



AT THIS VERY MOMENT, a sizable number of families the country over are performing the same ritual. They're stuffing please-stop-delivery-temporarily notes into empty milk bottles, making a last-minute check against open gas jets and burning electric lights, and trying to wedge that extra piece of luggage into the automobile trunk.

The reason for this activity is clear. The summer vacation season is again upon us. For some time now Americans have been the "travelingest" race of all civilization. This year, more citizens than ever will leave home for a change of scenery and routine.

About 75 million people, almost half the national population, take an annual vacation trip. Nine million go by airplane, train, ship, bus and bicycle. The remaining 66 million travel in automobiles. And therein lies another chapter of the miraculous it-could-happen-only-in-America saga.

Only in a nation where private automobiles are within the reach of everyone, where paid vacations of two weeks and more are the custom, and where the national standard of living and family earnings are so high could so many people even consider an annual pleasure junket.

The other way around, motorists, by their extensive traveling, add strength to the nation's industrial and



TWO VACATIONISTS hear about the wonders of the newly-opened natural bridge outside North Adams, Mass.

WE GO...

66 million Americans are taking vacations by car this year

economic might. They create entire new industries — the motor court business, to name one. And they provide extra business for local merchants selling everything from accordions to zwieback.

So vast and varied is the spending of the pleasure-bound automobilist that more than half the states rank vacation travel among their three top major industries. In two — New Jersey and New Mexico — it is the biggest industry.

All in all, it has been determined, motor vacationists currently are spending about \$9¼ billion annually on direct purchases. This breaks down to \$140 a person during the average 11-day car trip of 1,200 miles.

The American Automobile Association has dug deeply into the matter and can even pinpoint how the vacation dollar is spent. The biggest single item is meals, which take 29 cents of the dollar. Next

comes transportation, which includes service station purchases, automobile maintenance and repair, and tolls. Twenty-one cents goes for this. The rest of the dollar is spent: 20 cents for lodging, 18 cents for miscellaneous retail purchases, 7 cents for theatres and other amusements, and 5 cents for admission to travel attractions.

The service station, the roadside stand, and attractions like animal farms along the busier highways all owe their existence and growth to the motorist. Now, in recent years, he has helped create an entire new industry — in the field of accommodations. Almost 45,000 motor courts, motels and motor hotels (more than three times as many as in 1940) now await the tired motorist, and new units are going up at the rate of 2,000 an-



TYPICAL VACATION scene at the national park on Isle Royale, in Lake Superior



ETC 24367

nually. The average modern motor court-type establishment costs \$50,000 to build and furnish, and often offers such niceties as air conditioning, a swimming pool, tennis courts, and television.

So long as they exist, the Golden Gate Bridge, the Mississippi, Mount Vernon, and the mountains of New England will appeal to all. But let no one think there are no new travel horizons in the land. Many Americans, seeking recreation as opposed to sight-seeing, are finding that several such horizons are opening up to them.

"A vast new group of recreational areas has emerged as a by-product of flood control and irrigation projects," the American Automobile Association reports. "Construction of a dam means creation of a new lake — usually stocked with fish to be caught by vacationists staying at new nearby accommodations."

The AAA recently asked the states about their "new regions of travel interest" resulting from such projects. Arizona reported that the entire Colorado River area in its state, particularly Lake Mohave



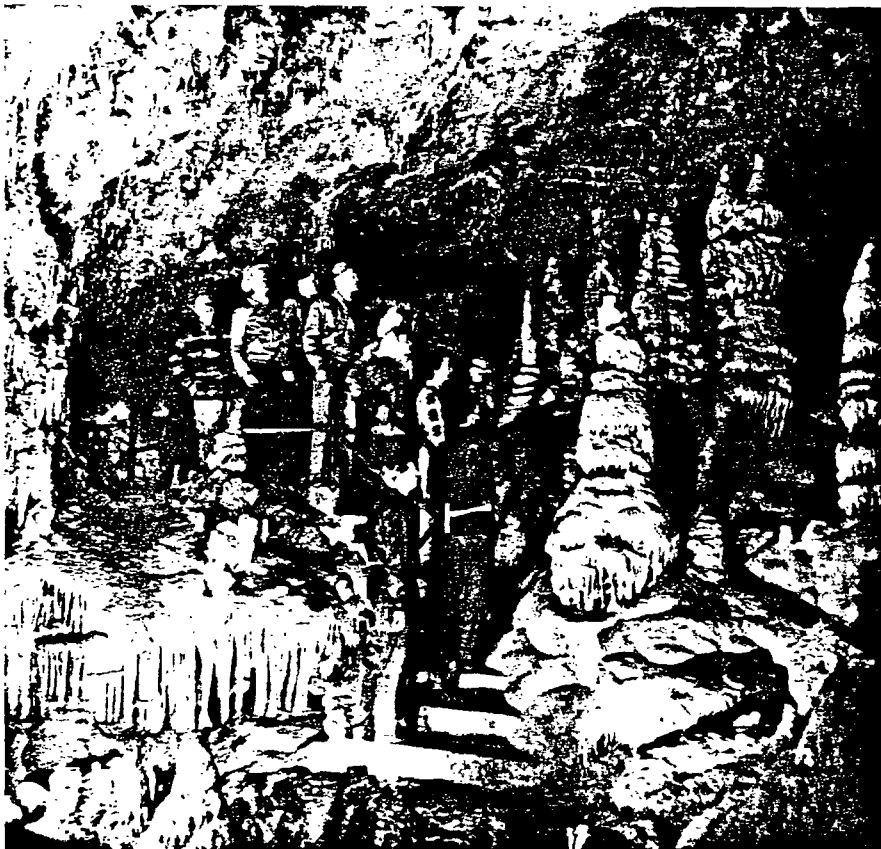
created by Davis Dam, promises to rank with the Grand Canyon as a leading attraction of the Southwest. New lures in Arkansas include the Lake Greeson and Bull Shoals areas; in Mississippi, Sardis and Arhabutla Lakes; in Missouri, Lake Paho; and in Tennessee, many new man-made lakes.

Other types of *new* travel attractions reported include the Arizona Desert Trailside Museum, near Tucson; the State Veterans' Memorial Park, near Cordele, Ga.; the white marble Natural Bridge at North Adams, Mass.; and Whitewater Falls, in Oconee County, South Carolina.

Free to move about as he pleases in the family automobile, the motorist does not overlook Alaska, Canada, and Mexico.

Well over two million drivers enter Canada each year and Mexico annually greets half-a-million motoring Americans. But it is Alaska that is experiencing the heaviest gains in travel volume. In its vacation-destination tabulations, the American Automobile Association lists 13 general geographical areas of North America. Alaska led all areas last year with an 88 percent rise. This year our potential 50th state expects about 100,000 visitors by automobile.

Ahead, then, for the 1953 motor vacationist lie new experiences and adventures. As he enjoys them, he will also be contributing to the strength of the nation by helping to sustain established businesses and industries and to create new ones. #



LEWIS AND CLARK Cavern, Montana, is the Pacific Northwest's largest

EDD ROBERTS, father of land judging, has taught the new art to thousands



Judges of the land

A new technique to help save our soil has been developed

JUDGE THE LAND the way you do cows, chickens or grain? The idea might have seemed a little far-fetched a dozen years ago. But not now. Land judging, born and reared in the wind-swept farm country of Oklahoma, is roaring across the nation and through the world like a prairie fire. If not fully arrived yet, it seems to be the coming thing in soil conservation.

How farm youth feel about land judging is voiced in a resolution adopted by the Future Farmers of America at their 1952 national convention. They called it "the most

effective tool ever devised to teach the fundamental principles of proper land use and land treatment."

There's much in land judging to appeal to young farmers and farmers-to-be. But adults are not excluded. Farm people of both sexes and all ages know too well the rav-

ages of erosion not to take up any new weapon in the constant fight against wind, rain and the other forces that rob us of our valuable land.

Had you been at a 160-acre farm 10 miles north of Oklahoma City this April 30 and May 1, you would have seen land judging in action — and at its best. There, on what is known as the WKY Farm (named after the radio-television station that sponsors the event), was held the second annual National Land Judging Contest.

Oklahomans have become used to





COMPETITION in the national event is real down-to-earth business

spirited competition in recent years through the all-winning habits of the basketball, football and wrestling teams of the state's two great universities. But the Land Judging Contest was no matching of brawn against brawn. It was a battle of man against the soil and those elements which, unchecked, destroy all that is good in the good earth.

Boys and girls, men and women competed in four divisions—Future Farmers of America, 4-H Club, collegiate and adult. Adults competed individually. In the other three divisions, teams vied against each other to show their mastery of the soil. Nine states sent representatives to the first national contest in 1952. This year's competition drew contestants from 14 states.

The contestants' job was twofold. They first had to decide which of the eight land-capability classifications developed by the Soil Conservation Service best fitted each of the four fields to be judged. These classifications range from "very good land" to "not suited for cul-

tivation" and "suited only for wildlife." Some of the considerations that go into determining the classification of the land are soil texture, permeability, slope, amount of erosion, depth of topsoil, and drainage.

On the basis of their land classification, contestants then prescribed which of 33 suggested treatments they would apply to bring the land to maximum productivity. Choices here ran a wide gamut. Would you improve crops every year or only every fourth or fifth year? Would

you terrace and farm on a contour? Would you apply phosphate, nitrogen or potash alone, or would you apply all three?

Finally the results were announced and the prizes bestowed. That was the end of the National Land Judging Contest for another year, but it was not the end of soil conservation labors. That monumental task of the farmer never ends—not when some three billion tons of precious soil still are washed or blown out of America's fields and pastures each year.

During the 52 weeks between national contests, land appreciation training schools are held. These are one-day local events which wind up with a land judging contest much like the big event in Oklahoma City. Farmers and land owners study soils during a morning group session, after which they go to a nearby farm and engage in a land judging meet.

How It Started

If there is a "Mr. Land Judging," he is Edd Roberts, the extension soil conservationist at Oklahoma A. & M. College. Together with Harley Daniel, project supervisor at the Red Plains conservation experiment station in Guthrie, Oklahoma, he originated and developed land judging. That was in 1941. Since that time, Mr. Roberts personally has conducted 288 of these events and has trained more than 6,000 adult and young farmers in the new method of learning soil conservation.

Soil conservation admittedly is a dry subject of discussion and one difficult to translate from the technical to the layman's viewpoint. But if anything can glamorize the soil and the need for conserving it, land judging seems to be the current bet. ■



A 4-H CLUB member writes down his evaluation of land he has just judged

World's Most Experienced Airline

the skin you love to touch!

THE LAND OF ENCHANTMENT

ASK THE MAN WHO OWNS ONE

When its Time
to Re-Tire

Famous for Quality the World Over

"Say it with Flowers"

THE PAUSE THAT
REFRESHES
A WOMAN NEVER FORGETS
THE MAN WHO REMEMBERS

Cover the Earth

"hasn't
scratched yet!"

Say It With Slogans

The brief, catchy phrase is a valuable business aid and also an asset in promoting matters of national interest

By Frank L. Remington

"How shall I answer this letter?" the young secretary asked her employer. "This man is writing to ask how he can be sure the car we make is a good one."

The employer stared thoughtfully at the letter a moment. Then he said: "If he wants to know how good the Packard automobile is, tell him to ask the man who owns one. And give him the name of a Packard owner in his vicinity."

When he voiced those words in 1902, James Ward Packard little realized that "Ask The Man Who Owns One" would become synonymous with the Packard automobile. The slogan has appeared in most Packard advertisements.

Slogans' Influence

Throughout life everyone is influenced by slogans. Some of the better known even have become a part of the language. An example is the "Eventually, Why Not

Now?" slogan of Gold Medal flour. One day, the story goes, a company official asked some employees when they were going to come up with catchy phrases that might be used to advertise the product. "Eventually," one man replied. "Eventually," the official asked. "Why not now?"

Slogans have been useful since man first walked the earth. Two hundred years before Christ, Cato, the Roman general, proclaimed the famous "Carthago delenda est!" Armed with "Carthage must be destroyed!," Cato whipped up so much popular sentiment against the city that he was principally responsible for its destruction.

The word "slogan" originated centuries ago in the Gaelic words "sluagh" and "gairm," which mean literally an army cry or battle yell. The ancient Highland clans of Scotland used such yells as rallying calls. These slogans inspired the clansmen and ignited inspiration into the flame of action.

Since those early days slogans have continued to prove their inspirational worth in many fields of human endeavor. In politics — "I Like Ike." In national emergencies — "Remember Pearl Harbor." In selling defense bonds — "Defense Is Everybody's Business." But for the most part, the major use of slogans is in advertising.

Planned Usage

Although some slogans have storied backgrounds, many originate as a planned part of advertising campaigns. One in this category is "For The Life of Your Car, Go Gulf." With the start of World War II, Gulf Oil wanted a saying that would do more than promote the sale of its products. It wanted also to remind motorists that proper automobile care was more important than ever if cars were to last through the war years. "For The Life Of Your Car, Go Gulf" is still used in the company's advertising.

The stories behind some of the



SLOGANS FIND wide use promoting: The Ground Observer Corps . . .



More and better schools . . .

Forest fire prevention . . .



Remember-Only you can **PREVENT FOREST FIRES!**

more familiar slogans reveal that many of them originated from a chance remark, a humorous circumstance, or even a commonplace incident.

"Watch The Fords Go By," for instance, had no connection with automobiles at its inception. One Saturday in 1908, the employees' baseball team of the old Highland Park plant of Ford Motor Company enjoyed a particularly good inning at bat. So many runners sprinted down the baselines that an enthusiastic fan shouted: "Watch the Fords go by! Just watch the Fords go by!" It didn't take long for someone to suggest that the company might make use of these words in the advertising of its automotive product.

It is said that Theodore Roosevelt originated Maxwell House coffee's slogan, "Good To The Last Drop," during a visit to the home of Joel Cheek, who had perfected the coffee blend. After Mr. Roosevelt had emptied his cup, his host asked how the Chief Executive had enjoyed the beverage.

"Delightful," was the President's reply. "It was good to the last drop."

Considerable discussion has been focused on this slogan over the years, and understandably so. "What's wrong with the last drop?" is a favorite question. The manufacturers of Maxwell House received so much correspondence on this point that they submitted the matter to Columbia University for settlement. Columbia finally decided that the word "to" as used in the slogan was inclusive and in good usage.

A Big Debate

"All The News That's Fit To Print" is probably the best-known newspaper slogan. When adopted by *The New York Times* in 1896 it caused widespread debate. Some critics asserted the slogan implied that the *Times* exercised editorial judgment as to what news might be too horrible or obscene for public consumption — a function, they said, no newspaper had the right to assume. The *Times* replied that no newspaper ever prints all the news.

As the controversy continued, the *Times* offered a \$100 prize for any 10-word motto which seemed to express better the paper's ideals. The contest drew some 20,000 entries, of which 150 were thought good enough to publish. The prize went to the person who suggested "All The World's News, But Not A School For Scandal."

The newspaper, however, liked its own slogan better and has continued to use it.

Just as "Good To The Last Drop" and "All The News That's Fit To Print" prompted controversies, so other slogans often become the butt of jokes. Advertisers seldom object to these discussions and stories. To the contrary, they usually encourage such enthusiasm, for it enhances the advertising value of the slogan and increases interest in the product.

Industry Slogans

Often an entire industry adopts a slogan, as the floral industry's "Say It With Flowers." Major Patrick O'Keefe, a Boston advertising man, generally receives credit for authoring it while discussing an

appropriate slogan with Henry Penn, a florist. After suggesting various phrases and bits of poetry, the Major observed: "Why, you can say it with flowers in so many..."

"That's it," Mr. Penn exclaimed. "That's it— Say it with flowers."

Slogans of two well-known timepieces also had their origins in commonplace incidents. The Hamilton Watch Company developed its "The Watch Of Railroad Accuracy" from a phrase in a letter written by a railroad man who was highly pleased with the never-failing correctness of his watch.

R. E. Ingersoll came by his famous slogan at a social function when a forgetful hostess couldn't recall his name. In introducing him to another guest the embarrassed lady vainly searched her memory.

Finally, she blurted out, "Oh, you know, he's the man who made the dollar famous." Mr. Ingersoll, quick to recognize the commercial value of the remark, altered it slightly and used it in his advertising as "The Watch That Made The Dollar Famous."

Next to giving a customer the best value for his money, there are few items more important to a company's success than the goodwill an established slogan creates. #

**Show them
the Way
...this week**



Regular church
attendance...

The blood donor
program...

Sale of Defense Bonds

It's time to roll up your sleeve.



**GIVE
BLOOD
NOW**

CALL YOUR RED CROSS TODAY
NATIONAL BLOOD PROGRAM

Invest regularly in U.S. DEFENSE BONDS
Now Even Better!

PAYS 3%
COMPOUNDED SEMI-ANNUALLY
WHEN HELD TO MATURITY

Junior Partners in Business



FIRST STEP in the manufacture of the C-EZ Company's lawn markers was mixing the concrete

WITH ONE of the Ethyl Corporation advisers looking on, the mix is poured into steel molds



IN ANSWERING the call for assistance in telling the story of business and our economic system to high school students, the companies that make up American industry have responded in many ways. They supply motion pictures, slides and film strips. They prepare informative booklets, brochures and charts. They hold open houses and conduct plant tours. They furnish qualified speakers for school classes and assemblies.

But, believing that experience is the best teacher, upwards of 900 business enterprises throughout the country cooperate in still another way. These firms sponsor some 1,500 Junior Achievement companies — companies in which more than 20,000 teen-agers each year acquire practical first-hand business experience to supplement their academic training.

Although it is not new, the Junior Achievement movement is still spreading. Among the factors responsible for its continued growth are the greater need for better economic education and the enviable record made in the business world by graduates of the Junior Achievement program.

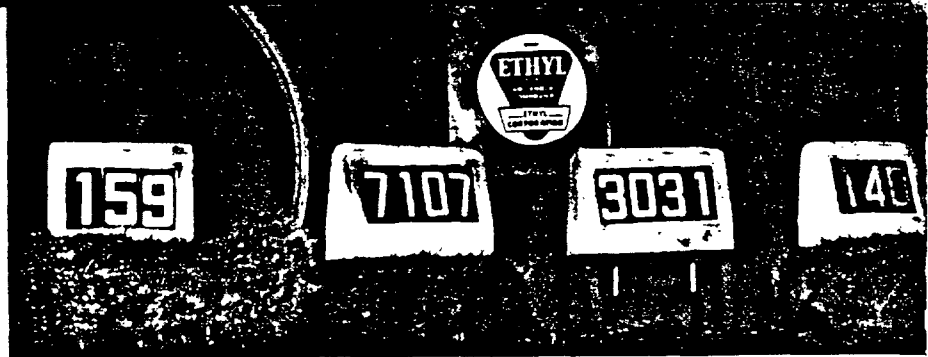
In Texas, where industry is booming, Junior Achievement is following suit. In the Houston area alone, more

A SHAPED MARKER, complete with steel spikes, is carefully removed from one of the molds after concrete has hardened





BOOKKEEPING and banking were important parts of company operations



A PORTION of the display of completed lawn markers at an exhibition of the work of Junior Achievement companies in the Greater Houston area

than 40 business firms are sponsoring teen-age companies. Among the Greater Houston business organizations that support the Junior Achievement program is the manufacturing plant of Ethyl Corporation. The Ethyl-sponsored C-EZ (See Easy) Company is a good example of how a Junior Achievement project helps to prepare young people for the business world.

It's Their Business

The C-EZ Company was named by the boys and girls in it for the product they produced — concrete lawn markers with easy-to-see luminous house numbers. The group elected their own officers. Then, to accumulate operating capital, they went into the community and sold stock in their new venture. An advertising and selling campaign was launched, materials and supplies were purchased, and production started. The youngsters kept their own books and handled their own banking. In every way then, the success of the project depended largely upon the young people themselves.

Throughout these activities, they had the benefit of business advice from the Ethyl plant's chief ac-

countant, production advice from a Company engineer and one of its operations supervisors, and sales advice from an Ethyl plant stores office supervisor and a Sales department representative.

Within a few months over \$500 worth of lawn markers had been sold and the teen-age company's production department was forced into overtime to meet the demand for more.

When the school year ended recently, the C-EZ Company issued an annual report to stockholders, paid a dividend of approximately ten percent, and was dissolved. Dissolution at the end of the year is customary for all Junior Achievement companies. This step provides an opportunity for participants to gain experience in terminating businesses as well as in organizing and operating them.

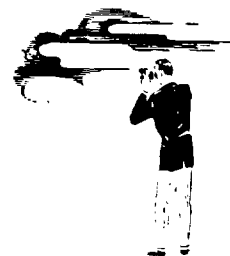
The beginning of another school year in the fall will find American firms sponsoring new Junior Achievement companies. Each one of the 1,500 or more projects will provide practical business experience for members of a rising and important generation. #

HINTS on successful selling are offered to the company's sales force by two of the experienced advisers

A PRODUCTION LINE technique was employed to affix the luminous numbers to the concrete bases of the markers



a colorful hobby



Taking and exhibiting color slides is a photographic specialty

WHEN GEORGE EASTMAN developed the first compact, hand-held camera and then offered it for sale at a reasonable price, he started America on what was to become one of its most popular hobbies.

Amateur photography has come a long way since the introduction of the Kodak. It now numbers its devotees high in the millions. For those who have felt the bite of the photography bug, there are all sorts of supplies and precision equipment to make picture-taking practically foolproof.

Along the way, photography, like a diamond with many facets, has become a hobby with many sides. Some "shutterbugs" specialize on subject matter — landscapes, baby portraits, still life. Others use certain types of cameras like the reflex, 35 mm., and the third-dimensional type to achieve desired results, or concentrate their efforts exclusively on the use of special lighting effects. In still a fourth category are the camera enthusiasts who specialize in color.

The latter's interest in their specialty is seen, among other places, in the many color slide competitions and exhibitions held throughout the country each year. Hundreds, often thousands, of color slides are offered for showing and judging.

One leading series of color slide competitions is that sponsored by the Photographic Society of America. This is an organization of 700-odd affiliated camera clubs from coast to coast.

Each year PSA sponsors five interclub color slide competitions and at least one for individuals. Entries come from some of the nation's top color photographers and the competition obviously is keen.

One of the fascinating aspects of PSA and other color slide competitions is the uncertainty of the outcome. It's practically impossible to anticipate which slides will win awards, not only because of the large number and high quality of the entries, but because of the human element that enters into judging them. There are no set rules or formulas for grading or rating color slides. Although all are photographic experts, judges have their individual differences.

In view of the long odds, the record of the small Venango Camera Club of Oil City and Franklin, Pa., is exceptional. To the oil industry, Venango County is noted for its several refineries and for the development of oil in Western Pennsylvania. But thousands of the nation's color photographers have come to know Venango as the name of a top-notch camera club.

Among the Leaders

In all of the last three annual national competitions of the Photographic Society of America, the 35-member Venango Club has placed among the leaders — even over much larger clubs from some of the country's leading cities. In 1949-1950, it was first, and in 1951-1952, second. Contributing to their club's high standing have been the color slides of the Rev. Herman Bielenberg, George Steck, and D. W. Grant, vice president of The Pennzoil Company.

The color photo on the cover of this issue of *Ethyl News* is one of Mr. Grant's prize-winning slides. Entitled "Captivated Cat," it has received special recognition in many club and individual competitions. Last fall it took top honors in a field of 5,000 color slides in a Pittsburgh competition. Later it was selected to be exhibited at the annual convention of the PSA in New York, and was one of four color pictures reproduced in the convention catalogue. It is still being shown at photographic salons throughout the country. #





MINING THE OCEAN

Science has forced the sea to yield great quantities of bromine for "Ethyl" fluid use

LOCKED IN AND UNDER the oceans of the world is a great wealth of chemicals and animal and plant resources. Some day, scientists tell us, civilization may rely more upon the great bodies of water for food, clothing and shelter than it now does upon the farms and forests of the land.

Few keys to the locked-in wealth of the oceans have been found as yet. But some have. One element that is being "mined" from sea water in quantity is bromine. For 20 years now, this valuable chemical has been successfully separated from sea water, even though it occurs in such a minute ratio as 67 parts of bromine to every million parts of water. Most of the bromine so recovered in this country is converted into ethylene dibromide, a major ingredient of "Ethyl" antiknock compounds for motor and aviation fuels.

Recovery of bromine from the sea is centered in Freeport, Texas, where Ethyl-Dow Chemical Company maintains the world's largest plant for this purpose. An \$8 million expansion was completed last fall, resulting in a 25 percent increase in production capacity. This expansion coincided with announcement by the Defense Production Administration that the goal for ethylene dibromide capacity had been set at 210 million pounds annually by the start of 1955. This

represents a step-up of 90 million pounds over the approximate annual capacity early in 1951.

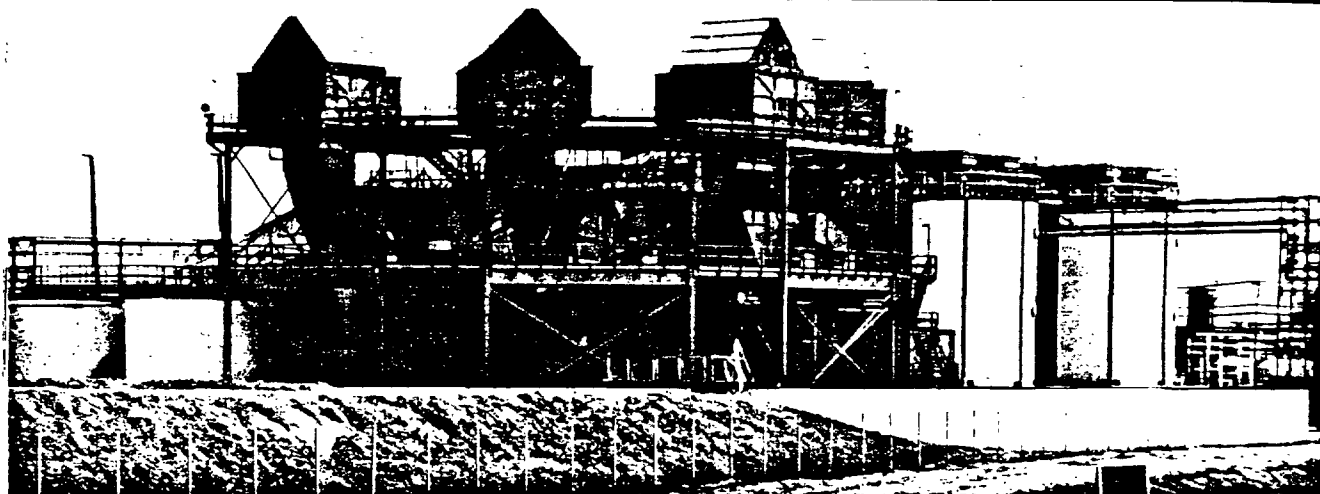
This greatly increased call for ethylene dibromide presents a glowing contrast to bromine's position three decades ago, when "Ethyl" gasoline was first marketed. Then, domestic demand for bromine was relatively small. Only about one million pounds were needed each year. Most of this went into the manufacture of pharmaceuticals and photographic supplies. But with the introduction of "Ethyl" antiknock compound in 1923, a new industry was born which was to create a demand for bromine that is now more than 100 times as great.

The role of ethylene dibromide in tetraethyl lead antiknock compounds is to unite with lead molecules released from the air-fuel mixture during combustion and carry them off in the exhaust gases. The chemical is made by bubbling ethylene gas through liquid bromine.

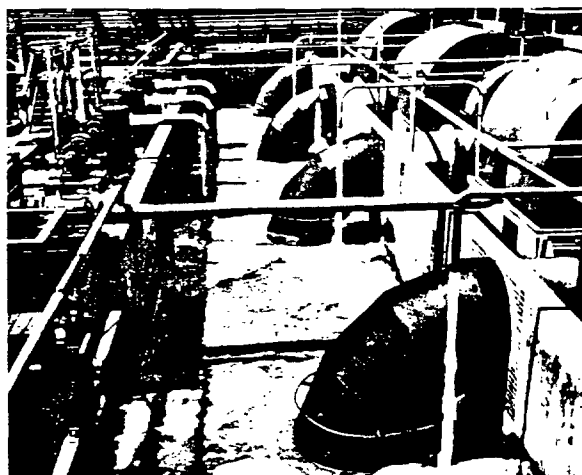
Once A Grave Problem

In these days of ample supplies of ethylene dibromide and bromine, it is difficult to imagine that such was not always the case. Only 30 years ago the problem of where and how to obtain sufficient quantities of bromine for use in antiknock compounds was a grave one that occupied great scientific minds.

Virtually all the bromine at that time was being produced from underground brine processed in Michigan. Production was adequate for current needs, but it was only a matter of simple mathematics to figure



A RECENT EXPANSION increased Ethyl-Dow plant capacity 25 percent. Part of the new facilities are seen here



THESE SUCTION PUMPS, each of which can handle 55,000 gallons a minute, deliver water to extraction towers

that far more bromine would be required if "Ethyl" antiknock compound was to become the successful product it has proved to be.

It was known that the oceans contained an almost endless supply of bromine. The question was how to make Neptune yield his vast store of the chemical. Of all the elements, only common salt had ever been extracted from sea water in commercial quantities.

How man succeeded in mastering the oceans by unlocking bromine is one of the most interesting chapters in chemical research.

Laboratory tests had indicated that a process for drawing bromine out of sea water could be developed into a commercial success. To prove the theory on the spot, the *S. S. Ethyl*, a Great Lakes cargo vessel, was converted into "a floating chemical factory" and sent to sea off the Atlantic coast. The boat's brief, but costly, 1925 voyage brought fulfillment of the promises of the laboratory experiments.

The bromine extraction process was further per-

fectured, and in 1934 there arose among the sand dunes of North Carolina's shore a full-scale plant for separating the element from sea water. When war clouds gathered over Europe, Ethyl-Dow began construction of a second plant — this the one at Freeport — and this went into production in the year of Pearl Harbor. All production is now concentrated there.

The manufacture of ethylene dibromide — like that of the antiknock compounds in which it is used — is a highly specialized operation. Since bromine must be extracted in as pure a form as possible from sea water, each successive step is designed to concentrate it and eliminate the unwanted brine. To obtain one pound of bromine, more than 3,000 gallons (about 10 tons) of water must be treated. Each working day, the Freeport plant processes as much water as is used by the cities of Cleveland, Detroit and St. Louis.

Water Drawn From Gulf

The water is drawn in from the Gulf through a steel-walled receiving canal. It is passed through a number of screens and then discharged into a brine pumping basin. A series of pumps — each of which can handle 55,000 gallons of water per minute — delivers the water to the tops of twin extraction units, which are known as "blowing out towers."

As the water is introduced into the extraction units, it is treated with a chlorine and acid solution, in order to liberate the bromine. The inside of the blowing out towers is filled with packing materials which break the sea water into droplets as it cascades down. At the same time, a powerful blast of air is directed up through the tower. This creates a bromine "mist," which passes into an exit duct and, by chemical treatment, is reduced to a concentrated solution of 80,000 parts of bromine per million. The bromine is then recovered from this solution, purified, and combined with ethylene to form ethylene dibromide. #

New Stars for Old Glory

ADD TWO MORE STARS to the Flag? Never! Why, there might be as many as 20 states in the Union. Certainly no one would want to crowd that many stars on to the blue field.

Those of our founding fathers who 160 years ago argued thus against adding stars for the new states of Vermont and Kentucky would be amazed by present plans for adding — not the fourteenth and fifteenth — but the forty-ninth and fiftieth stars to the Flag of the United States.

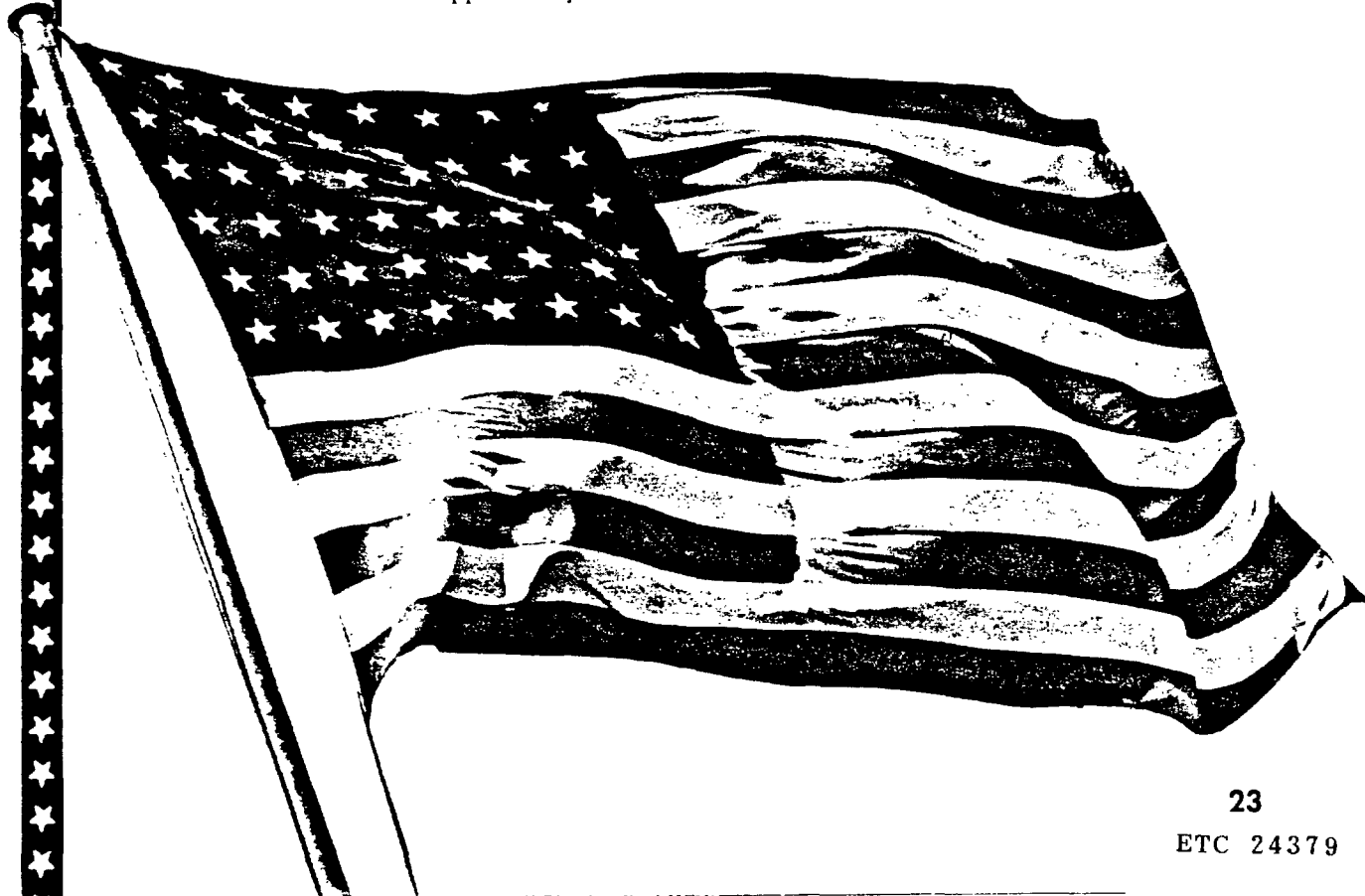
The rule is "a star for every state, and a state for every star." Thus, if and when Congress votes statehood for Hawaii and Alaska, it also will be voting two more stars for Old Glory.

It is a matter of history that the Flag has changed many times since the original design of 13 red and white stripes and 13 white stars on a field of blue was approved by the Con-

tinental Congress in 1777. The Flag, as President Wilson pointed out in proclaiming the first Flag Day in 1915, is "the embodiment of our history."

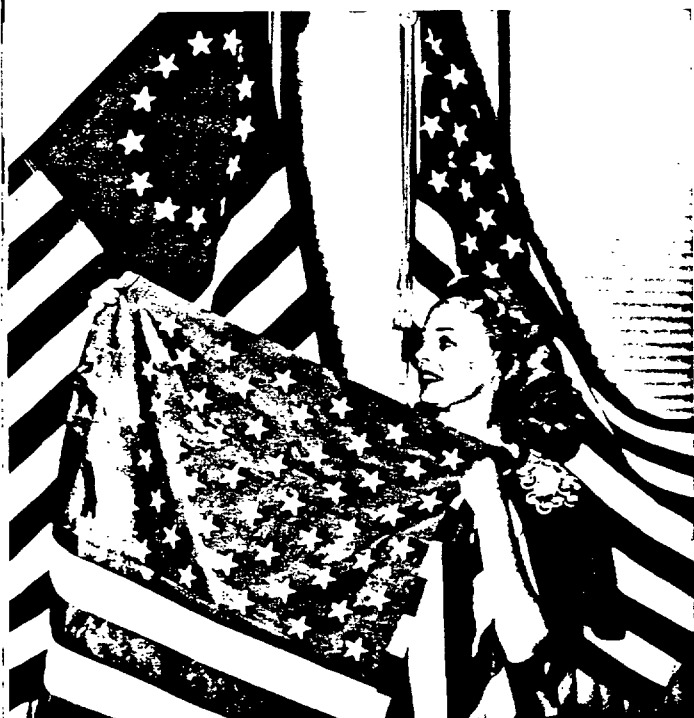
Back in 1793 there was no precedent for adding more stars to the national ensign. After all, the fledgling country had never been faced with the problem before. George Washington had been president for only four years, and Vermont and Kentucky were the first two states to join with the original 13.

As things turned out, the two stars were added in spite of the objections — and also two stripes. For 23 years Americans pledged allegiance to a flag of 15 red and white stripes and 15 stars. It was this flag flying over Fort McHenry that inspired Francis Scott Key to write our national anthem.



But both stripes and stars couldn't be added indefinitely — not at the rate the United States was growing. So in 1818, when already there were 20 states in the Union, Congress decreed that thereafter the Flag of the United States would contain no more than 13 alternate red and white stripes, symbolizing the 13 original states, and that the blue field would have 20 stars. The law further stipulated that whenever a new state was admitted, a new star would be added on the July Fourth following admission.

Following this Congressional action, it was almost a full century before the Flag was officially modified



THE FLAG will look like this if one proposal of alternate rows of six and five stars each is adopted

again. By 1912, when the admission to statehood of Arizona and New Mexico brought the number of stars to 48, U. S. flags of some 66 different sizes and shapes were in use by the various departments of the Federal government.

When these variations were brought to the attention of President Taft, he issued an order establishing definite proportions for the Flag. Those proportions remain the standard today. They fix the length of the Flag, no matter what its size, as one and nine-tenths times the width. Other specifications prescribed the proportions of the blue field, the width of the stripes and the diameter of the stars.

For all the specifics of President Taft's order and a national flag code adopted in 1942, there never has been any official designation for arranging the stars on the blue field. At one time they formed a single large star. With that exception and the original circular arrangement, they have usually been arranged in horizontal rows.

July 4, 1954, is the earliest possible date when a 50-star flag could be officially displayed, since it would take almost a year to prepare Hawaii and Alaska for statehood even if Congress approved the new status for the territories at this session. Even so, patriotic Americans already are deluging government offices and the nation's flag makers with proposed new designs.

One person has suggested that the stars be arranged to form one large circle, and that the world polar map, symbol of the United Nations, be placed in its center. This, he says, would be a "glowing demonstration that our country recognizes a permanent connection with the world community."

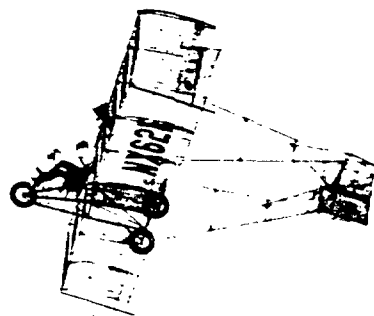
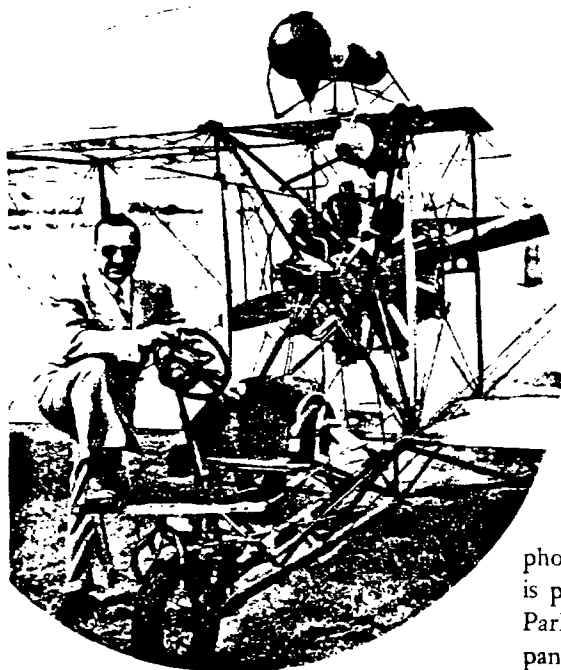
Pattern of Stars

Most of the suggestions, however, are less revolutionary. They deal with the number of rows of stars and the number of stars in each. The most symmetrical — but one which provides for the admission of only one new state — would be a pattern of seven rows of seven stars each. This is the design favored by the Veterans of Foreign Wars. A bill advocating its adoption already has been introduced in the House of Representatives.

Annin & Company, one of the country's oldest and largest flag manufacturers, advocates five rows of five stars and four of six. This would make it easier to add another star if Alaska is not admitted to the Union at the same time as Hawaii, the flag makers point out.

Actually, the final decision for the star arrangement will rest with a special committee to be appointed by the President after statehood for Hawaii and/or Alaska is voted.

No matter how the stars are arranged they will symbolize a still further westward expansion of our borders. And they will give even more significance to a statement by a member of the committee of the Continental Congress charged with designing a flag for the young republic. More than 175 years ago, this unidentified delegate declared that the stars represent a "new constellation of states rising in the West."#



PARKER'S PUSHER

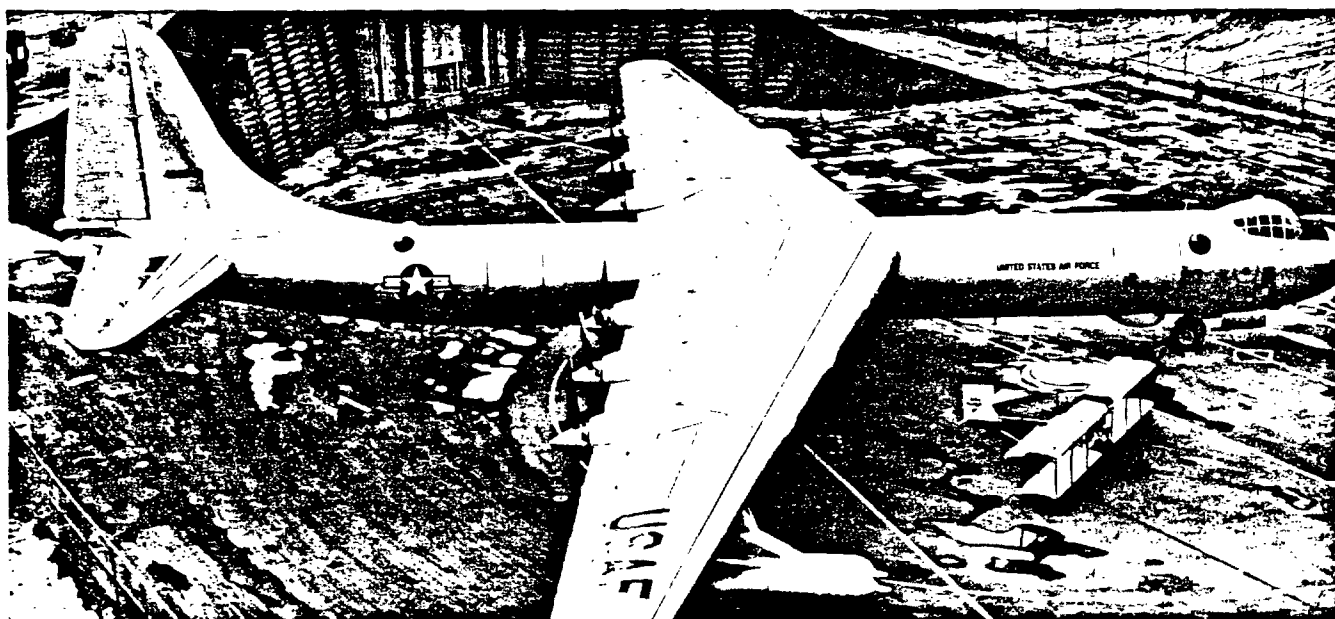
PARKER'S 50-horsepower plane is dwarfed by a B-36D bomber, which is a 42,000-hp craft

THE MAN and the flimsy, open-air plane in the upper photos are old friends. Their association dates back to 1912 and is perhaps closer even than friendship. For the man — Will D. Parker, manager of aviation sales for Phillips Petroleum Company — fashioned the plane with his own hands as a high school student in Fort Collins, Colo., 41 years ago.

Bitten by the flying bug early in life, "Billy" Parker was one of the intrepid pioneers who helped write the glorious saga of aviation history through his hundreds of flying exhibitions in pre-World War I days.

He has kept the 50-horsepower pusher plane all this time as a sentimental heirloom. It wears its years well. Regular maintenance keeps it shipshape, and it often is flown or exhibited at air shows and civic events. On more than one such occasion, the pilot has been Billy Parker himself.

The old plane can do 60 miles an hour, take off from a small area, and climb at a good rate. Once airborne, though, the pusher leaves the rest up to the pilot, for it has no instruments. Not even a tachometer or oil gauge. #



The Road

Oil research began at Dartmouth College just a century ago

ONE HUNDRED years ago there were just two things you could do with petroleum — drink it and burn it.

As “rock oil,” crude petroleum was spooned out as a cure for all sorts of bodily ills. As “carbon oil,” simply-refined petroleum was used as a smoky, smelly illuminant in the lamps of the day.

In contrast, petroleum products and petroleum derivatives today are in constant tremendous demand in industry, in agriculture, in transportation, in the home—in just about every phase of modern living.

Many factors, both within and outside the oil industry, have helped the industry satisfy the many calls for its products. Of these, one of the most important is research.

So essential is research to the petroleum industry that American oil companies now spend something like \$100 million on it every year. Modern laboratories, outfitted with elaborate equipment and staffed by thousands of skilled chemists, engineers and technicians, are to be found in all parts of the country.

STATELY CROSBY HALL is the focal point of the Dartmouth ceremonies marking the historic event that took place there 100 years ago



DR. DIXIE CROSBY, above, helped conduct the first scientific examination of crude oil. Below, Francis Brewer, who gave him the sample of oil



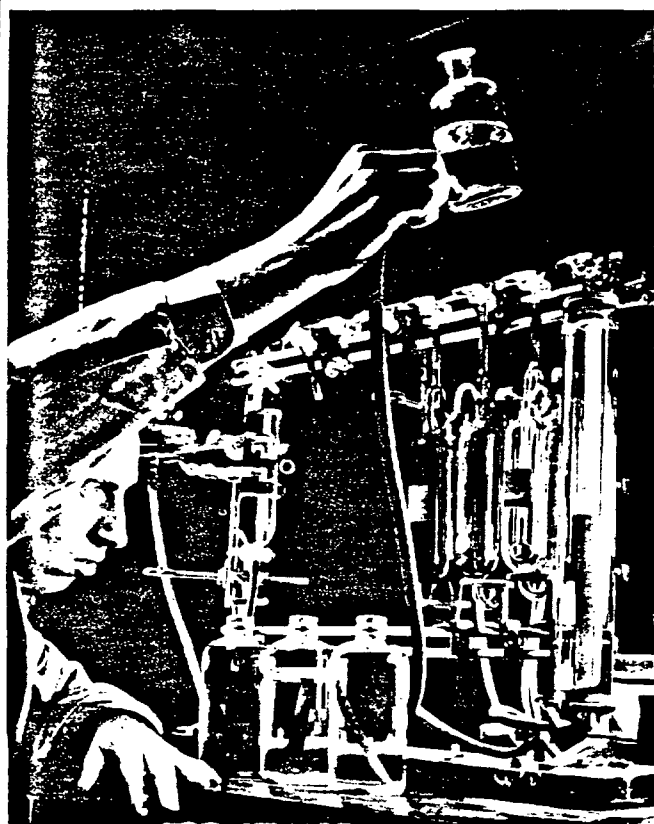
from Hanover

Research has helped the industry to create hundreds of new and useful petroleum products. Research helps develop new methods and processes that contribute to conservation and to progress. Research gives birth to entire new industries — petrochemistry, for example. Research is one of the reasons why the petroleum industry is ever growing and expanding; and why it can be expected to provide even more and better products for more people in the future.

The improvement of gasoline is an especially good illustration of progress through research. The fact that two gallons of today's gasoline do as much work as three gallons of 1925 gasoline, for example, can be traced back to the petroleum, as well as the automotive, laboratory.

Not only does research play a big part in the growth and progress of the oil industry, it was responsible for its very birth. If the oil industry traces its beginning to the famous Drake well, then oil research is older than the industry itself. The 100th anniversary of Colonel Drake's strike will be cele-

THE ENGINE-FUEL-LUBRICANT studies of the Ethyl Laboratories in Detroit typify modern-day research



brated in 1959. The centennial of oil research is being observed this year.

Late in June, on the campus of Dartmouth College, in Hanover, N. H., oil industry leaders, businessmen, government officials and educators will gather to commemorate the world's first scientific examination of crude oil.

A memorial tablet that is to be placed on Dartmouth's Crosby Hall on that occasion will tell the story of what took place there a century ago.

"The first scientific examination of crude oil which led to the beginning of the world's petroleum industry was conducted in this building, then the home of Dr. Dixie Crosby, life-long teacher in the Dartmouth Medical School," the plaque reads. "In 1853, Francis B. Brewer, class of 1843, brought a sample of Pennsylvania rock oil to Dartmouth for analysis by Dr. Crosby and Oliver P. Hubbard, professor of chemistry. Their report of its useful and potentially valuable properties led to the purchase by George H. Bissell, class of 1845, and Jonathan G. Eveleth, aided by Albert H. Crosby, class of 1848, of oil-producing land in Western Pennsylvania, the incorporation in 1854 of the first petroleum company in the world and the drilling of the Drake well at Titusville in 1859."

Full Story Not Known

History does not record what tests Messrs. Crosby and Hubbard made or what equipment they used to study the strange, black liquid that had been brought to them. But it does state that they came to the conclusion that it was "produced at a great depth in the earth, by the decomposition of vegetable and bituminous matter."

The first oil scientists apparently were as inaccurate in their predictions of the future of oil as they were accurate in their early analysis of it. They reported that petroleum probably never would be found in sufficient quantities to make it valuable.

The Drake well, for which they were indirectly responsible, and the thousands of wells and fields that have come in since, have proved how wrong they were. And research, that branch of the industry they unknowingly fathered, has played a vital part in the successful growth and development of oil. #

Helping to sell the best



BILL STERN, emcee of "The Big Playback"

More premium gasoline sales is the goal of Ethyl's increased advertising

STEPPING UP ITS efforts to help oil companies increase their sales of premium gasoline during the peak driving months, Ethyl Corporation again is sponsoring a weekly television program and minute-movies at drive-in theaters.

Launched in May in selected areas, the expanded advertising program is now completely under way. The TV show is being carried by 44 stations in 20 states with a potential coverage of 13.5 million television sets. Minute-movies are being shown at more than 500 drive-in theaters in 26 states. These outdoor movie houses have an average total weekly audience of approximately 3,350,000.

Designed to appeal primarily to men — who, surveys

show, influence most retail gasoline purchases — the television program is a sports show. It is entitled "The Big Playback," and is diversified so that it will attract all men, no matter what their favorite sport.

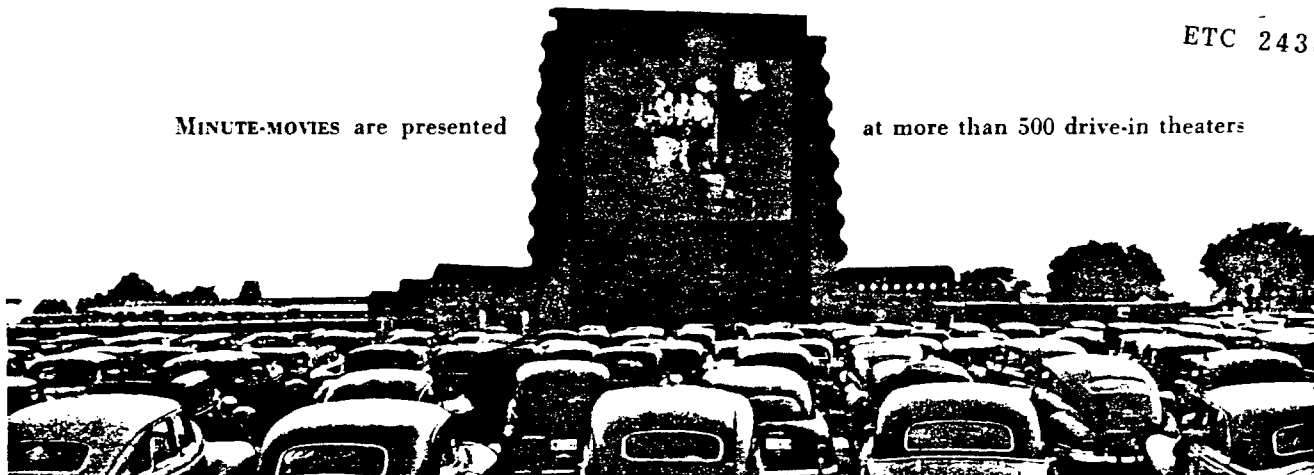
Bill Stern, nationally-known sports commentator, is featured in a familiar role. At a brisk, exciting pace, he presents action-packed films of some of the great athletic events of modern times. Thrilling moments in baseball, football, boxing, track, racing, and in other more unusual sports are recreated on the television screen.

Citation, the biggest money-winner of all race horses, is shown winning the race that boosted his total earnings to over a million dollars. The Colum-

MINUTE-MOVIES are presented

at more than 500 drive-in theaters

ETC 24384



BELOW, three of the sports celebrities who are appearing as guest stars on the Ethyl TV show



Guy Lombardo



Rocky Graziano



Earl Sande

bia football team of 1947 is pictured cracking the 32-game winning streak of a mighty Army eleven. Jesse Owens is shown smashing three track and field records to score an unprecedented triple triumph in the Olympic Games of 1936. These are typical of the outstanding moments in sports that Stern revives for viewers each week.

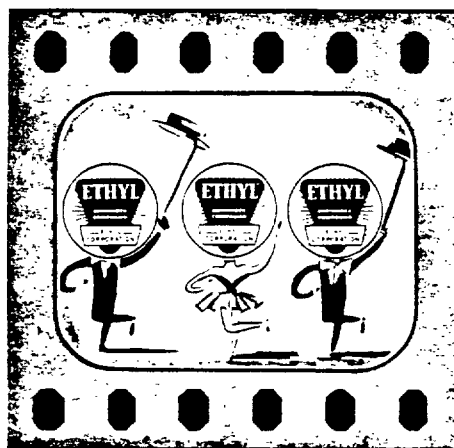
Each week, too, Stern has a famous sports figure as his guest on the program. Interviews with these guests help TV audiences get the authentic story behind the drama-packed sports events that are shown. For example, Lou Little, veteran football coach of Columbia University, was guest star on the program that featured "the big playback" of the Lions' history-making defeat of the all-powerful West Pointers.

Request Showings

To create further audience interest in the program, viewers are invited to submit requests for showings of their favorite moments in sports.

Commercials on the show are of two types. Entertaining and at the same time hard-selling, one type features the talented artist, Tex Antoine. Taking a serious subject like knock, Antoine makes it easy to understand and fun to watch. He presents a compelling reason for buying the best gasoline — all with a few deft strokes of his pencil and a brief, convincing message.

Bill Stern does the other commercials. Some of these concentrate on the added value of "Ethyl"



ANIMATED "Ethyl" trade-mark reproductions add a light touch to commercials

gasoline, while others are designed to build goodwill for the oil industry as a whole. The latter are devoted to such subjects as safe driving and the bargain a motorist gets every time he buys gasoline.

Supplementing the television coverage, which reaches a primarily urban audience, are the minute-movies at drive-in theaters in the more rural gasoline marketing areas. These films, which actually run for about 80 seconds, are expanded versions of the Tex Antoine commercials used on TV.

Spectators at these theaters are an ideal audience for a gasoline sales message. As motorists seated right in their own automobiles, they see and hear about the difference top-quality motor fuel can make.

Expanded Coverage

Both the drive-in theater and television coverage are larger than last year, and are planned to run for about twice as long a period.

"The Big Playback" is telecast weekly from stations in the following cities: Amarillo, Atlanta, Austin, Baltimore, Baton Rouge, Binghamton, Birmingham, Chicago, Cincinnati, Cleveland, Columbus, Dallas-Fort Worth, Dayton, Denver, Detroit, El Paso, Erie, Galveston, Grand Rapids-Kalamazoo, Houston, Huntington-Ashland, Johnstown, Kansas City, Los Angeles, Louisville, Lubbock, Minneapolis-St. Paul, New Orleans, Oklahoma City, Peoria, Philadelphia, Portland (Ore.), Reading, St. Louis, Salt Lake City, San Antonio, San Francisco, Schenectady, Spokane, Syracuse, Tacoma-Seattle, Tulsa, Wichita Falls, and Youngstown.

ETHYL IN THE NEWS



To be successful, companies must devote the same effort to improving human relations with employees that they give to improving products, manufacturing methods and relations with customers, **Edward L. Shea**, Ethyl Corporation president, said in a talk in Nashua, N. H. Mr. Shea spoke before the Nashua Industrial Management Club on the subject, "Human Relations: A Challenge to the Modern Executive." Quoting recent opinion surveys, he pointed out that job security, interesting work, opportunity for advancement, and a sense of feeling at home in the job apparently are as important as high pay in influencing an employee to do his job well.

Enactment of a sliding-scale tariff on lead imports as proposed in the Simpson bill (H. R. 4294) would seriously affect American lead consumers and jeopardize future lead supplies, **Joseph A. Costello**, Ethyl Corporation vice president, told the House Ways and Means Committee, in Washington, during hearings on the bill. Citing four reasons for opposing the proposed legislation, he said it would (1) accentuate fluctuations in both the price and supply of metallic lead; (2) tend to raise the general level of the cost to lead consumers; (3) discourage exploration and development of new lead properties abroad; and (4) decrease the supply of lead available in periods of national emergency.

A new way of studying uncontrolled combustion in an automobile engine was reported at a meeting of the Society of Automotive Engineers, in Atlantic City, in a paper by **D. A. Hirschler**, **J. D. McCullough**, and **C. A. Hall**, of the Ethyl Corporation Research Laboratories. The method is based on an instrument developed at the laboratories, and permits basic comparisons of the varying effects of oils, fuels, and additives by detecting early abnormal combustion.

Howard J. Philp has been promoted to assistant manager of Ethyl Antiknock, Ltd., Ethyl Corporation's Canadian subsidiary. Since joining Ethyl Antiknock as a sales representative in 1949, Mr. Philp has worked closely with petroleum refiners throughout eastern Canada, assisting them in making the most effective use of "Ethyl" antiknock compounds.

Mr. Philp was born in Ontario, and is a graduate of the University of Toronto.

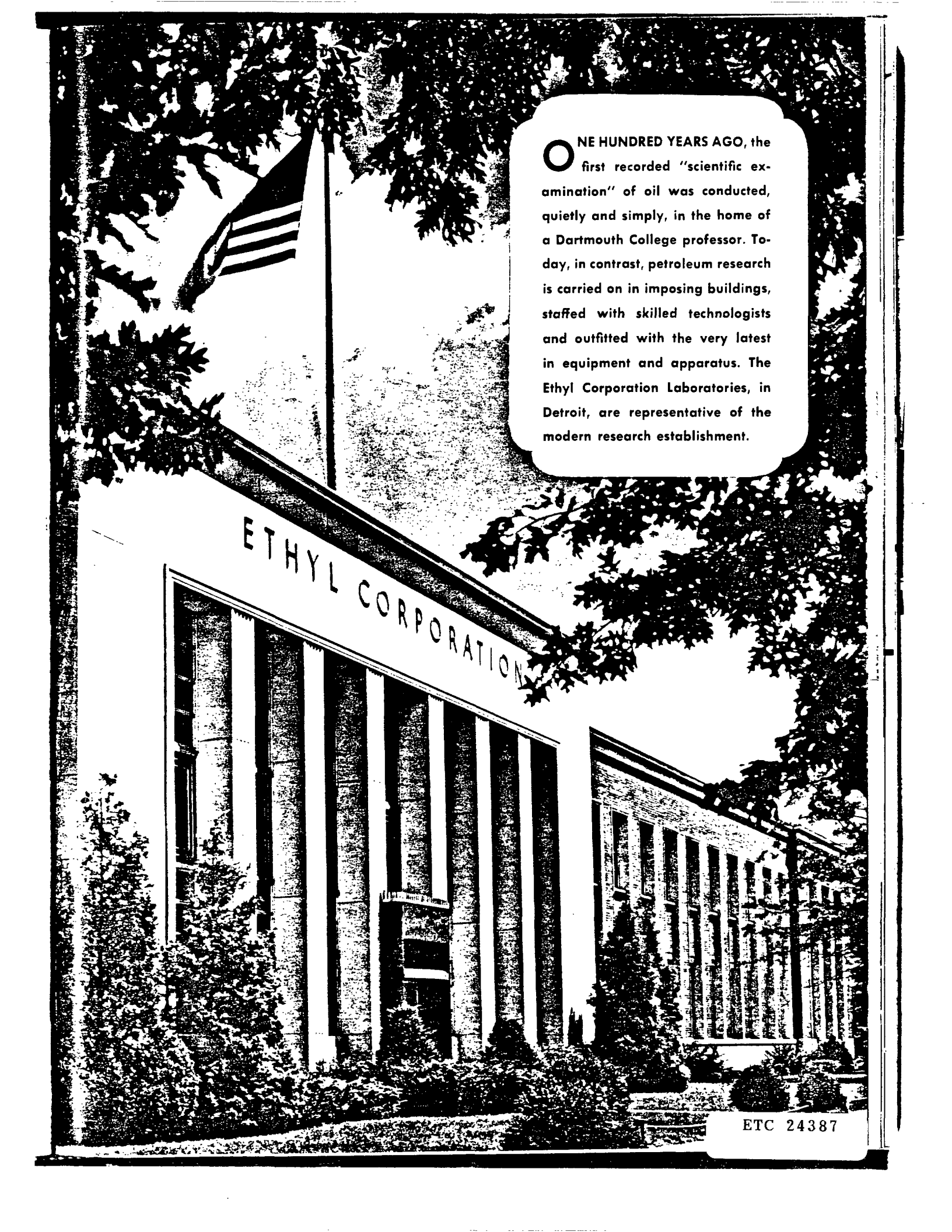


Roland J. Ostrander has been appointed assistant to Dan M. Guy, director of technical service at the Ethyl Corporation Research Laboratories in Detroit. Mr. Ostrander, who formerly was supervisor of motor vehicle operations at the laboratories, has been succeeded in that position by **Harry A. Toulmin**.

The cold-starting ability of late model automobiles on gasolines of widely different volatility was discussed in a paper by **R. K. Stone**, of California Research Corporation, and **K. C. Bier**, of Ethyl Corporation, at the meeting of the Division of Refining of the American Petroleum Institute, in New York. The paper was based on the findings of a research program that was conducted with special facilities at the Ethyl Corporation Research Laboratories.

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State Highway Commission of Montana; pages 13 and 14, courtesy Edd Roberts, extension soil conservationist, Oklahoma A. & M. College; pages 16 and 17, courtesy The Advertising Council; pages 21 and 23, Philip Gendreau; page 22, courtesy The Dow Chemical Company; page 24, United Press; page 25, courtesy Phillips Petroleum Company; page 26, courtesy Paul Giddens and Dartmouth College; page 28 (bottom), courtesy Automobile Mfrs. Assn.



ONE HUNDRED YEARS AGO, the first recorded "scientific examination" of oil was conducted, quietly and simply, in the home of a Dartmouth College professor. Today, in contrast, petroleum research is carried on in imposing buildings, staffed with skilled technologists and outfitted with the very latest in equipment and apparatus. The Ethyl Corporation Laboratories, in Detroit, are representative of the modern research establishment.

ETC 24387



Sometimes we land a big one!

We keep fishing for new ways to tell the oil industry's story. And every so often we reel in something big and dramatic.

For example, not long ago an oil marketer in Michigan noticed that the price he paid for gasoline was just about the same as it had been in the middle twenties. So he wrote and asked us how these two gasolines compared in *value*.

We thought this had the makings of a real story. So we went to work to dig out the facts. We studied the road performance of these gasolines in contemporary cars of the various years. We also made a study of the average retail price of the two gasolines and found that the price, exclusive of taxes, was almost the same.

In the end, all the evidence pointed to one conclusion: by any realistic standard, the *value* of gasoline had

increased approximately 50% in the last quarter century. In other words, *two gallons of today's gasoline will do the work of 3 gallons of 1925 fuel.* And we demonstrated this to the petroleum industry and the public.

It was news! Newspapers across the country picked it up. Magazines ran feature articles about it. It blossomed out on billboards. It became the theme of Oil Progress Week, and a fact familiar to motorists all over America.

Yet, this kind of public relations job is never finished. Even today too few people realize what a tremendous job the petroleum industry is doing to improve America's standard of living.

We believe that as a part of the oil industry we should aid in every way we can to tell this impressive story over and over again.

ETC 24388

ETHYL NEWS

JULY-AUGUST 1952

ETC 24389

ETHYL NEWS

Thom Yates, Editor

Richard F. Cook, Associate Editor

Hal Wohanka, Art Director

July-August ★ 1953

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Opinions expressed in signed articles are the authors'. Ethyl News welcomes articles of timely interest submitted from outside sources. Upon request, the editors are glad to grant permission to reprint material appearing in Ethyl News.

Published by Ethyl Corporation, 100 Park Avenue, New York 17, N. Y., manufacturer of "Ethyl" antiknock compounds, used by oil companies to improve the antiknock quality of aviation and motor gasoline.

Edward L. Shea, President

Stanley T. Crossland, Vice President and Treasurer

Herbert A. Savage, Secretary



Behind the NEWS

Until very recently, we would have guessed that *pogonotomy* was a word pertaining to the art of riding a pogo-stick. We first heard it when, with a debonair stroke of his finely-combed beard and a jaunty tug at his sideburns, our Shaving Editor dropped his manuscript ("Shaving Grace," page 14) on the desk for blue-pencilling. Pogonotomy, it seems, is the word the Greeks had for it. It simply means "shaving" or "beard-trimming."

Now confirmed pogonologists, we can impart the news that whisker density on the male face varies from 325 to 550 per square inch on the cheeks and from 260 to 780 psi on the chin. These hairs grow at the daily rate of 15/1000th of an inch, although you'll never convince the average man it's that slow.

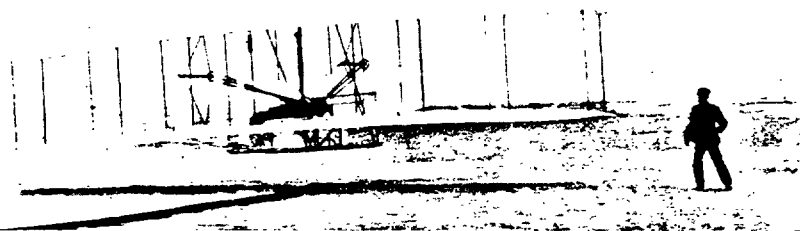
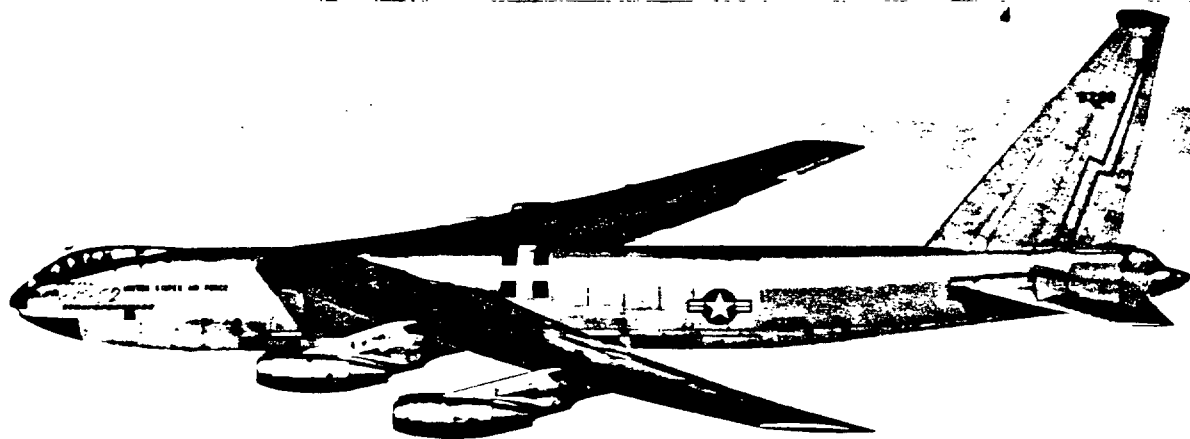
House-number lawn markers like those made by the Ethyl Corporation-sponsored Junior Achievement company in Houston (see "Junior Partners in Business," May-June issue) may soon grace properties in other localities. Among the inquiries for further information we have received were ones from the widely-separated communities of Toronto, Canada, and Menlo Park, California. Oilmen active in Boy Scout work in those places think the making and selling of lawn markers would be a good fund-raising project for their respective troops.

If any of our readers are living through a heat wave when this issue reaches them, we sincerely hope our cover view will offer cooling relief. It's a picture of an old woodworking mill in Alley Spring State Park, Missouri. The park is "deep in the Ozarks," in the south-central part of the state. More specifically, it is in Shannon county, which has Eminence (pop. 417) as its major town.

ETC 24390

**MIRACLE
WITHIN A**

MIRACLE



FIFTY YEARS of breath-taking progress — in aircraft design, engines, fuels and lubricants — lies between the Wright brothers' first flight and 1953 sky giants.

LUXURIOUS 60-PASSENGER sky giants winging their way over the North Atlantic on a breakfast in New York-dinner in London schedule...

Speedy jets, until recently, ranging over North Korea to blast military targets and clear the air lanes of MIGs...

A veritable armada of private planes transporting people here, there and everywhere on missions of business and pleasure...

These are some of the tangible signs of the miracle of powered flight that has been wrought in the 50 years since the Wright brothers coaxed their flimsy home-

made biplane to stay aloft for 12 seconds at Kitty Hawk that blustery December 17, 1903.

But the miracle of flight is one of many phases. By no means is the whole miracle immediately apparent to the passenger boarding a commercial airliner, to the pilot mounting a powerful bomber, or to the man-in-the-street gazing at a plane overhead.

Part of the miracle—and a big part of it—is locked from sight in the fuel tanks of the modern airplane. Aviation gasoline—there is a miracle within a miracle. Because of it, aircraft fly farther, faster and carry greater loads. Without it, aviation might be no further

advanced than it was in 1927 when Charles Lindbergh, on his Atlantic hop, made history by doing the now-commonplace.

Less than a decade—only eight years, in fact—before Hitler launched the Battle of Britain, 100-octane gasoline was a rarity, although at least one refinery was ready to produce it as soon as demand warranted. Laboratory samples often cost as much as \$30 a gallon. Even the American military waited several years before adopting it as standard fuel.

With the outbreak of the Axis war, the superior aviation fuel suddenly became much in demand. In typical fashion, the petroleum industry was quick to respond to the call. Production of 100-octane vaulted from a few hundred barrels a day to a wartime peak of about 550,000 barrels daily.

As the quantity of aviation gasoline increased so did the quality. Before war's end, the American oil industry was producing fuels that "ran off" the octane scale, which has 100 octane number as its ceiling. A new yardstick—performance number—for measuring the antiknock quality of these superior fuels had to be developed.

A vital ingredient of high-octane aviation gasoline, of course, is "Ethyl" antiknock compound. Added to gasoline in quantity up to 4.6 cc. per gallon, the Ethyl product increased the performance number of wartime fuels by about 55 numbers. That decisive lift gave Allied planes a vast superiority over Axis fighters and bombers, just as today's gasoline with "Ethyl" antiknock compound added provides modern aircraft decided gains in allowable power.

Value to Refiner

For the refiner, tetraethyl lead has meant an increase in refinery capacity for aviation gasolines. For instance, the use of 4 cc. of TEL per gallon, instead of 3 cc., jumps capacity of grade 100 fuel some 25%, by allowing the use of lower octane number base stocks. By increasing tetraethyl lead volume to the maximum 4.6 cc. concentration, a further increase of 7% capacity is realized.

Beyond the production of antiknock compound, Ethyl Corporation has been privileged to make other substantial contributions to aviation, both in fuel and engine development.

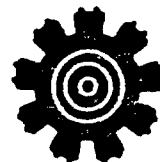
One of the most significant of these contributions came shortly after the introduction of "Ethyl" antiknock compound as a commercial product 30 years ago. That was the laboratory work of Dr. Graham Edgar, an Ethyl vice president until his retirement last

55-OCTANE



500 HP.

91-OCTANE



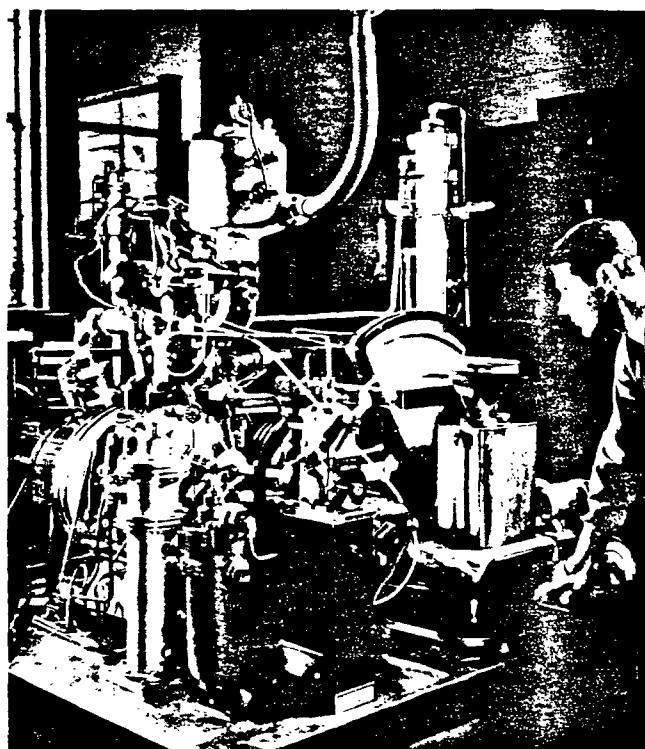
500 HP.

100-OCTANE



500 HP.

AS ANTIKNOCK QUALITY improves, engines smaller in size, but of equivalent horsepower, become possible.



A VALUABLE LABORATORY aid in the study of aircraft fuels and spark plugs is the 17.6 engine (above). The supercharged test unit was designed by Ethyl research personnel.

ANOTHER ETHYL-CREATED piece of aviation research equipment (right) is the scale-model combustor. This duplicates actual jet engine operation up to 40,000-foot altitude.

year, on the synthesis and determination of the knocking properties of fuel components. This work contributed heavily to early refining knowledge and pioneered the art of knock-rating as we now know it. Dr. Edgar's investigations of the branched chain paraffins not only resulted in the octane scale, but aided immeasurably in the development of the first 100-octane aviation gasoline.

A rapid improvement in the quality of all aviation fuel followed. From a low-octane number product in the early 1930s, we have progressed to today's grade 100/130 and better. This improvement has resulted in the development of aircraft engines which produce equivalent horsepower at about one-third the weight.

Other Contributions

In the field of fuel knock-rating, Ethyl collaborated in the birth of 1-C, which is now the universal method of determining aviation fuel antiknock quality. At a time when existing test engines and equipment were inadequate for the purpose, the Company designed and manufactured a single-cylinder test engine to provide the oil industry with a supercharged laboratory tool. This was the familiar 17.6 engine, which could evaluate the high performance fuel components then (1940) coming into the picture under the higher outputs and temperature conditions encountered in actual aircraft engines. Although originally designed for supercharged fuel testing, the 17.6 also has proved to be a convenient yardstick for measuring heat ratings of spark plugs. Many oil companies as well as spark plug manufacturers now own and use 17.6 engines in their research programs.

Many of the aviation projects of the Ethyl Research Laboratories during the past two decades have been carried out for the Armed Forces. All possible information, however, has been made available to the petroleum

and aviation industries to aid in a more thorough understanding of fuel and engine relationships.

Some magnitude of the Ethyl efforts can be judged by the fact that studies along these lines have so far involved some quarter of a million engine test-hours. About 100,000 test-hours have been spent in the evaluation of exhaust valve and gas turbine materials, and tens of thousands of additional test-hours have been devoted to other aviation projects.

Ethyl Field Work

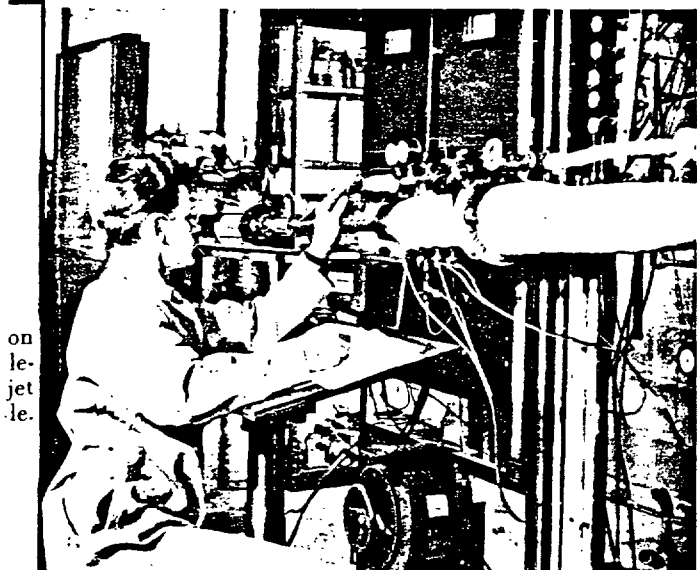
Aside from the laboratory work, there is another phase of the Ethyl aviation program. That has to do with field work. Currently, the Company is cooperating with both the Air Force and the Navy in training their personnel in tank cleaning, the general handling of fuels, and in fuel characteristics. Another achievement is the booklet entitled "Aviation Fuels and Their Effects on Engine Performance." Written for and at the request of the military during World War II, this booklet was revised and re-issued last year, with thousands of copies going to personnel in both the oil and aviation industries.

Looking to the future of aviation, the Ethyl Laboratories undertook an extensive program of research on additives for jet fuels at the close of World War II. More than 100 such additives have been evaluated thus far and these findings have been passed along to the Armed Forces. In addition, investigations have been completed on the burning efficiencies of both pure liquid and gaseous hydrocarbons.

Time and Money Saver

As part of the jet additive program, to overcome the prohibitive cost of full-scale engine evaluation, Ethyl research personnel in 1947 perfected a two-inch combustor for laboratory use. This small-scale equipment duplicates actual jet engine operation up to 40,000 feet with comparable efficiencies. Drawings covering the design of the combustor have been given to several interested oil companies and they now are using the apparatus in their own laboratories to evaluate jet fuels, coking and fundamental flame characteristics. By making use of the Ethyl drawings and background information, it is estimated, some of these companies have saved themselves up to two years of research time and considerable sums of money.

It is with pardonable pride in past accomplishments and with enthusiastic hope for future success that Ethyl Corporation joins with the world of aviation in looking forward to the next half-century of flight. #



Birth of an Oil Company

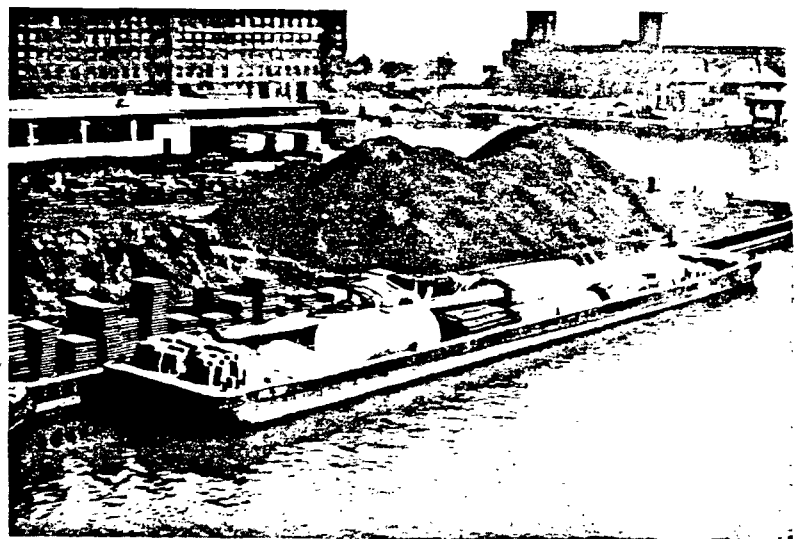
It took ingenuity—and a long water journey—to start Riverlake Oils

TAKE A RETIRED OILMAN who won't stay retired, add a liberal helping of ingenuity, mix in a desire to be of service to a community, garnish with an unfailing belief in the free enterprise system, and you have the recipe for the start of one oil refining business.

The "retired" oilman—R. J. Christian, now president-managing director of Riverlake Oils Limited.

The ingenuity — Buying a secondhand refinery in Texas and transporting it — entirely by water — to the Canadian shores of Lake Superior.

The service—Creation of a local, home-owned business that provides gainful employment for more than 50 residents of Fort William, Ontario.



MAP SHOWS GENERAL ROUTE over which the dismantled refinery was shipped. Above, the stopover at Chicago. Here the equipment was put on a Great Lakes vessel.

The belief—That while no industry is more competitive than oil, there is always room for another company that can offer quality products and completely satisfy its customers.

At the age of 66 and after a quarter-century career in the Canadian oil industry, Mr. Christian early this year put the newly-organized Riverlake Oils officially in business with the start of refinery operations at the Fort William site. Since 1928 he had built, or supervised the building of, refineries, pipelines and powerhouses in several of Canada's western provinces. The Anglo-Canadian Oils refinery at Brandon, Manitoba, is one of his projects.

He retired from Anglo-Canadian in 1950 with full intentions of taking life easy—and did for a while. But in 1951, when he was returning from a five-month trip around the world, Mr. Christian stopped off to visit friends in Fort William. They pointed out that Fort William and its adjoining city of Port Arthur were growing fast; that their combined population was approaching the 100,000 mark. They noted that there was no refinery between Sarnia and Winnipeg to provide local products for this market. Some 50 residents of the area were ready to form a private company if Mr. Christian would agree to come out of retirement and head it up.

He agreed and immediately went on a shopping tour—for a refinery. He looked at several and finally decided to buy the closed-down plant of the Hamman Oil & Refining Co. in Bay City, Texas.

Here's where the ingenuity came in. A study of freight rates showed it would cost almost as much to transport the refinery by rail the 1,500 miles to Fort William as Mr. Christian's company had paid for the equipment. It was Mr. Christian who suggested a water route to Chicago and thence to Fort William through the Great Lakes.

\$12,000 Moving Job

The \$12,000 moving job began last August 1, when the dismantled refinery was transported the 20 miles from Bay City to Palacios, Texas, by truck. At Palacios, it was stowed on a barge for routing through the Intra-coastal Canal, out into the Gulf of Mexico, up the Mississippi to a point above St. Louis, where the Illinois River was followed to Chicago. There, the equipment was transferred to a more seaworthy vessel for the voyage up Lake Michigan, into Lake Huron, through the locks at Sault Ste. Marie, and across Lake Superior to Fort William.

The shipment arrived at Fort William on September

20. By Christmas virtually all the refinery buildings and equipment were re-erected on the new 18-acre site, and storage tanks were ready to hold the first shipment of 140,000 barrels of Alberta crude that was brought in via pipeline to Superior, Wisconsin, and then by tanker to the refinery.

Units that made the long water journey were a complete crude distillation unit, an "Ethyl" blending plant, and three 10,000-barrel storage tanks. In addition, a 78-ton load of brick for rebuilding the refinery's furnace walls was taken on at Memphis. An Ethyl Corporation safety engineer assisted in the dismantling operation at Bay City, and personnel of Ethyl Antiknock, Ltd., cooperated in setting up the "Ethyl" blending plant at the Ontario site.

Equipment Added

In addition to the equipment brought up from Texas, Riverlake Oils has added a catalytic cracking unit, a treating system and 75,000 barrels of crude oil and products storage facilities.

Running at a rated capacity of 4,000-barrels-a-day, the refinery is turning out two grades each of gasoline, diesel and furnace fuel, as well as other products. The gasolines are marketed within a 250-mile radius of Fort William under the brand names of R-O Ethyl and R-O regular.

Modestly, Mr. Christian asserts it's still too early to forecast what success Riverlake Oils will achieve. But the proud residents of Fort William consider their new industrial neighbor destined to enjoy a long and prosperous life. #



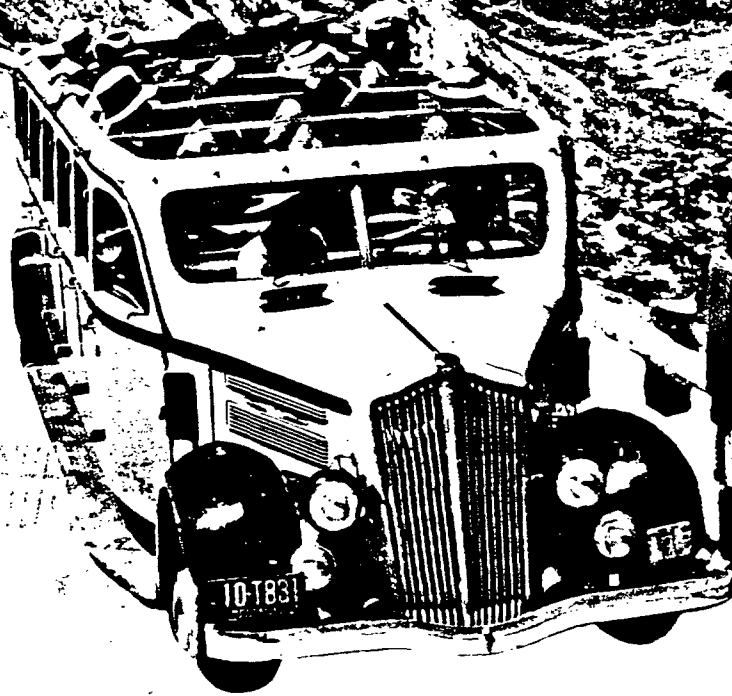
AT HIS DESK in Fort William, R. J. Christian, president of Riverlake Oils, confers with his secretary.

PORTLAND

GRAY LINE

*To millions of people, a good way to see the
wonders of America is through
the big windows of a sight-seeing bus*

**"And
on
your
right..."**



VIEWING THE INDUSTRIAL, cultural, educational and other wonders of their native land from the king-sized windows of a sight-seeing bus is a privilege for which Americans gladly pay tens of millions of dollars each year.

The conducted tour, always a popular tourist attraction, is experiencing a new upsurge in popularity in all parts of the country. Many vacationists and just plain "rubbernecks" with a spare hour or two on their hands are finding the organized tour the simplest and easiest way to take in the sights of any particular city or locale.

In earlier days, it must be admitted, sight-seeing was

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something of a disreputable business. Tours never started until the bus was full. The guide studded his "spiel" with corny wisecracks and stale vaudeville jokes. Passengers often were subject to insults if they didn't buy (usually at excessive rates) postcards and other offerings of the bus personnel.

Nowadays, however, with large nationwide sight-seeing companies behind them, conducted tours are a pleasant and memorable experience. Tours start at the scheduled moment, guides provide dignified, informative commentaries, and sale of postcards or anything else is prohibited. Today's passengers truly get their money's worth in the form of carefully-planned tours.

Largest of the nation's several organizations in the business of showing the sights is Gray Line Sight-Seeing Companies, Associated. Through local operators, Gray Line offers a wide assortment of tours in almost 80 cities and resort areas of the United States and more than 20 spots in Canada, Cuba, Mexico, Hawaii, Puerto Rico and the Virgin Islands.

Long Tours, Short Tours

On Gray Line buses one can see quaint old Nantucket Island off the coast of Cape Cod, tour downtown St. Louis, travel the deserts of the great Southwest, visit Grand Coulee Dam, or marvel at the giant Mendenhall Glacier in Alaska. There is a wide choice of tours, from the brief \$2 ride around the East Side of Portland, Ore., to a seven-day, \$142 all-expense trip through the Great Smoky Mountains. As a rule, city tours last from two to five or six hours. Scenic tours require several days and meals and hotel rooms are included in the fare.

Some idea of the extent of the Gray Line operations is seen in total yearly figures. Last year more than 12 million people paid upwards of \$55 million to see the

sights of America from Gray Line vehicles. In addition, these people spent at least \$400 million more in the shops, hotels, eating places, and theaters of the areas they visited.

While many of the associated Gray Line companies also operate limousines, drive-it-yourself cars, and even sight-seeing boats, the large majority of customers travel in their thousands of buses.

Comfort and See-Ability

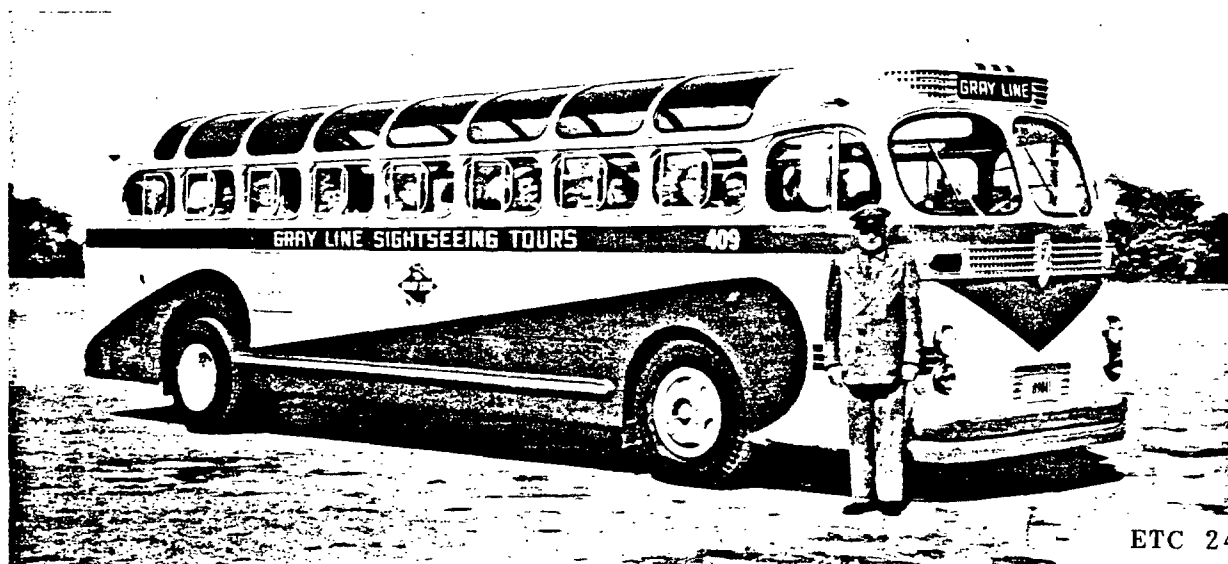
There is no set pattern for these buses. The prime requirements are comfort and the ability to see out. To assure riders of the latter, many of the newer buses, particularly those used in city tours, are fitted with a second row of windows above the conventional ones. These permit unobstructed views of tall buildings, monuments, statues, and other towering structures.

One item of standard equipment on the buses is an amplifying system which enables the guide — or "spieler," as he is known in the trade—to describe the points of interest as they are reached.

Not all the sight-seeing is done through bus windows, of course. Most of the tours, depending on their duration and itinerary, provide for stops of varying lengths at points of particular interest along the way. On the two-hour, 25-mile Loop and South Shore Drive tour in Chicago, for instance, stops are made at Lorado Taft's "Fountain of Time" and at the Museum of Science and Industry. The two-day, 240-mile Indian Detour trip to Taos, Chimayo, Santa Clara and old Santa Fe, in New Mexico, provides a 48-hour stopover.

While the more than 100 associated companies that make up the Gray Line system are independently owned and operated, they are licensed under franchise to use the Gray Line name and are regulated by the organization's national headquarters in Chicago.

TOURS ARE CONDUCTED in modern buses, staffed by uniformed, informative personnel.



ETC 24397



WASHINGTON is the nation's favorite sight-seeing city from the standpoint of the guided tour. Other popular tour spots are Boston, San Francisco and Los Angeles.

HARRY DOOLEY, president of the Gray Line system.

Most sight-seeing tour business is handled directly through the local bus company ticket offices, travel desks of hotels, and travel agencies. Gone from the street corner in most cities is the barker who advertised tours of the city's sights through a hand megaphone and dispensed tickets from his pocket, meanwhile assuring prospective riders that the next tour "leaves in just a few minutes."

One Man's Dream

A nationwide sight-seeing organization with uniform standards and regulations is the realization of a dream for Harry Dooley, president of the Gray Line Sight-Seeing Companies, Associated.

Boston-born and the son of an Irish immigrant, Mr. Dooley started in the business over 30 years ago as a spieler on a tour of the Revolutionary War battle-grounds at Lexington and Concord. His bus was a converted truck. It had no windshield, but it did have solid tires and side curtains that had to be lowered in case of rain. There was no amplifying system, which meant that Mr. Dooley sometimes had to shout his message to make himself heard over the roar of the engine.

While still working this run, Mr. Dooley made a trip through the South and Midwest. He found that wherever he went he could buy nationally-advertised merchandise, but that there existed no sight-seeing service of consistently high standards. A law student at the time, he never got to hang out his shingle. Instead he devoted his time and energy to establishing the chain that now bears the Gray Line name.

The freedom to travel, the beauty of America's scenery and the glamor of its bustling cities are almost a religion with Harry Dooley.

"Our business," he says, "is primarily to help Americans feel proud of their wonderful country."

While there's almost no limit to the sights that can be seen on Gray Line tours, people's tastes and preferences in sight-seeing, as in everything else, change.

A few decades ago, there were only four cities that could be called "good" from the sight-seeing standpoint. They were New York, Philadelphia, Washington and Niagara Falls. Today the Nation's Capital is tops on the list, but is closely followed by Boston, San Francisco and Los Angeles. Another commentary on the changing times is that once-popular attractions like Grant's Tomb and art museums are being supplanted by points of interest like Rockefeller Center and museums of science and industry.

"Knitting Us Together"

Generally speaking, sight-seers want most to see the beauty spots and the things that have made America great—not the blots on our national reputation such as scenes of crime and degradation.

To help nomadic Americans take in those places is Gray Line's mission in life. But, Harry Dooley feels, his organization is accomplishing a higher goal.

To him, travel and sight-seeing are a means of "knitting us together into a more homogeneous nation" and of burying "the ill feeling and rivalry that once existed between different sections of the country." #

the Road Ahead



OIL and automotive men registering at the Dallas meeting.

Fleet vehicle trends are discussed at a series of Ethyl-sponsored meetings

THE MOMENTOUS GAINS that have been scored in the allied fields of automobile engine design and fuels and lubricants are well known. Just as real, if less dramatic, are the advances that have been, and are constantly being, made in the same directions with trucks, buses and farm tractors.

With commercial vehicles now playing a stronger role in the nation's life than ever before, several logical questions often arise about the future of these vehicles. Some of the posers are: What's ahead in fuels? What kinds of engines will be powering trucks, buses and tractors a few years from now? Are bigger payloads possible? What about the maintenance of trucks and buses of the future?

To provide the answers to these and many other related questions, as a service to the petroleum and

automotive industries, Ethyl Corporation has instituted a special two-day Transportation Conference. Already presented in New York, San Francisco, Los Angeles and Dallas during June and July, the Conference will be held still a fifth time in Chicago on September 9 and 10. The current Transportation Conference is based on a similar program instituted by Ethyl Corporation back in 1939.

At the Conferences held thus far, audiences totaling almost 800 oil and automotive industry representatives and commercial fleet operators have heard discussed, in general and in detail, the question "What's ahead in the commercial vehicle field?" Some of the subjects covered were fuels and lubricants, developments in engine design, trends in commercial vehicle design, maintenance techniques, and the work being

DAN M. GUY, Ethyl technical service director, addresses the New York session. Others are Robert W. Hogan, Richard C. Murphy, Edwin C. Paige, and John S. Wintringham, all of Ethyl.



ETC 24399



G. A. ROUND, of Socony-Vacuum, who spoke at New York, with L. F. Moody, Jr., also Socony-Vacuum.



AMONG THE OIL INDUSTRY representatives attending the New York session of the Ethyl Transportation Conference were Dale Witter, L. A. Rosser, W. C. Hulme, John McBride and C. E. Hulme, all of Kendall Refining.

done on valves, pistons, rings, ignition systems and carburetors.

Among the speakers were research and engineering specialists of Socony-Vacuum Oil, Standard Oil (Indiana), Lubrizol Corporation, Bray Chemical, Fruehauf Trailer, Eaton Manufacturing, Thompson Products, Perfect Circle, Champion Spark Plug, A. C. Spark Plug, Zenith Carburetor, Holley Carburetor, Fifth Avenue Coach, Pacific Greyhound Lines, Liberty Highway and St. Louis Public Service, as well as key personnel of the Ethyl Corporation Research Laboratories in Detroit.

Larger Payloads

Out of the coast-to-coast Transportation Conferences came many authoritative predictions of how commercial vehicles of the future will look and perform.

Truck and bus engines, it was brought out, will be lighter, more powerful and efficient, and more durable. Design will follow the current trend in passenger car engines—toward the more compact, high compression V-8-type. As a result of the progress already being made in these directions, fleet vehicles will be able to haul increasingly larger payloads without exceeding gross vehicle weight limitations.

As gasoline antiknock quality continues to improve during the next several years, this will make possible a continuation of the upward trend of commercial engine compression ratios, the Conference audiences were told. The increased ratios will result both in better engine performance and greater fuel economy. Specifically, it was forecast, the average compression ratio of commercial vehicle engines will be about 7.4 to 1 by 1960, compared to the present average of 6.4 to 1 for these engines.

The swing to V-8 engines is indicated, discussions at the Conferences brought out, because this design lends itself most easily to further increases in compression ratio without changing the basic structure of the engine. Other advantages cited for this type of engine were less over-all length and less vibration and stress because of the shorter crankshaft.

Still another future possibility is a combination internal combustion-gas turbine commercial engine. Applicable to both bus and truck use, such an engine would permit the exhaust from either a gasoline or diesel engine to be directed into a gas turbine. The resultant over-all efficiency of this type of engine is such that potential fuel savings up to 30% are indicated.

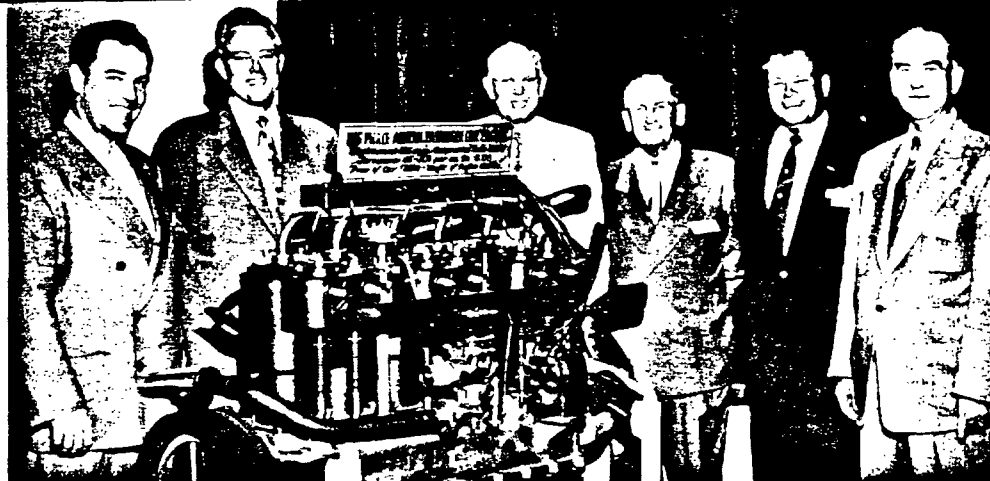
From the lubrication standpoint, one speaker said.

ETC 24400

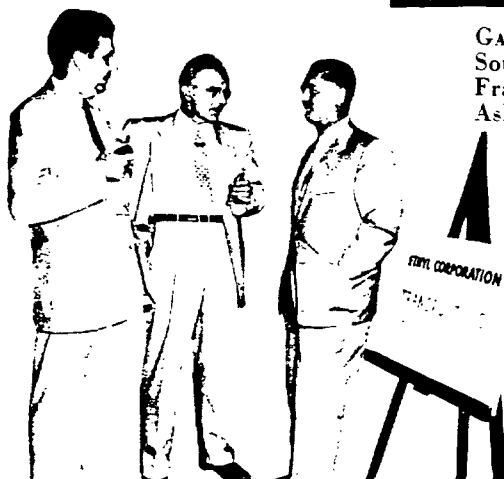


A the Road Ahead

BELOW, photographed beside a conference sign in New York were E. J. Ronan, of The Texas Company; Charles Wilson, of Surface Transportation; and P. C. Huelsenbeck, of The Texas Company.



GATHERED AROUND AN OLD ENGINE at Los Angeles are W. K. Stevenson, Southern California Gas; Wallace Linville, Western Highway Institute; Frank Elliott, Ethyl; J. R. Schmitt, Standard of California; John Clark, Asbury Transportation; R. E. Rowley, Municipal Water, Power & Light.



six factors affect engine performance. These are engine design and manufacture, operating conditions, maintenance, fuels, and lubricants themselves. Regular oil changes, of course, help realize top engine performance and life.

Commercial engine components were discussed in a second-day symposium. Qualified speakers from leading manufacturing firms gave detailed reports on valves, pistons, rings, ignition systems and carburetors.

Vehicle Construction

As for commercial vehicles themselves, Conference speakers said that through the increased use of plastics and stainless steel, aluminum alloys, magnesium and other light metals, trailers have been made lighter with no sacrifice in durability.

Designed as it is—as an open forum-type meeting—the Ethyl Transportation Conference serves the purpose of bringing together those industries and individuals most interested in the future of commercial transportation and those best qualified to speak out on what that future holds. Out of the sessions being held across the country will come, Ethyl hopes, guideposts for the future in the broad field of trucks, buses and farm tractors. #



THREE OF THE INTERESTED LISTENERS at the New York conference were F. L. Jacobus and W. C. Condit, of Sun Oil, and J. T. Fyrer, of International Harvester.

ENJOYING a moment of relaxation at San Francisco are H. B. Beachler and W. C. Jessen, Allis-Chalmers; R. C. Ingram, Caminol; R. L. Ridout and N. D. Taylor, Hancock Oil; Henry Derruau, *San Francisco Examiner*; F. O. Graham, Hancock Oil; and Marvin Russell, Ethyl... Right, a general view of the audience at a Dallas session.



ETC 24401



CHIPPING 'em off
in the Stone Age.

ONE OF THE PRIMARY requisites of good grooming is the clean shave. Small moustaches and beards of varying lengths and styles are worn, of course, and here and there a continental goatee may catch the eye. But the American male, by and large, prefers his face unadorned.

Being so, shortly after the alarm awakens him, modern man finds himself bleary-eyed and bewiskered in front of the bathroom mirror, ready to "lather up" or "plug in," depending upon the razor of his choice. Most mornings he goes about the routine business of removing the bristles from his face both systematically and automatically, but he regards shaving as a nuisance and would just as soon chuck it all. He would just as soon, but, domesticated to Twentieth Century society, he would no more venture to the office with a face full of whiskers than he would appear at the White House in overalls.

Though the removal process takes only from 4 to 7 minutes with a safety or straight razor and from 2 to 4 minutes with an electric job, most members of the stronger sex consider shaving—along with mowing the lawn and taxes—among the major banes of their existence. Few stop to remember that when they were adolescents they had actually looked forward to the day when their first manly whiskers would be ready for the razor. More are apt to recall that somewhere in their middle 20s, after several years of snipping the beard in the bud, the novelty wore off . . . but, alas, the beard was back each morning.

Even so, today's man is fortunate. He has little to contend with in shaving compared to males of former times. His razor may nick him now and again, but he manages to whisk away the av-

erage 13,000 hairs in his beard without any serious damage to his skin.

If this accomplishment does not seem reward enough in itself, contemporary shavers might be pleased to know that most of their predecessors were considerably worse off in the same department. Consider primitive man, for instance. The club-toting boys, 'way back when dinosaurs were taking up all the elbow room, really had it tough. They removed facial hair with chips of flint sharpened on stone. To make it more difficult, they used the nearest pool for a mirror, which necessitated shaving in horizontal rather than vertical position. And all the time there were those dinosaurs loping about.

This appalling picture is probably the worst, but the treatment of whiskers continued to present a number of gruesome facsimilies.

An Old, Old Custom

So far as has been positively ascertained, shaving as it is known today began with the Phoenicians, who introduced metal razors almost 5,000 years ago and peddled them around the civilized world. Commercially, they had a good thing. Their razors, beautifully decorated and with a curved cutting edge, went over big. Anyone owning one today can name his own price. But anyone using one today would be better off switching to a coping saw.

Apparently the early Egyptians didn't think much of the Phoenician razor. Ingenious people they, the



ETC 24402

Grace

For countless centuries man has been fighting a losing battle with his whiskers

builders of pyramids set about devising their own shaving equipment sometime before 2,500 B.C. About 500 years later they came up with an instrument somewhat akin to the modern straight razor. In appearance it compared remarkably well, but its cutting qualities are perhaps best revealed by the fact that Egyptians covered their faces with false beards of plaited hair.

Nor would it seem that the races which honored beards were much better off. Though the beard was highly esteemed in ancient Greece—Zeus himself wore a beautifully, curled beard of gold—many is the man who lost his head because of it. During battle, it seems, an enemy warrior would grab a Grecian's beard with one hand, hold the victim fast, and behead him in one fell swoop. For this reason, Alexander the Great introduced shaving to Greece and ordered his soldiers to be smooth-faced.

Later on, Peter the Great also compelled shaving for all men under his rule. Though the instruments were better, the consequences for those who disobeyed his orders were worse. Bristly males were heavily fined and their beards either yanked out by the roots one at a

FULL BEARDS like that sported by the gentleman at the extreme left have at times been in vogue, but for the most part down through the ages and around the globe man has sought to remove his whiskers.



FOR MOST MEN, shaving is a daily morning ritual.

time or severed with a razor that barely had an edge.

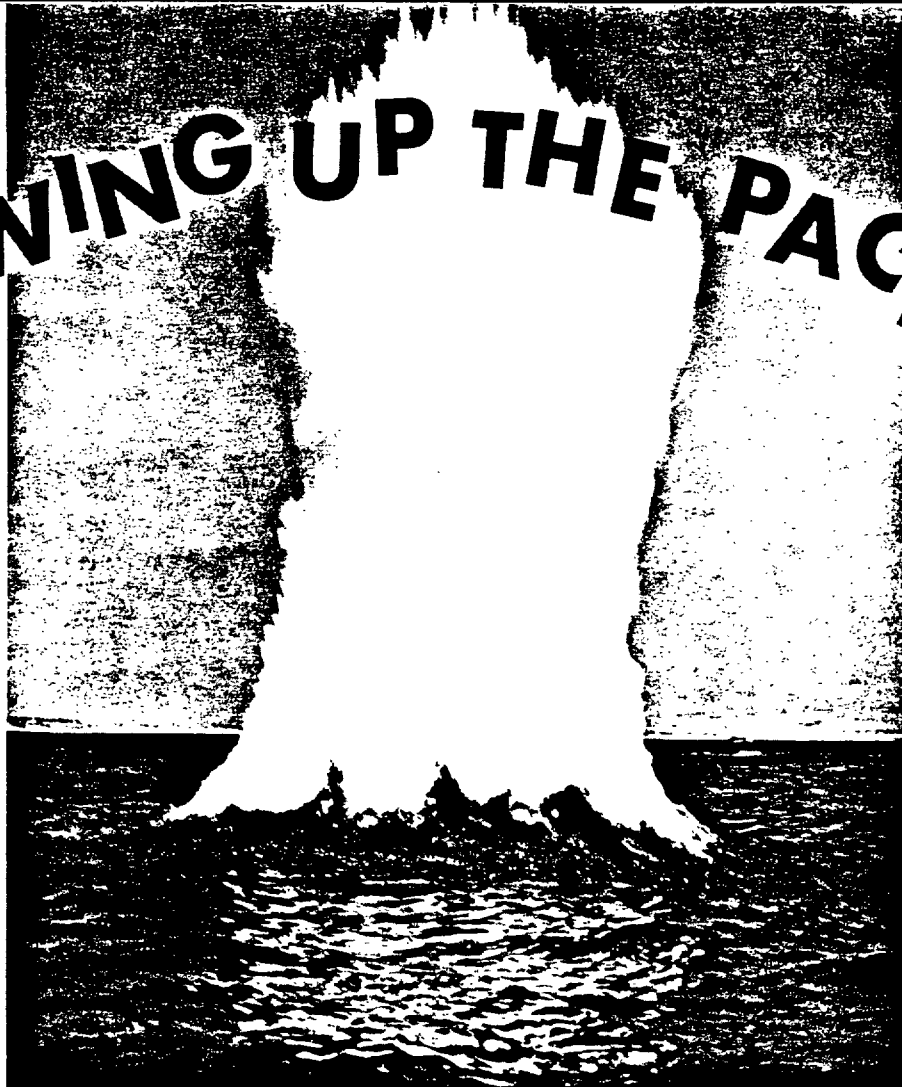
It is probable that before razors, pumice stone was used to pare whiskers. Though this is not an established fact, it is known that in 1662 Samuel Pepys removed his daily growth of whiskers with pumice stone. This was known as "trimming."

In subsequent years beards and shaving were both in and out of fashion. Some races looked upon beardless men as servile and insisted that servants and slaves be clean shaven, while those of higher estate made their positions known by the length and mode of their whiskers. Charlemagne established the reverse procedure. Under his rule, men of the upper classes wore moustaches only and those of low status wore full beards. In England, the Norman conquerors shaved and ordered the conquered to do the same. This was a fate the English people regarded as worse than death.

And so on, through the era of the forked beard, the Van Dyke, side whiskers and the handlebar moustache, the whiskered male had his problems, until in comparatively recent times the safety and the electric razor made things easier. Though shaving may not be among the pleasures of masculinity, it is clear to see that modern man has the edge on his ancestors. #



BLOWING UP THE PACIFIC



The search for under-the-ocean oil is a dramatic one

By W. L. C. Sulzner

"LUCKY" RIDGE PLANTED HIMSELF on an upended Coca-Cola case aboard a vessel plying the warm waters of the Pacific off Southern California. Softly he called into a microphone: "Shooting. One-Two . . ."

The "Three," if he ever said it, was lost. Instead there was a rumble as if the mighty ocean was suffering indigestion. The sea-top turned a boiling white and then a geyser of water mushroomed 150 feet or more into the air. Lucky (real name, Lawrence) Ridge had just blown up the Pacific Ocean again.

As much as it might have resembled it, this was no A-bomb explosion. It was a routine many-times-a-day event to a crew of 50 men seeking oil off the beaches of Southern California. As one of them, Lucky's job is to set off the charges that help establish whether there are submerged deposits in each blast area.

This may not be exploration as the landlubber knows it, but the operations of the Pacific seismic fleet are an important phase of the development of tidelands oil. Billions of barrels of oil are believed locked under the continental shelf.

The seismic fleet is operated by Western Geophysical Company on behalf of three oil companies—General Petroleum, Standard of California, and Humble Oil & Refining. It's a \$5,000-a-day cooperative venture, all in the interest of charting the waters for 200 miles along California's coastline to build up the nation's oil reserves. Seven diesel-powered boats, most of them converted Navy craft, make up the fleet.

State laws have united with nature in opposing the men who shoot the earth beneath the Pacific. To protect marine life, California requires the use of black powder instead of the customary dynamite and even prohibits blasting altogether in many areas. A fish and

game department biologist and a state lands inspector must be present to approve each blast beforehand.

The working day begins with an early breakfast served aboard the seismic fleet's two largest boats, the *Pacific Rescue* and the *Pacific Surveyor*.

The *Surveyor*, once a sub-chaser, is the floating warehouse for the tons of explosives Lucky Ridge sets off each day. With the converted water taxi *Patsy K.* helping, her other job is to get samples of the ocean bottom. In the areas already shot, she recovers mud and silt. With luck, there may be a showing of shale, the universal key to an oil pool.

Headquarters boat for the seismic crew is the *Rescue*. Aboard her are the seismographs that photographically record echoes from the ocean bottom as they reverberate from the black powder explosions.

Dan Trigg, captain of the *Rescue*, does the routine navigating for the fleet. On the way out to the area of the day's operations, his crew lowers a pair of 1,000-foot cables into the water behind the boat. Buoyed by rubber floats, both lines are spaced with twelve "jugs," as the seismophones are called. The cables carry the signals from the jugs to the recording instruments on the *Rescue*. Two tailboats haul the ends of the jug lines out to form an L, with the *Rescue* at the apex.

Shoran Does the Trick

Using shoran (short range navigation), Trigg's boat works to within 10 feet of the position plotted for the first shot. Shoran, a complicated device licensed by the Joint Chiefs of Staff for this use, played an important role in guiding bombers during the war. Now, triangulating on two trucks with radar transmitters ashore, it pinpoints the seismic fleet's locations.

Once Trigg has brought his fleet to the proper white-cap in the Pacific, the group's marine surveyor orders the tailboats into a perfect L. When the jug lines are stretched correctly at right angles, he directs, "Okay. Shoot her."

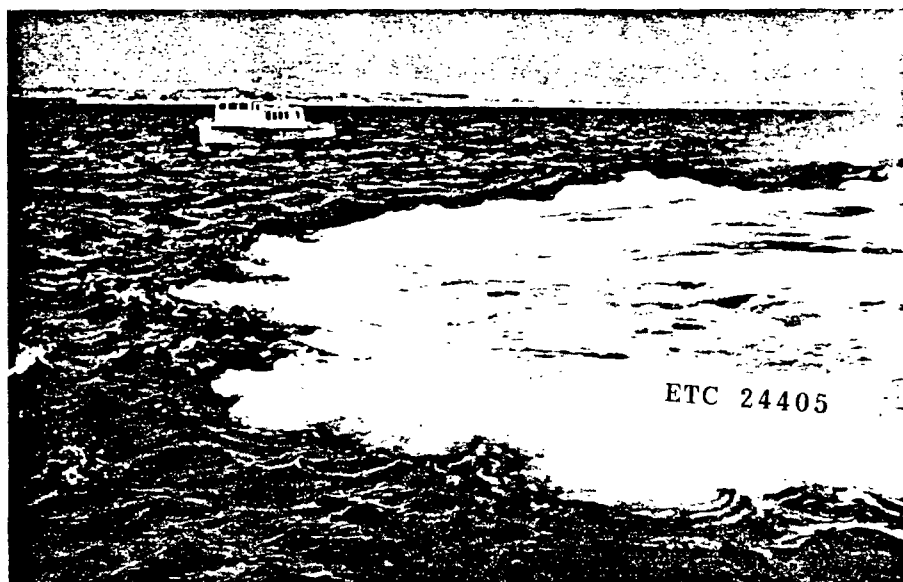
This is the signal for bulky Lucky Ridge to go into action. With the aid of two helpers, he has planted the shot — two 45-pound canisters of black powder — opposite the center of each leg of the L-shaped jug line. The shot position is marked by a pair of children's balloons, dancing gayly on the water. The balloons, combination markers and supports, hold the powder exactly six feet beneath the ocean surface. Ridge points



AFTER THE MARINE SURVEYOR (above) has jockeyed the tailboats into position, Lucky Ridge (below) sets off the 90-pound charge that sends water spouting 150-feet skyward.

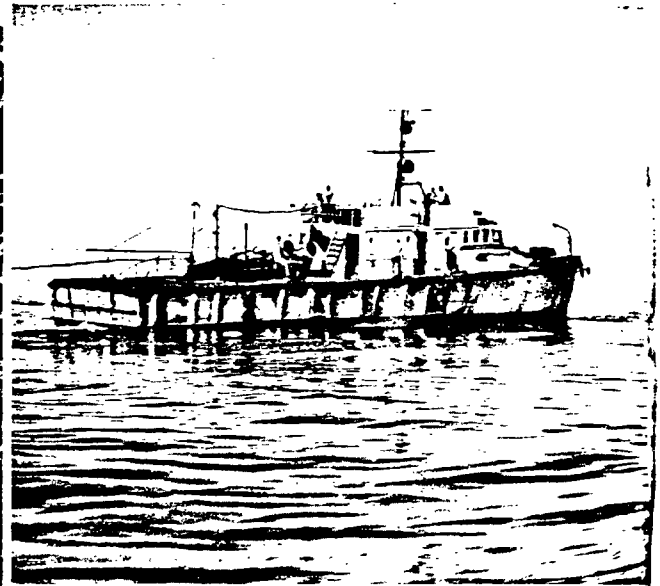


FOLLOWING EACH EXPLOSION, a boat carrying a state fish and game biologist rushes to the blast scene for an on-the-spot inspection.





THE DAY'S WORK DONE, all hands haul the "jug" lines on board ship. A rubber float has just hit the deck. Man in foreground is about to toss a jug.



HEADQUARTERS BOAT of the seismic fleet is the *Pacific Rescue*. The fleet consists of seven vessels most of them converted World War II craft.

out that the shot depth of six feet is one of the few specifications concerned with the explosives that wasn't dictated by the State of California fish and game people.

"If we dropped the shot any deeper, she'd make a resonating bubble when she blew," he explains.

As he hears the radio order to shoot, Lucky plugs the wire into his blaster. Over his microphone he calls in a calm voice, "Shooting. One-Two . . ."

On the third beat, he shoves home the plunger. It keys a radio signal to be picked up on the recording seismographs. All is silent for a few hundredths of a second. Then suddenly the water spouts toward the heavens.

As the white geyser turns into rain falling back to the sea, the boat carrying California fish biologist Wayne Baldwin races to the edge of the boil. He peers for signs of fish of commercial value that may have been killed by the blast. Should he find any, the day's operation would be halted.

"But," says Baldwin, "I've never seen anything except a few six-inch anchovies killed by this black powder. In fact, our records show only six fish killed in the five years this crew has been using it."

As Baldwin's craft circles the last shot, Capt. Trigg moves his fleet into position for the next blast. As soon as the state men approve, the radio repeats the order, "Okay. Shoot her." Once every three minutes during the rest of the working day, Lucky Ridge will slam the plunger on another 90-pound shot.

Oil Companies Get Data

Results of the day's shooting are rushed by messenger boat to the nearest harbor. From there, they go to Western Geophysical's interpreting headquarters in Santa Barbara. A copy of the seismograms, the interpreter's figures, and a chart of his findings from each shot are made up for the three cooperating oil companies. While all three companies get the same data, they often come to opposite conclusions. Their final results are kept secret from each other. Transferred to maps of the area, they are securely locked in "top secret" files for future use.

Nobody aboard the seismic fleet doubts that the day is coming when the California tidelands field will be "brought in" to its fullest. As Lucky Ridge assures you during his 180 seconds of leisure between blasts, "There's nothing the American oil industry can't do." ≠

FOR THIS REASON ALONE

By Dick Tate
Oil Editor,
Baton Rouge State-Times

Purchase of the Louisiana Territory was a sound investment, if only for the oil it contains

N OBODY TODAY QUESTIONS the wisdom that led the founding fathers of the United States of America to acquire the vast and sweeping stretches then known only as "the Louisiana Territory."

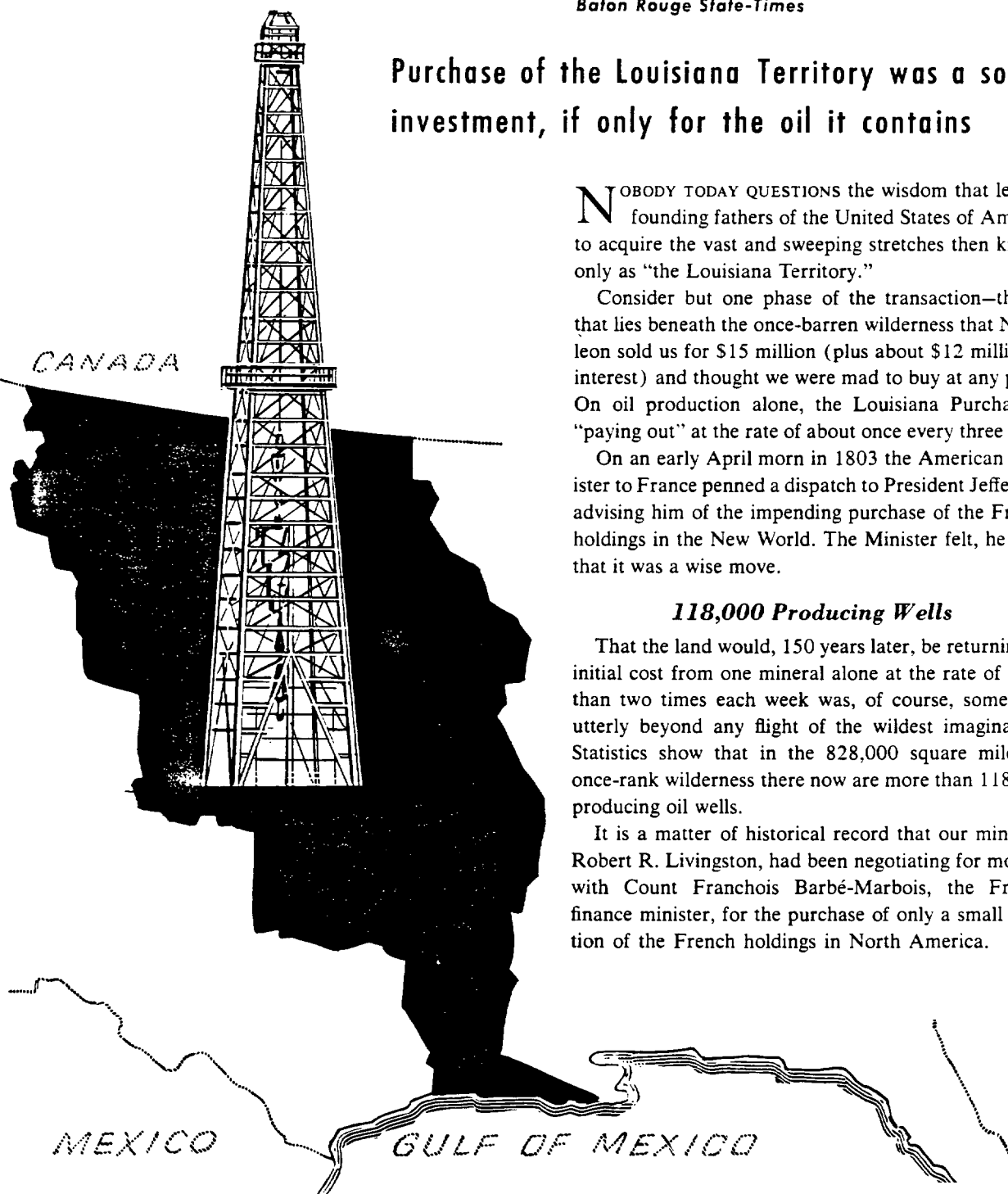
Consider but one phase of the transaction—the oil that lies beneath the once-barren wilderness that Napoleon sold us for \$15 million (plus about \$12 million in interest) and thought we were mad to buy at any price. On oil production alone, the Louisiana Purchase is "paying out" at the rate of about once every three days.

On an early April morn in 1803 the American Minister to France penned a dispatch to President Jefferson, advising him of the impending purchase of the French holdings in the New World. The Minister felt, he said, that it was a wise move.

118,000 Producing Wells

That the land would, 150 years later, be returning its initial cost from one mineral alone at the rate of more than two times each week was, of course, something utterly beyond any flight of the wildest imagination. Statistics show that in the 828,000 square miles of once-rank wilderness there now are more than 118,000 producing oil wells.

It is a matter of historical record that our minister, Robert R. Livingston, had been negotiating for months with Count Franchois Barbé-Marbois, the French finance minister, for the purchase of only a small fraction of the French holdings in North America.



ETC 24407



ALL AMERICA HOPED to acquire was New Orleans (above) and the mouth of the Mississippi. But signing of the Purchase document (right) gave us an area equal to one-third the country's present size.

The United States, then only 27 years old, initiated the negotiations because it wanted to acquire control of New Orleans and its commanding position at the mouth of the Mississippi River. It was recognized that the area along the northern edge of the Gulf of Mexico was the keystone to unrestricted river traffic. Livingston had labored diligently to consummate a deal that would bring this area under American sovereignty.

Then, unexpectedly, just as the negotiations appeared to be lagging, Barbé-Marbois made a stunning proposal. France would sell not just New Orleans and the area surrounding the city, but the entire Louisiana Territory. This was an area so vast that it was to make up almost one-third of the United States as it is constituted today.

On April 30, 1803, Livingston, who by then had been joined by James Monroe as a special envoy in the affair, signed the documents which doubled the size of the infant Republic.

It was more than eight decades later that the first oil was discovered in the Territory. By that time it was clear to all men that acquisition of the Louisiana Territory was a stroke of political and economic genius. But when oil entered the picture, it was an added dividend.

Just for the sake of conjecture, consider the wealth that might still be France's if she had appended to the historical document a one-half mineral reservation. This is standard procedure in land sales in almost all oil-producing states.

That reservation would apply to an area that American Petroleum Institute statistics show to be the source of over 30 percent of all crude oil now produced in the United States. Of the several states carved, wholly or partially, from the Louisiana Territory eight are long-time petroleum producers.

Two others, hiking the total to ten, have joined the ranks of the oil-producing states in recent years and are doubtless destined to grow in importance as sources of crude. In the remaining areas, the bits of the wildcat-ers are biting deep in exploratory operations that many oilmen feel will pay off ultimately. It is obvious that in selling the Louisiana Territory Napoleon let go an area that could have made France an oil empire for at least many centuries.

But that is water under the bridge of history. What counts now is that, despite the large withdrawals of the past, proved reserves in the area are sizeable.

API records show there are at present reserves in excess of eight billion barrels in the states within the Territory's boundaries. At current market value this means there is something like \$1.5 billion worth of oil still in the ground in this area for every \$1 million this country paid for the land originally. And this figure does not take into consideration new reserves which the current broad program of exploration is developing.

This oil lies in the producing states of Arkansas, Colorado, Kansas, Louisiana, Missouri, Montana, Oklahoma and Wyoming, plus the relative newcomers of Nebraska and North Dakota.

Louisiana's Role

It was pointed out at the beginning that the wisdom of the acquisition of the Louisiana Territory goes unquestioned now. Actually, the purchase would have been a gigantic success if this country had acquired nothing more than the state of Louisiana itself—a fraction of the total land area involved.

Any one of Louisiana's approximately 340 oil fields would have paid for, and returned a neat profit on, the transaction. Any one of these Louisiana fields, had they been available, could have been a lifesaver for the sagging French economy back in 1803 when Napoleon, hard pressed by the British and fearful of the future, placed "Louisiana" on the block.

If Napoleon, for example, had nothing more than the gross income from Louisiana's first oil field at Jennings, which has produced over 100 million barrels of oil, it might well have changed the course of history. With over a quarter of a billion dollars in the French coffers, Napoleon certainly never would have disposed of his North American empire for the pitiful four cents an acre it brought.

The Little Corporal was not the only one to underestimate the full worth of the Louisiana Territory. Livingston himself toyed with the idea of "laying off" part of the gamble he had taken for his country. He thought of selling a half or more of the Territory to some "weak European country" to get the purchase price back. Fortunately, that did not happen.

Despite the dim view taken generally of the Louisiana Territory in the early days, dreams of the wealth hidden away in its wilds had come to at least one man almost 100 years before. He was John Law, a wily Scotsman. In his role of speculator and money juggler to King Louis XV, he came closer to properly evaluating the wealth of the New World held by France than anyone of his time.

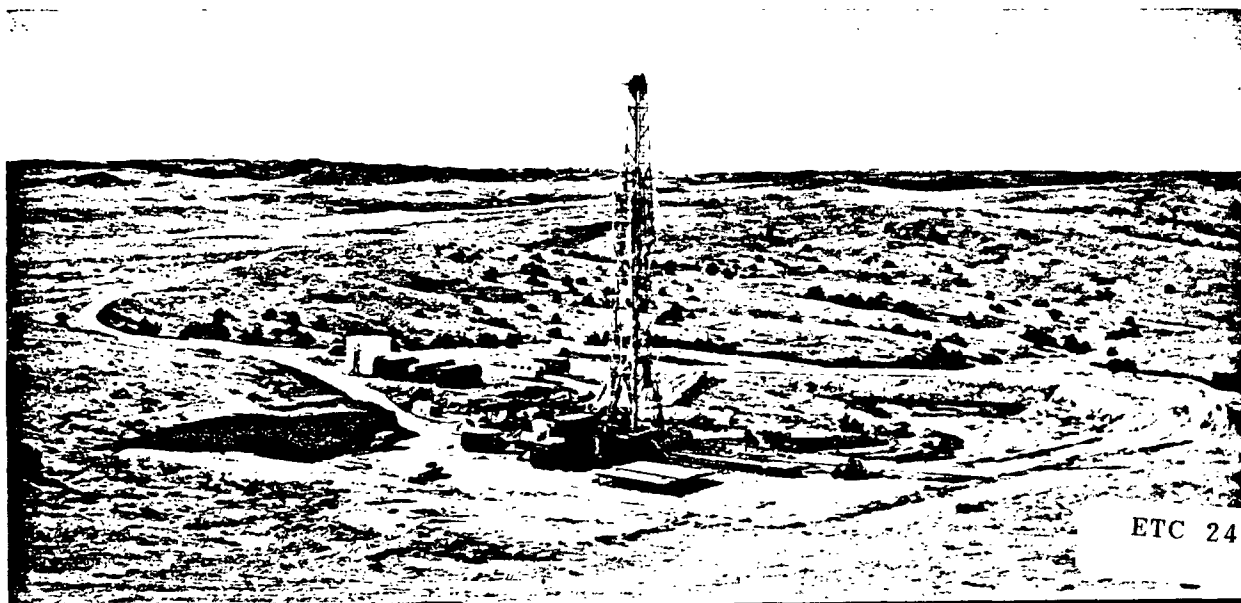
Whether Law was a cold-blooded land speculator aiming only at enriching himself and the French treasury, or a man blessed with an amazing foresight, cannot be said definitely. But history records that he plastered Europe with handbills promising to those willing to move to the New World the riches of princes.

By the thousands the Europeans came, and by the thousands they died. They died in the ports of embarkation. They died on the ships that bore them to the new land under cattle-boat conditions. They died in the wilderness and they died on the sandy, sun-baked beaches of the Gulf of Mexico. For this tragedy, John Law was blamed. Those who survived found in time that his dreams were not all empty visions.

Now, 250 years later, it is clear that his promises of mineral wealth were as accurate as his pledges of agricultural richness. All in all, it must be noted in the final writs of history, John Law was more right than wrong.

Unfortunately for him and for King Louis, proof came a shade too late. #

THE WILLISTON BASIN, where stands this well, is a new oil-producing area in the Louisiana Purchase territory.



ETC 24409

LITTLE

WONDER

AN OIL RING from a large diesel engine and a paper clip in contrast to the small McCoy and one of its 22 parts.

A tiny diesel engine promises to revolutionize model plane flying

THINK OF DIESEL ENGINES and you usually visualize behemoth power plants that move trains, trucks, boats and other heavy equipment. That, of course, is the main use of this type of power.

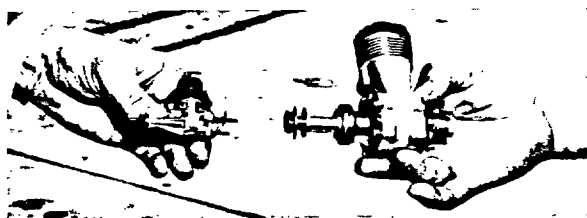
But in recent months a new type of diesel engine, with a different purpose in life, has come upon the scene. This engineering achievement is the Tom Thumb of its field. It is so small that three of them fit in the palm of a man's hand. It consists of only 22 parts. It boasts variable compression ratio ranging from 17:1 to 20:1. And it burns its own special fuel, containing the same Ethyl Corporation additive that improves the ignition quality of fuels used to power the larger diesel engines.

The midjet power plant is designed for use in model airplanes. It needs no spark plugs or glow plugs, and that's one of the reasons why it may eventually replace other existing types of model airplane engines. A West Coast manufacturer is now turning out units at the rate of 10,000 a month—the first time that such a small complete diesel engine has ever been mass produced anywhere.

The unit develops almost one-tenth of a horsepower on its own, but that's only part of the story. When operated on a special fuel now being marketed, the engine's speed is increased by as much as 2,000 revolutions per minute. This makes possible the use of a



EACH ENGINE is test-run (above) before being packaged for shipment. Photo at left compares the new midjet diesel unit with a 1.32-horsepower engine.



bigger propeller on the model plane, and that in turn means greater horsepower output.

Fuel blends for model equipment are highly secret, but basically they include ether, kerosene and synthetic oil. In addition, the blend being made by the Ohlsson Manufacturing Company, of Long Beach, California, for the little engine also contains 1.5 percent by volume of Ethyl's new diesel fuel additive. It is the additive that provides the 2,000-rpm increase.

Introduced by Ethyl little over a year ago, the additive is a special blend of primary amyl nitrates referred to as Ignition Improver (DB-36). It economically creates diesel cetane numbers that are the equivalent of natural cetane numbers. Tests show, for instance, that on the average the addition of 0.13 volume percent of DB-36 Amyl Nitrate to diesel fuel provides a gain of five cetane numbers; only 0.05 volume percent is sufficient to give an average gain of 2.5 cetane numbers.

Aids All Concerned

DB-36 Amyl Nitrate was developed to provide a simple and economical means of making available greater quantities of acceptable quality diesel fuel for train, automotive, boat, tractor and heavy equipment use. As such, it offers obvious advantages to the petroleum refiner, engine manufacturer and consumer alike. Now, in its newest application, it is adding to the power and performance of the craft flown by the nation's army of model airplane enthusiasts.

The tiny compression ignition engine which now promises to revolutionize model airplane flying in this country has been known in Europe for some time. But it had never been mass produced before and none had ever been made as small as the unit currently being turned out under the McCoy trade name by the Duro-Matic Products Company, of Culver City, California.

Duro-Matic set out to — and did — accomplish two things. It sought to mass produce the little engine, and at a retail price well below the indicated \$10-\$12. Tooled for an original production goal of 5,000 units a month, the company had its first shipment for retail sale ready in April of this year. Model plane fans flocked to hobby shops to buy the product—at a selling price under \$6. Production was immediately doubled to keep pace with world-wide demand.

So enthusiastic has been the reception given the 1½-ounce engine that the Duro-Matic Company plans to produce two slightly larger models this fall for

those who want a more powerful engine on their model aircraft. Also, it is expected, the dozen or more other manufacturers of model airplane engines soon will be producing miniature diesel power plants. Eventually, it is indicated, model aircraft not powered by a diesel engine will be considered "obsolete."

Model plane hobbyists are not the only ones enthused by this new development in diesel power. Many engine manufacturers and diesel fuel marketers are viewing it with interest. For, the success of the miniature model aircraft engine suggests possible applications for similar type units of one-half and one horsepower size. One such possibility is the use of compression ignition engines, teamed with fuel containing DB-36 Amyl Nitrate additive, on lawn mowers and motor scooters. —



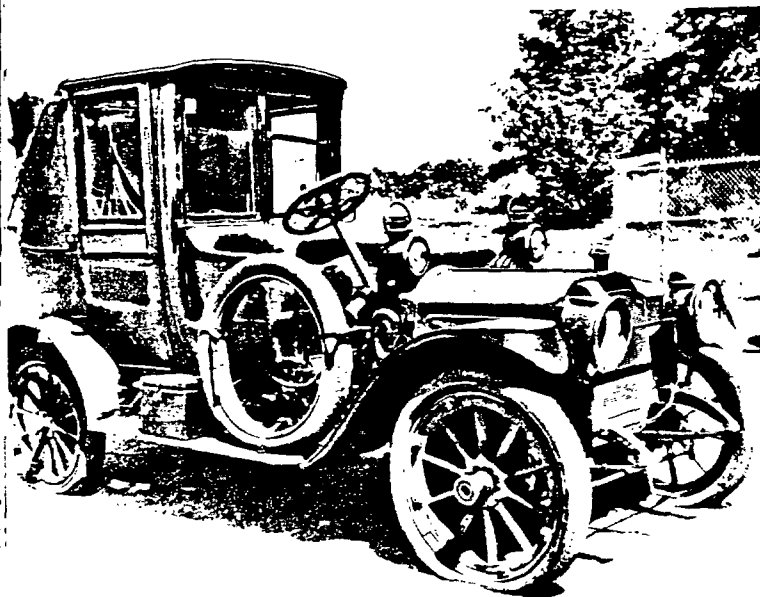
A SPECIAL FUEL blend for the little diesel engine is being packaged at the rate of 8,000 gallons a day. The blend contains Ethyl's diesel fuel additive to improve performance.



ETC 24411

Those who restore and display antique cars are ...

Preserving An Era



IT USED TO BE that automobiles which had outlived their usefulness could look forward to retirement to a junkyard or scrap heap, there to remain unmolested until they rusted and rotted away to mere nothing.

That, of course, was in the days before so many Americans got bitten so incurably by the Old Car Restoration bug, as has happened in epidemic proportions since 1945. Now no sooner is a car junked—particularly one built in the 1920s or before—than members of the Old Car Restoration brigade are swarming all over it. The objects of their attention are engine parts, accessories, tires—anything at all that is usable or can be made usable.

The hobby of owning and displaying antique automobiles is a popular and well-known one. Less publicized is the companion art of restoring the old vehicles to their original beauty and operating capacity. And considering the travail involved, it is truly that—an art. Great stores of energy, ingenuity, patience—and dollars—are expended between the time an old car is first located until its proud owner can show it off.

BEFORE AND AFTER: Some of the steps in restoring a battered 1912 Packard (extreme left) to its original beauty (lower right) are illustrated here.

To qualify as an antique, a car must be at least 25 years old. Many of the more sought-after models date back further than that, to the earliest days of the horseless carriage.

Usually a car of this age is pretty far gone, unless it's one of those rare finds that's been put up on blocks and preserved in a state of suspended animation over the decades. Most of the once-proud patriarchs of the road are found down on their wheel rims, with windows smashed, body dented and rusted, parts missing, and upholstery torn and rotted away. Countless hours of labor and expert mechanical ability are required to bring them back to life. That's why the typical antique car owner frequently is a person with at least some mechanical skill or interest.

Old car restoration, however, requires more than

that. The first job is to find out how the particular car originally looked and operated—not just in general, but in every detail. To retain its value, interest and authenticity, the old-timer must not be modernized or altered from its original appearance, construction, or mechanical workings.

Something like 2,200 different makes of cars have been manufactured in the United States during the past half-century. So it is easy to see why the problem of getting accurate descriptions, pictures, diagrams and specifications of those long deceased can be a formidable one.

Among the sources to which the old car restorer can turn for guidance are the Automobile Manufacturers Association, the Ford Museum at Dearborn, Mich., and private car museums. In the latter category, two of the outstanding collections of old cars and early

don't just run out to a neighborhood garage or service station and pick up the parts you need. Instead you have to be a combination detective, Yankee trader and mechanic. Maybe you have to dismantle other old cars to get them, or perhaps you might be lucky enough to buy or trade for them.

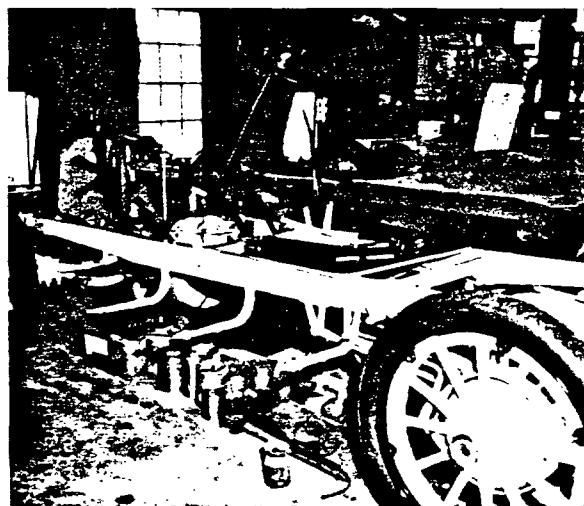
The publications of the three leading old car organizations carry scores of classified advertisements about parts for sale or wanted.

"WANTED," a typical recent ad read, "for 1913 Model 48 Pierce-Arrow: One 27-inch rim with locking ring to fit a 37 x 5 tire, one hub cap, one carburetor, and one tail lamp."

Sometimes when all likely sources have been exhausted, it is necessary to have replacement parts made in a machine shop. That's what Bud Kornhoff, of Rutherford, N. J., an enthusiastic member of the antique car set, was obliged to do to obtain the spring

shackle bolts he needed to rebuild his 1911 Penn 30 Speedster in time for this year's Glidden Tour. The rare Penn was in fairly good condition, but its owner has been able to learn little about the car other than that it was manufactured in Pittsburgh and then for only about two years.

Proprietor of a small garage, Mr. Kornhoff specializes in antique car restoration work. While many hobbyists are lay mechanics, most of them turn to pro-

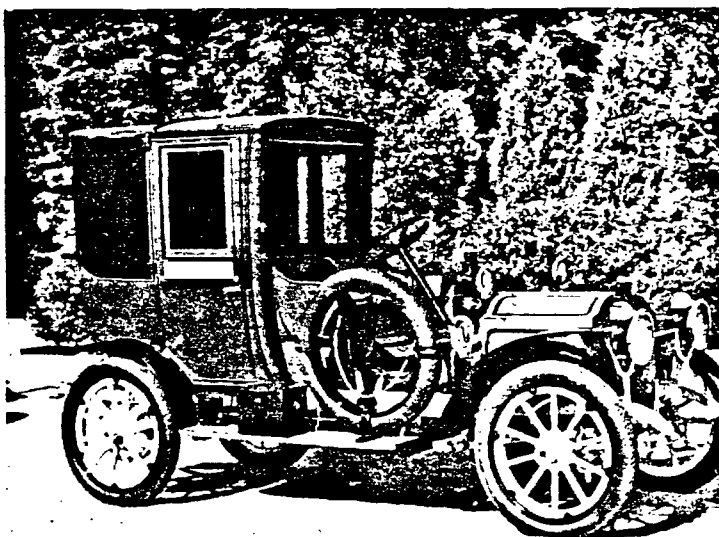


automobile memorabilia owned by individuals are

those of singer James Melton, near Palm Beach, Fla., and Henry Austin Clark, Jr., at Southampton, N. Y.

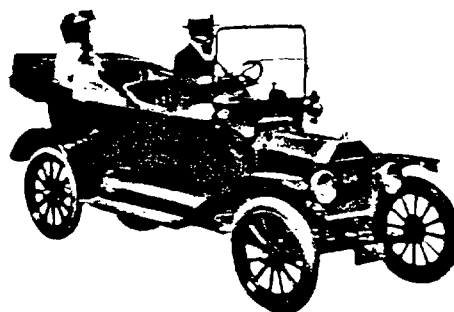
Fortunately, too, the antique auto fraternity is a closely-knit one. Its members share a wide acquaintanceship with other fans as a result of getting together on tours, field days and other old car events, and through membership in their principal organizations—The Veteran Motor Car Club of America, The Horseless Carriage Club, and the Antique Automobile Club of America.

Beyond information about how the old cars looked and performed, parts for the actual repair work are another problem. When you're fixing up a car that hasn't been manufactured in, say, 30 or 35 years, you



professionals like Mr. Kornhoff for the more complicated repairs that require exceptional mechanical skill and special equipment.

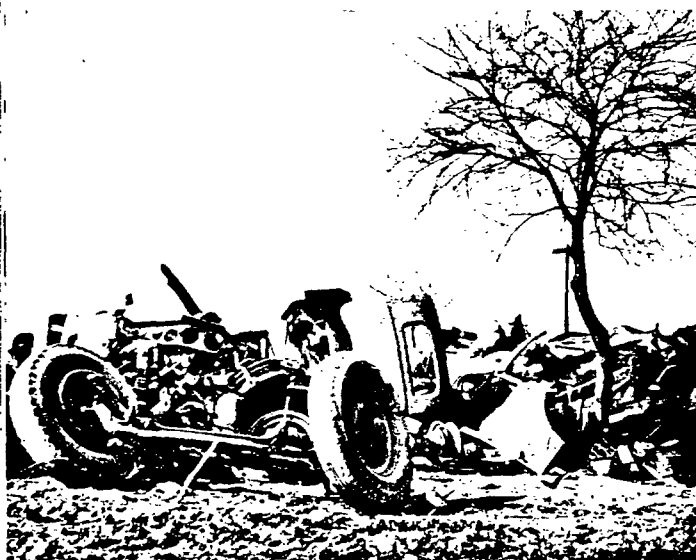
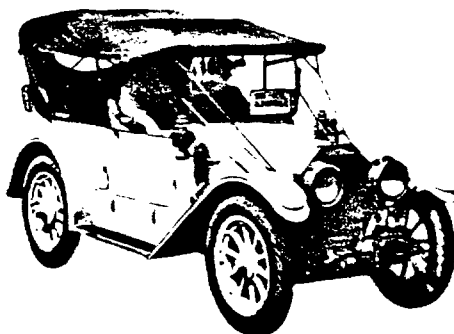
Another establishment that specializes in such work is the Antique Auto Shop of Northfield, N. J., near Atlantic City. Many of the scores of exceptionally well restored cars in Henry Austin Clark Jr.'s automotive museum on Long Island were completely rebuilt at Northfield, the latest being the stately buff and brown-colored aristocratic-looking 1912 Model 18 Packard landaulet pictured on the previous page.



The most popular "restoration" is the Model T Ford. Novices like to begin their antique automobile collection with this vehicle because it is fairly easy to obtain parts for and is easy to work on—even for an amateur mechanic. From the Model T, the hobbyist graduates to older, more mechanically complex automobiles.

How much does it cost to restore an antique car? That depends. First, of course, there is the purchase price. On unrestored models this varies from a few dollars to a few hundred, according to age, rarity and condition. Then comes the question of just how much work the new owner wants done. So while there are no set formulas, a good professional restoration job can and often does run as high as six thousand dollars.

For the antique car enthusiast, and that's just what these hobbyists are, the results are usually worth the expense. They take great pride in and great care of their prized possessions. For the automobile industry and the country at large, these hobbyists are also performing a valuable service. By salvaging and rebuilding the cars of a bygone era, they are helping America to relive a part of its colorful past and at the same time are enabling its people to appreciate automobiles of the present generation. #



AUTOMOBILE GRAVEYARDS like this are happy hunting grounds for those with antique vehicles to restore.

No matter where it's done, to do the restoration job right it's often advisable to disassemble the derelict car almost bolt by bolt and part by part right down to the frame and start rebuilding from the bottom up. Outward appearances may not always indicate the necessity for such an extensive job, but experience has shown that it usually pays in the long run. In this way, rust can be removed, the frame checked and straightened if necessary, and all of the undercarriage painted.

From this point on, everything that needs replacing, cleaning, repairing, painting and adjusting can be done in sequence and the refurbished car reassembled to its former stateliness.

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WHERE STANDS UNCLE SAM?

UNCLE SAM is a two-faced war-monger, the Reds tell us.

Uncle Sam is a bumbling upstart meddler, say his friends who feed at his table.

Even to us Americans, bled with taxes, he sometimes seems a tyrant bent on spending our dollars of today, our hopes of tomorrow.

Uncle Sam stands in confusion—in a confused, suffering, angry world. But he stands like a giant above that world, and even those who hate him must look up to him.

Did you ever ask yourself—*just who is Uncle Sam?*

He isn't the Pentagon, the State Department or the man who takes your taxes. He isn't just the President or the Average Citizen. He is a lot of people, living and dead—and something that lives in them.

Uncle Sam is the fellow who thumbed his nose at the redcoats and dumped a boatload of tea into Boston Harbor. Uncle Sam is the bandy-legged stranger named Ben Franklin who walked into Philadelphia with the dogs yapping after him, and who stayed there to build a reputation as scientist and statesman which sent him to France as Ambassador from the United States. He is the homely, lonely man from Illinois who wrote the Gettysburg Address, the puny lad from New York who grew up to be Colonel of the Rough Riders.

Who is Uncle Sam? He is the

dreamer who first made a boat propel itself by steam, the farmer who put together the first reaper, the visionary who drove a pair of rails through Indian country on the way to California. He is Ford and Kettering and Chrysler—men with strong hands and tough, clever brains who have made Detroit a name to frighten dictators.

Uncle Sam isn't any one man. He is a spirit, a will, a way of doing things that stamps Americans and our country. He is what *makes* us Americans, not just the descendants of those English, Irish, Polish, or Swedish wanderers who came here generations back.

He is proud, two-fisted, full of enterprise. He is a distillation of all the divine purpose, the deviltry, the dollar worship or what have you, that moved our ancestors out of their homelands years ago and over the oceans to the unknown New World. He is a compound of Irish cockiness and Dutch determination, of English fortitude and French ingenuity, of Balkan shrewdness and Nordic self-reliance. He has the German talent for mechanics, the African's and Italian's ear for melody, the Gallic urge to dream, to create.

Out of this has come a drive, a gusto, an energy which marks us

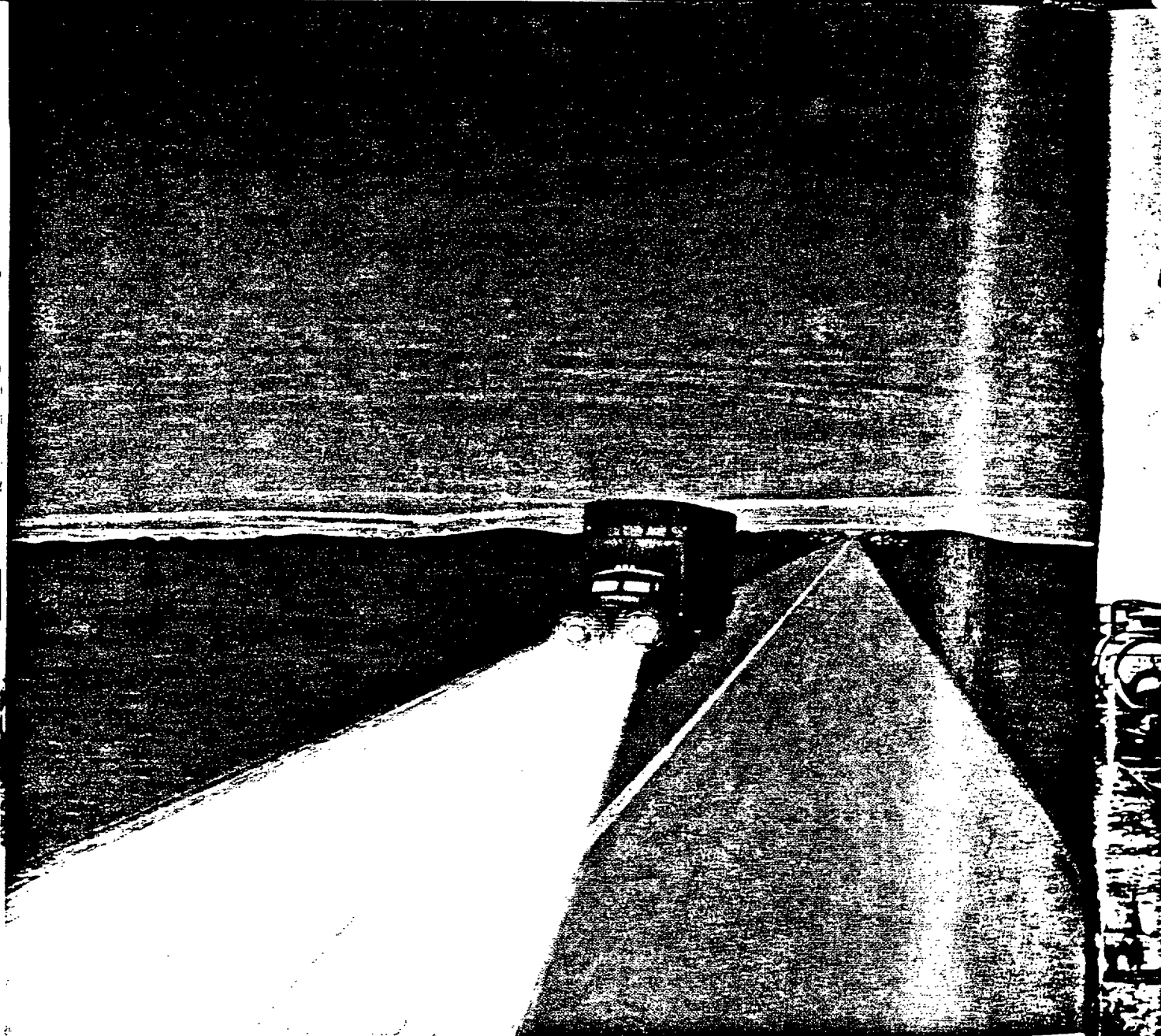
as Americans—a wayward strength which makes us do the foolish things, the mighty and the beautiful things we have done as Americans.

Uncle Sam is simply the best of you and me, and the way we want to live. He is what we want this land to be—free and tough and tempestuous . . . and tender. Yes, tender. He is the Red Cross. He is clothes for shivering, frightened children. He is a barricade across Berlin that turns back Terror from the Zone of Mercy.

He is something even greater. He is a thirsty, bone-tired boy in a helmet, with sunken, puzzled eyes that can't see why anybody would *want* to fight over the possession of Korea—but still can see that an evil bully is loose in the world. A bully who has to be stopped before he can come back to a safe home.

So today Uncle Sam stands in a storm-wracked world—but he stands in that storm like an oak. He stands with the strength of you and me. *You and me*, neighbor—and a hundred and sixty million more Americans who are willing to wait and work for our peace in the only way we can. Willing to pay in our toil, and if need be in our blood, to keep Uncle Sam's country a land where the free and the brave are still free to live by their own beliefs—to worship, to quarrel, to love and build as free men—so help us God! #

By **NORTH CLAREY**



100,000,000 miles looking for the answers

When you're looking for the final answers on how an oil or gasoline will affect engine durability, there's only one place to go.

Down the road.

Sometimes it takes millions of road-testing miles to be sure you've got reliable answers. That's why we think it is significant that since 1923 vehicles participating in Ethyl tests have rolled up more than one hundred million research miles.

Today at Ethyl's road-testing centers in Detroit and San Bernardino, both passenger cars and commercial vehicles of every representative type are equipped with special test instruments . . . many of them devised by

Ethyl research people. Every mile of every test is under the control of experienced engineers and technicians who understand thoroughly the problem of engines, fuels, and lubricants.

On top of this, we get valuable data from passenger car, truck, and bus fleets which cooperate in Ethyl's road-testing program. Every year we obtain information on how their vehicles perform on highways, over mountains, through deserts, under all kinds of tough operating conditions.

And you can be sure they're out on the road today and every day piling up mileage in search of facts that will help you make and sell better petroleum products.

ETHYL NEWS



SEPTEMBER - OCTOBER 1953

ETC 24417

BEHIND
THE NEWS



ETHYL NEWS

Thom Yates, Editor

Richard F. Cook, Associate Editor

SEPTEMBER-OCTOBER 1953

James A. Clark, business editor of *The Houston Post*, and author of "Domes of Destiny" (page 24), has written many newspaper and other articles about salt domes. In addition, he is, with geologist Michel T. Halbouty, co-author of "Spindletop," the book published by Random House last year that tells the dramatic story of the first great salt dome producer.

With "Spotlight on Grease" (page 8), we salute the nation's grease manufacturers and the National Lubricating Grease Institute, which is holding its annual meeting in Chicago from October 26 to 28. Seven hundred copies of this issue of *ETHYL NEWS* will be given special distribution at the meeting.

Just by way of proving once again that even the experts sometimes err—and to their own embarrassment—here's a little story C. K. Thomas, Cornell's distinguished professor of speech, tells on himself. It seems that at an informal gathering during a convention of fellow-educators, Professor Thomas was persuaded to name the home state and locale of each member of his audience by listening to them talk. The professor was sailing along in grand style, scoring high on every candidate for analysis, until the inevitable finally happened. He tabbed one of the interviewees as a native of Brooklyn. Where was the subject from? About as far from the New York borough as you can get—the Far West.

The railroading scene on our cover was photographed at the Ethyl Corporation manufacturing plant at Baton Rouge. It's one that is enacted there and at the Company's Houston plant every working day. The Kodachrome shows a train of "Ethyl" antiknock compound tank cars, powered by a diesel switch engine, taking shape on some of the plant's trackage.

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Opinions expressed in signed articles are the authors'. Ethyl News welcomes articles of timely interest submitted from outside sources. Upon request, the editors are glad to grant permission to reprint material appearing in Ethyl News.

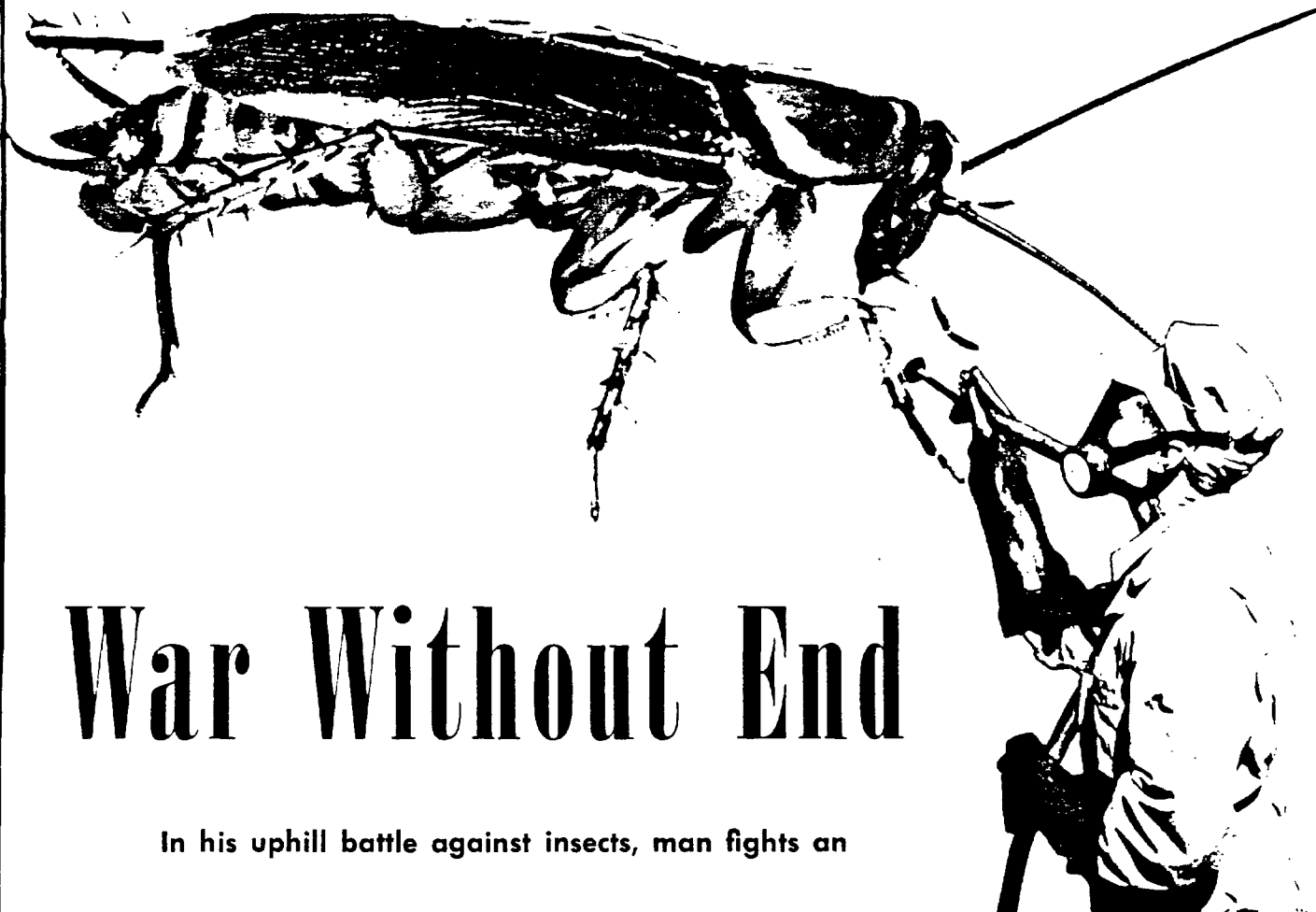
Published by Ethyl Corporation, 100 Park Avenue, New York 17, N. Y., manufacturer of "Ethyl" antiknock compounds, used by oil companies to improve the antiknock quality of aviation and motor gasoline.

Edward L. Shea, President

Stanley T. Crossland, Vice President and Treasurer

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ETC 24418



War Without End

In his uphill battle against insects, man fights an
enemy that outnumbers him by the billions

By Dr. Mont A. Cazier*

MAN in his inherently conceited way considers himself to be the dominant creature on earth and for the most part is afraid only of other men. Actually he dominates only in his ability to reason. That has enabled him to survive—but it also may bring about his destruction.

For centuries man has been trying to realize the utopian dream of making over the world purely for human consumption. His struggle with insects began long before the dawn of civilization. It will continue, no doubt, so long as the human race endures. The bat-

tle is due to the fact that man and certain insect species constantly require the same things at the same time, and its intensity is due to the vital importance to both of the things they struggle for.

Insects had thoroughly mastered the world and taken full possession of it long before humans began the attempt. Consequently insects had the advantage when the contest began. They have disputed every step of our invasion of their original domain so persistently and so successfully that we have gained little important advantage over them. Temporary battles we have seemingly won. But if insects want our crops or our household furnishings, they still help themselves. We cannot even adequately protect our persons from their annoying and pestiferous attacks. Insects have, in fact, inflicted upon us for ages many serious evils without our even knowing about it.



* Dr. Cazier is an authority of note on the subject of which he writes. He is chairman and curator of the Department of Insects and Spiders of The American Museum of Natural History in New York City.

He is a comparative youngster, having been on earth only some 500,000 years. His rate of reproduction is slow—one to five individuals every nine months. He is represented by one lone species and only about 2.4 billion individuals. In order to survive he often has to modify either the environment or his mode of life and he does not occur in every habitat. Even though he has great inventive and reasoning powers, he still utilizes only a small portion of his natural surroundings.

The Prolific Cabbage Aphid

Insects have found it possible to live under practically every condition on the earth's surface and so occur in every nook and cranny with the exception of the Polar Caps and the ocean basins. No plants and few animals are immune to their attacks. They carry some of the most deadly diseases known to mankind—plague, malaria and yellow fever, to name a few. At various times they have made portions of the world uninhabitable for man.

building materials to support the human population.

The housewife very often is reminded of the destructiveness of insects when she finds clothing, rugs, furniture and partly-used packages of food damaged or destroyed by one or more insect species. Between \$200 million and \$500 million worth of damage is done to clothing and household furnishings each year. Indeed, even the house itself is not immune to insect attack. There are many species of insects that assault our forests, shade trees, ornamental plants, and domestic animals, doing millions of dollars worth of damage each year.

A FEW of the more common insects that confront us: The Pacific Coast wireworm (left) feeds on all vegetables and field crops; the carpenter ant (center) is a wood-borer; the boll weevil (right) ravages cotton crops.

the world long ago, and how man has been able to develop and survive under such highly competitive conditions.

Man has been fortunate that many species of insects—while in search of food and a livelihood—have found that other insects form a very ample diet. We have, therefore, insect parasites and predators that aid in control. Birds, plants and animals other than man have also enjoyed this abundant source of food. Insects have become adapted to somewhat specific environmental conditions. When these are changed the insect either has to move out or is killed. Untold billions are continually being annihilated by changing climatic and soil features. Some few of these changes have been caused by man but most are due to nature.

Balance in Nature

When man entered the picture there was already in effect what some authorities call a "balance in nature," due to the interactions of the above factors. As man began to dispute the insect's ownership of plant materials, the never-ending battle started. In the beginning human efforts were by necessity crude and rather ineffectual. Through the course of many years, and because of the increased intensity of the struggle, he has developed and utilized with varying degrees of success numerous means of control. He has propagated and released insect and plant parasites and predators against specific destructive insects. He has made solutions from plant extracts—pyrethrum, rotenone and nicotine are a few—which have proved effective in certain instances. Then came an era of control with in-

organic insecticides, like lead and calcium arsenate and cryolite.

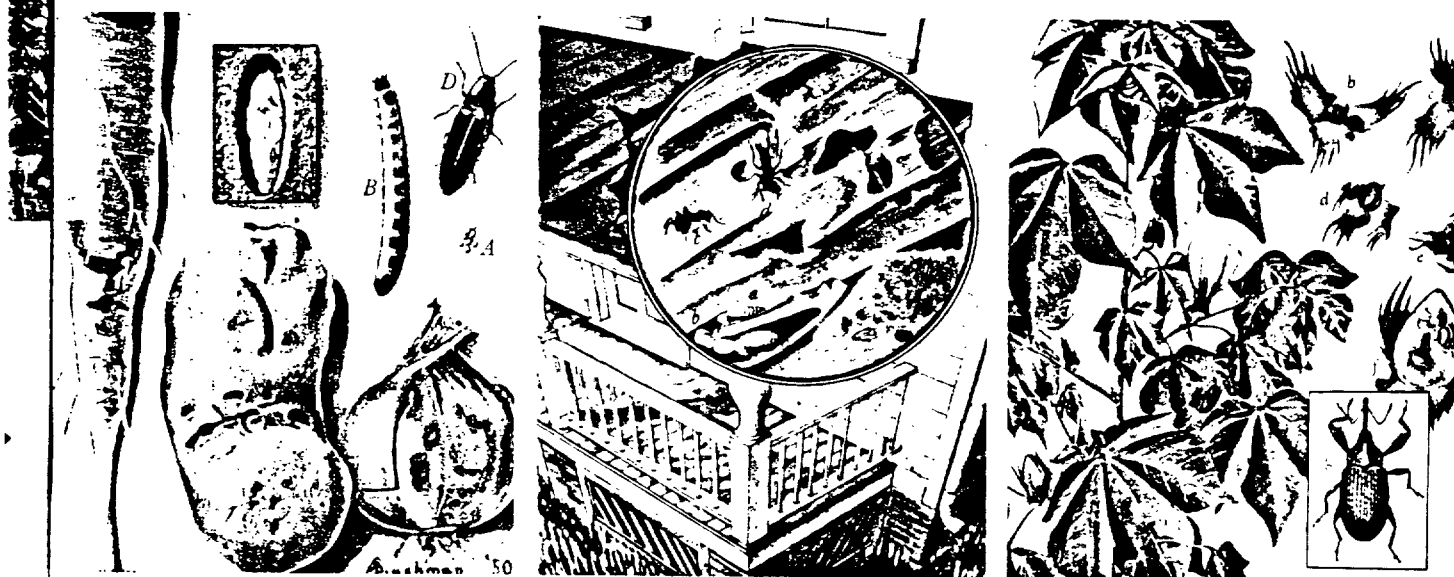
But the most important advancement in recent years has been the development of organic insecticides, such as DDT, BHC, lindane and the phosphates, parathion and malathion. Research laboratories and manufacturing plants are constantly developing and producing new and better insecticides.

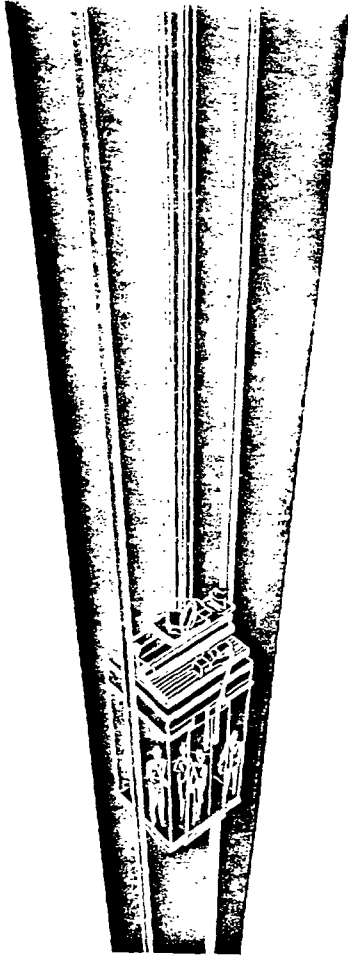
Why No All-Out War

Why then, since we are able to develop lethal insecticides, don't we go all-out for the annihilation of all insects? There are several good reasons against such a program. Man has never yet been able to exterminate a specific single species and so such an indiscriminate program would kill both harmful and beneficial insects. But the most important reason is that insects are responsible for the survival of most, if not all, of our plants that require cross-pollination. Were they not present to accomplish this fertilization, most of our food and forage plants would fail to survive. Man would then have to develop another method of pollinating plants or he and his domestic animals would soon disappear.

It has been shown and proved in the field many times that, properly applied, insecticides and cultural methods can result in economic control of insect pests. While admittedly it is not complete control and therefore requires repeated applications, it at least makes it possible for us to exist in competition with insects.

It is difficult and expensive for us to get along with insects. But neither can we do without them. #





This Car Up

Elevators — taken for granted but so vital in

the nation's business life — helped America to grow up



THE STORY IS TOLD of the owner of a large hotel who, having pressed the button a number of times to signal an elevator in his hostelry, stormed into the car the minute its doors opened. Without mincing words he asked the elevator boy where the devil he had been.

The youthful operator shrugged his shoulders. "Where, sir," he queried, "can you go in an elevator?"

As a matter of fact, you can go a lot of places. You can zoom to the bottom of a salt mine or to the top of the 102-story Empire State Building. You can ride from deck to deck on an ocean liner or to any of the three observation platforms of the Eiffel Tower. Elevators will take you up the Washington Monument or down to the breath-taking grottoes of Carlsbad Caverns.

Nor is travel limited to the vertical direction. Some elevators actually move horizontally as they ascend and descend. Four lifts in a Boston subway station transport their passengers six feet sidewise in a rise of 56 feet. The elevators in the Washington Masonic Memorial in Alexandria, Virginia, move 35 feet horizontally as they climb to the observation floor 234 feet up.

Other elevators travel even more unusual routes.

One in a zeppelin building in Akron, Ohio, follows the walls and curves of the roof, as it conveys workmen to the suspended staging. Another at the National Monument of the Revolution, in Mexico, curves with the dome, carrying sightseers to the lookout level.

These examples, of course, are out of the ordinary. The more routine function of the elevator is to transport people and freight between the various floors of the taller office buildings, hotels, stores, apartment houses and other structures.

Taken for granted today, elevators have had a lasting effect upon the way America lives and works. They have enabled cities to grow up as well as out. They have made the upper stories of a building, once waste or storage space, among the most desirable. Less than a century ago, prior to widespread use of the passenger elevator, buildings in even the largest cities were only four or five stories high. New York City's tallest structure until 1893 was a church (historic Trinity).

Came the Skyscraper

The third dimension—height—was added to the country's business and residential buildings in the Gay Nineties period, when the introduction of steel frame construction launched the skyscraper era. But what good was it to erect a structure of, say, 40 or 50 stories if people and freight couldn't shuttle between the bottom and top of the building with speed, ease and safety. That's where the elevator fitted into the picture.

As the elevator assumed importance, it also took on



a new look. A century ago, lifts were operated by "steam, water, hand, or other power," as an advertising circular of the day put it. The electric elevator was introduced in 1889 and many other refinements and developments followed through the years. One of the latest achievements is the electronically-controlled elevator. These lifts can adjust themselves to accommodate sudden traffic surges and can also automatically measure passenger waiting time to prevent overlong waits for either an "up" or "down" car.

The Otis Invention

With all this, the principle of the elevator is not new. As far back as 236 B.C. a lifting system for weights was used in Rome. But it remained for Elisha G. Otis to contribute the first truly major innovation in the science of vertical transportation. That was his invention, in 1852, of a safety device to prevent the car from falling if the hoist rope broke. Five years later he installed the first such passenger elevator in the United States. From then on the elevator was on its way toward becoming one of the principal means of transportation, both here and abroad.

There are now more than 240,500 elevators in the United States and 75,000 in foreign lands. New York City, as might be expected, leads with some 44,500. About 30,000 of these are passenger lifts and they convey 17.5 million people 125,000 miles daily. Many workers in New York and other large cities actually ride farther in a vertical direction than horizontally.

THE ATLANTIC REFINING building (right) in Dallas was the first to be equipped with electronically-controlled lifts that needed no attendants to run them.

Modern elevators are not only one of the chief means of travel, they also are the safest form of conveyance. Only one in every 45 million passengers is injured, making the odds about 100 million to 1 against injury in an elevator. Engineers believe that if passengers themselves would be more cautious, the odds could be raised to 680 million to 1.

Though used principally to convey people and freight in buildings, elevators also serve in many other capacities. They lift planes to the runways of aircraft carriers. They transport workers and equipment down into a variety of mines. In a carbarn in Washington, D. C., an elevator 40 feet long carries trolley cars up and down, and the large freight elevators in the Port of New York Authority Building lift 10-ton trucks. One of the latter elevators once was used as a banquet hall. Sixty-four diners were comfortably seated.

Sky's the Limit

Forced to get along with less personnel during the war years, a large company installed its "mail room" in one of its elevators. It found that the elevator, equipped with sorting cabinets, enabled two men to deliver mail twice as many times in a day as five men had formerly. Serving 15 floors, the makeshift "mail car" proved so efficient that it is now in its tenth year and still going strong.

"Where, sir, can you go in an elevator?"

Well, in more ways than one, the sky seems to be the limit. #



ETC 24423

Spotlight on

Without it our modern high-speed economy mi

GREASES are checked often during manufacture to insure uniformly high quality.



ONE MINUTE the jet fighter is taxiing down the runway of a desert air base. The next it's streaking through the far reaches of the "wide blue yonder." In no time at all, it has zoomed from scorching heat to freezing cold; from parching dryness to sub-zero humidity. Still, the plane responds instantly to the touch of the pilot's hand on the controls.

The almost unbelievable performance of modern airplanes is a tribute to the research, engineering and production genius of the aircraft industry. But it is a tribute also to a specialized branch of the petroleum industry. Even the most skillfully designed airplanes would soon fail under the severe conditions of flying if it weren't for modern lubricants. Without lubricating greases, their operating parts would quickly become a mass of crippled gears, cams, cables and bearings.

Though it is one of the more dramatic, aviation is by no means the only phase of everyday life where

lubrication is vital. Lubricating greases are essential in manufacturing, transportation, agriculture, national defense and in the home. They keep steel mills producing; automobiles and railroads rolling; farm, mining and construction equipment operating; the weapons of our armed forces at the ready; and domestic appliances at peak operating efficiency.

Without lubricating greases our economy would quickly grind to a sickening halt.

To the average citizen whose only contact with the product is at a service station, greases might not look very different from the sticky mess that was smeared on wagon axles almost a century ago. Actually there is a world of difference.

Modern greases are conceived in the research laboratory and produced in scientific manufacturing plants. There are literally hundreds of different kinds, each made according to exacting specifications. They are

GREASE

omy might grind to a halt

STEAM locomotives use grease in brick form.



formulated from different base materials, blended in special ways, and fortified with as many as four or five chemical additives.

Lubricating greases now made resist the pounding heat of rolling mills and the freezing cold of refrigerating plants. They withstand floods of water in paper-making machinery, fruit acids in canneries, and the ceaseless turning of railroad roller bearings. They resist rust, extreme pressure and oxidation. They adhere to constantly rubbing surfaces and yet spread readily.

Greases provide economical and efficient lubrication where it would be impractical or impossible to use oil.

The first "modern" lubricating grease was made from a mixture of lime-base soap and crude petroleum from the oil springs of Pennsylvania about 1845, some 14 years before Drake's discovery well came in. Grease of a non-petroleum variety, however, dates back at least to the 14th Century B.C. Egyptians of that era, it has



LUBRICANTS—as well as fuels—help "keep 'em flying."

been discovered, lubricated their chariot wheels with a mixture of animal fat and lime soap.

When petroleum greases came into use, and for many decades thereafter, grease-making became a closely-guarded craft. Skilled grease-makers mixed ingredients by feel, smell and even taste, and carried pet formulas around in their heads. These artisans produced greases that were adequate for their time perhaps, but there often were wide variations in quality and consistency from batch to batch.

In recent years science and technology have stepped in.

Grease materials now are weighed and measured by accurate instruments, and are blended in exact proportions according to the tested formulas. Processing times, temperatures, pressures and other controlling factors are regulated by precision devices.

One simple description of grease-making states that "grease begins with a fat, which is made into a metallic soap, that is mixed with a petroleum oil, resulting in a lubricating grease."

How Soaps Are Made

Actually, several types of soaps are used in making different greases. These include calcium and sodium soaps, which go into the more common types, and a variety of other metallic soaps including lead, aluminum, barium, lithium and strontium for more specialized lubricants. By a process known as "saponification," soaps are made by mixing these alkali metals in heated kettles with various fats such as animal, tallow, oleic acid, degreas, hydrogenated fats, naphthenic acids, or other fatty materials.

To the finished soap, lubricating oil and additives are added. They are mixed in a kettle equipped with mechanical agitators and the contents are worked con-

stantly to insure a uniform texture. As the process nears completion, frequent laboratory tests are made to assure the desired texture, consistency and other characteristics. Finally the finished product is pumped through filters and into containers.

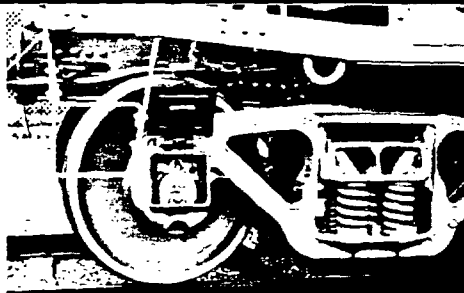
Lubricating greases of different consistencies, of course, are needed for different jobs. They range from solid brick greases used to lubricate the driving journals of huge steam locomotives to the almost fluid greases required in gear boxes.

Consistency is determined by the soaps and oils used, the processes by which ingredients are combined, and the additives included. To a large extent, it is the soap that supplies the framework or structure, gives grease its semi-solid body and determines the way it will perform its lubricating task.

The petroleum oils used in grease-making vary widely. Generally speaking, however, oils of relatively low viscosity are used in greases intended for high-speed or low-temperature operation, while heavier oils are needed where the grease is to be used under low-speed and high-temperature conditions.

Universal consistency or "hardness" classifications for greases have been established by the National Lubricating Grease Institute, a trade association of which some 95 percent of U.S. and Canadian grease-makers are members. These classifications provide uniform standards for grease manufacturers and consumers throughout the country.

In addition to establishing these standards, the Institute makes other contributions to the welfare of the industry. It acts as a clearing house for information on lubricating greases; promotes standardization of tests in the fields of grease manufacture and use; publishes



RAILROAD car roller bearings require specially-compounded greases.

data for manufacturers, marketers and consumers of grease; collects technical information; and endeavors to promote policies beneficial to the industry.

Petroleum grease has made tremendous strides in the last decade, largely as a result of World War II. Many of the then-existing greases were found to be inadequate for equipment developed in that war, and even better products were forthcoming. The war also pinpointed the need for the multi-purpose greases that could serve for several lubrication applications and cut down on the expense of large inventories of many similar products.

Recent Developments

One of the contributions of World War II was the lithium soap greases which were better able to remain plastic at low temperatures, stay put at high ones, and still give protection in high-speed operations. These led to some of the other metal soap greases that are successfully solving the complex lubrication problems of the Atomic Age.

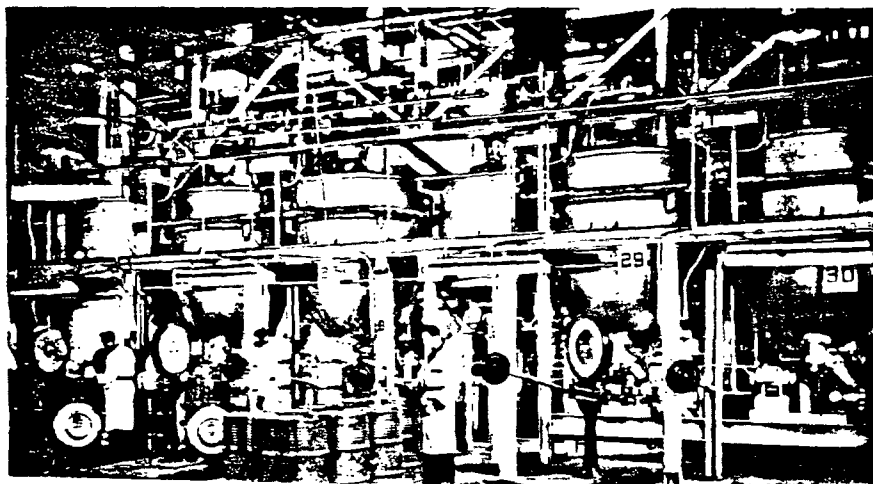
For the future, the new metal soap greases and greases containing synthetic non-soap gelling agents and even synthetic oils seem slated for more widespread use. At present, however, the high cost of the latter pretty much limits their use to the weapons and equipment of defense.

Truly, the grease-maker has become a partner in progress with the scientist, the engineer and the manufacturer. If his past performance is any indication, it's a safe bet that some day he will lubricate the rockets that speed us to the moon.

Why not? He already is supplying the grease for the jet planes that are breaking through the sound barrier and setting new altitude records. =

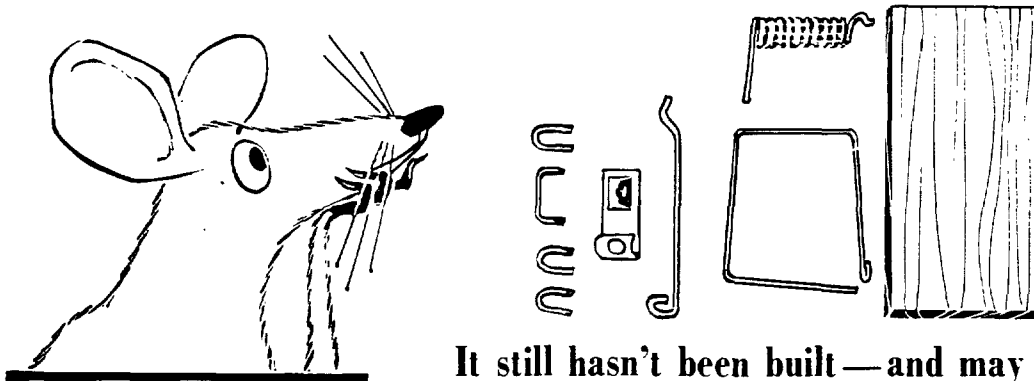
MODERN greases are manufactured in quantity under exacting conditions.

GREASE as the motorist best knows it.



ETC 24426

what better mousetrap?



It still hasn't been built—and may never be



ANYONE TOYING WITH the hope of building a better mousetrap that would cause the world to beat a path to his door would do well to give up the idea and try instead to develop a new type of battleship. The chances of success are just as good.

One strike (of the trap) is all the mouse gets. But budding better mousetrap inventors have two strikes on them. The double stymie is this: 1. Traps today are about as effective as they'll probably ever get. 2. Even if someone did come up with a superior device there would be no path-beating spree for the simple reason people already buy as many traps as they need.

When the man—it's generally agreed it was Ralph Waldo Emerson—spoke of the worn path to the creator's door that would follow the writing of a better book, the preaching of a better sermon or the building of a better mousetrap, he obviously was talking in generalities. But if you take him literally on the mousetrap prediction, poet Emerson does not qualify as an oracle.

By virtue of their long history of building better mousetraps and the fact that they are the world's largest manufacturers of these items, the Animal Trap Company people of Lititz, Pa., qualify as experts.

A week doesn't pass without Animal Trap receiving three or more letters beginning "Gentlemen: I have invented a better mousetrap." The range is wide. One trap submitted was in the shape of a boat almost two feet long. It was supposed to sell for \$5 (the usual retail price of the common mousetrap is two for 15 cents). Somehow the nautical-minded mouse boarded the boat and was carried down an elevator to a tunnel,

upon which a trap door then snapped shut behind him.

Animal Trap's experimental and engineering department specialists carefully study each "better mousetrap" sent in, but they can be excused if they fail to work up enthusiasm for any of the ideas. For, the basic design of the common mousetrap has gone virtually unchanged since the great-uncle of Chester M. Woolworth, president of Animal Trap Company, invented the first steel model about 130 years ago.

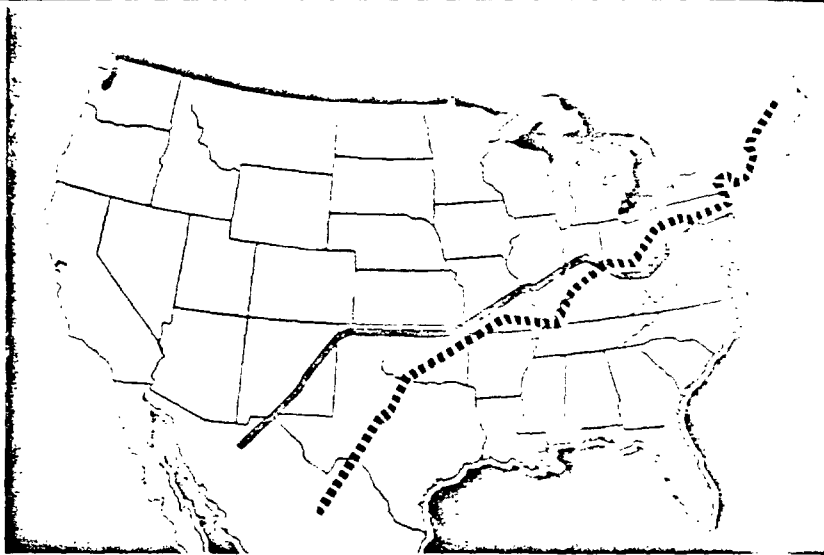
There have, of course, been improvements. One of the more recent is the roll bait pedal. With this, you just squeeze the bait into place without having to tie or "fit" it on the trap. Another comparatively new innovation is the automatic setting. This is a welcome device that prevents the spring from springing when the trap is being set, thereby greatly reducing the annual toll of cut, bruised and battered human fingers.

What It's Made Of

But basically the mousetrap today is the same as Grandpa set out to ensnare rodents of his era. It consists of a small block of wood (usually either poplar or pine), four metal parts that make up into the spring and spring-latch, and four staples to hold the latter in place on the wood base. Altogether, Animal Trap produces—at the rate of one every 12 seconds—a dozen styles of mouse and rat traps. With understandable pride, the manufacturer points out that these devices will do away with just about any kind of rodent.

If that adds up to a discouraging picture, would-be better mousetrap builders have one consolation. The rats and mice aren't happy with the situation either. #

THE MAP shows the division of the United States into two general, but distinct, speech areas. South of the blue line, for instance, "on" is pronounced *awn* and north of it *ahn*. South of the black line, "hurry" commonly is pronounced with the vowel of *hut*. People to the north use the vowel of *hurt*.



ACCENT on S

IN A MUSICAL MOVIE not too many years ago, the leading man and lady were at the point of calling off their romance because, for one thing, they disagreed on how to say words like *either*, *neither* and *tomato*.

Far from being a marriage counselor, Prof. C. K. Thomas of Cornell University nevertheless could have assured the distressed film lovers that that alone was no reason to break up their friendship. Pronunciations such as *eye-ther*, *nye-ther* and *to-mah-to* are as natural to and genuine with some people as *ee-ther*, *nee-ther* and *to-may-to* are to millions of others. It's all a matter of geography and certain other factors, Prof. Thomas points out.

This is no casual observation by Cornell's distinguished speech professor. For 20 years now he has been checking and studying the way Americans speak. Drawls, twangs and other similar mannerisms of speech he leaves to other researchers. His main interest lies in phonetics, the way people sound certain words—and why.

Prof. Thomas has a stockpile of 12,000 case studies of pronunciations from every state and about two-thirds of our 3,000-odd counties. Many of these speech samplings are preserved on tape recordings, and most of the interviewees are college students.

Each interviewee reads aloud a one-page script that includes key words like *horrid*, *rather*, *peninsula*, *sorry*, *greasy*, *surprised* and *chimney*. The recording then is skillfully analyzed by Prof. Thomas. He insists on processing each speech sample himself to avoid mis-

coding "by different pairs of ears." In spare time, he listens and re-listens and listens again to as many as 1,200 speech samples in a single year. After he has transcribed the critical words in phonetic symbols, he denotes on county maps of the United States how each word is spoken in that subdivision.

The professor does not attempt to "correct" the speech of the interviewees. He considers that impossible on the grounds that "the best American speech is the speech that is considered normal in the region where a person lives."

Pronunciation-wise, the nation is divided into two areas, coastal and inland. The line of demarcation starts in the Green Mountains, dips through Massachusetts, across the Hudson Valley, southwestward through Pennsylvania, down the Ohio Valley and on into Texas. This is but a general line. There are many deviations from it.

Horrid Example

The word *horrid* is an example. Most people in up-state New York, the Midwest and the West pronounce it *haw-rid*. In eastern New England, New York City, eastern Pennsylvania and the South, you hear *hah-rid*. Or take the word *on*. People north of a line running from New Jersey to Texas pronounce it *ahn*; those south of the line, *awn*. Another prime example is *greasy*. South of the Jersey-Texas line, it's pronounced to rhyme with *easy*. North of the line, the usual pronunciation matches *fleecy*.

Why do people in one section, even one county, speak words differently than people elsewhere? There are many reasons—ancestral background of the residents, local habits and the area's past communication, or lack of it, with other parts of the country.

This is why spotted throughout the country are what Prof. Thomas terms "speech islands." The most prominent of these, he says, is the Pittsburgh area, with its deep-rooted Quaker and Scotch-Irish background. There, a little girl plays with a *dawl* whereas it's a *doll* just about everywhere else in the country. Too, Pittsburghers notoriously pronounce *cot* and *caught* alike.

1 SPEECH

So far as phonetics go, a resident of the city might have "slept on a cot and cot cold," or "slept on a caught and caught cold" or even "slept on a caught and cot cold."

Another speech island discovered by Prof. Thomas lies in the extreme eastern part of North Carolina. Here, he has found, some pronunciations have been modified only slightly from those of 17th and 18th century England. But with the rapid advances being made in communications, he expects that the unique speech of this one-time isolated swampland area will soon fade out. The same fate seems to await the "mountain talk" of the deep Ozarks and the Great Smokies.

Seattle Like Pittsburgh

Other speech islands indicated, but not definitely established, are the Pacific Northwest and the Los Angeles area. Dr. Thomas does not yet have sufficient speech samples to classify the speech sounds of people in the states of Oregon and Washington, but does detect some pronunciations in Seattle similar to those of Pittsburgh. As for Los Angeles, it will be some time before a speech pattern is established there, due to the constant heavy population movement.

The professor also has a word to say about what has universally come to be known as "Brooklynese." Cold scientific data, unadulterated by the fact that he himself was born in the hometown of the baseball Dodgers, have led him to the conclusion that there is no such thing as a Brooklyn dialect. Throughout all New York City, and not Brooklyn alone, he contends, you will

PROF. THOMAS listens as a student interviewee records his reading of the script containing key words.



hear different-from-usual pronunciations of such words as *bird* and *turn*. People in New Orleans and several coastal areas of the United States do the same thing. Incidentally, Prof. Thomas notes, the New York-New Orleans pronunciations are not *boid* and *toin*, as supposed, but are more like *buh-eed* and *tuh-een*.

Which Is Right?

No one, unless he obviously is mispronouncing a word (like "git" for "get") should feel embarrassed or sensitive about what others may consider a unique pronunciation, Prof. Thomas feels.

Take four of the key words in the first sentence of the script that interviewees read for Dr. Thomas' speech files—*horrid*, *rather*, *desolate*, *forest*. Pronounce them *haw-rid* or *hah-rid*, *rather* to rhyme with *father* or to rhyme with *gather*, *des-olate* or *dez-olate*, *fahrest* or *fawrest*. Which is right and which is wrong, he asks.

"Think how dull it would be if we all looked the same, all lived in the same kind of houses and ate the same food, and all sounded like nationally-advertised products. American speech has color and variety. All the efforts of all the elocutionists and standard dictionaries in the world won't 'purify' it of that color and variety."

It is to preserve that bit of Americana dealing with speech habits that Prof. Thomas has devoted so much time and energy to his non-profit undertaking. Without his interest, we might be losing something that never could be recaptured. #

It's a HIT!

Ethyl advertisement painting selected to hang in Baseball Hall of Fame

IDEAL BASEBALL WEATHER blessed Philadelphia that October 9. The afternoon sun offered its early fall warmth and only an occasional billowy cloud interrupted the blue skies overhead. Twenty thousand partisan fans, settled in their seats in double-decked Shibe Park, were awaiting the umpire's wail of "Play ball" that would get the 1914 World Series under way.

Never before had there been a Series quite as dramatic as this. Connie Mack's hometown Athletics, with their fabulous "\$100,000 infield," were taking on the Boston Braves. No galaxy of stars such as studded the Philadelphia baseball firmament twinkled in the Braves' lineup. But the Bostons had written sports history with a miraculous rise to the National League pennant from the cellar position they occupied as late as July 4.

In just a few minutes the 1914 World Series would begin. But first, there was a ceremony on the field honoring Edward Trowbridge Collins, the Athletics' deluxe second baseman. Eddie Collins! There was a name that even then one could be sure would live as long as baseball was played.

Collins had been voted the Chalmers Award as his league's most valuable player. The award took its name from the fact that the recipient was presented a brand new Chalmers automobile. In Collins' case, it was a 1914 touring car with "genuine streamline" body.

As Manager Connie Mack and the rest of his teammates looked on, the man who ranks as one of baseball's most proficient batters, base runners and field captains modestly accepted his prize. A grin creasing his rugged face and his hands toying with his removed baseball cap. Collins posed by his new Chalmers for the benefit of news photographers.

The color and excitement of that historic moment in baseball was captured in an Ethyl Corporation advertisement that appeared in national magazines this past July.

Now, at the request of official baseballdom, the scene is to live on in the form of a permanent display piece at the National Baseball Hall of Fame and Museum. Hanging there, the original painting that was reproduced in the Ethyl advertisement will be seen by the more than 100,000 people who annually visit the Cooperstown, N. Y., sports shrine.

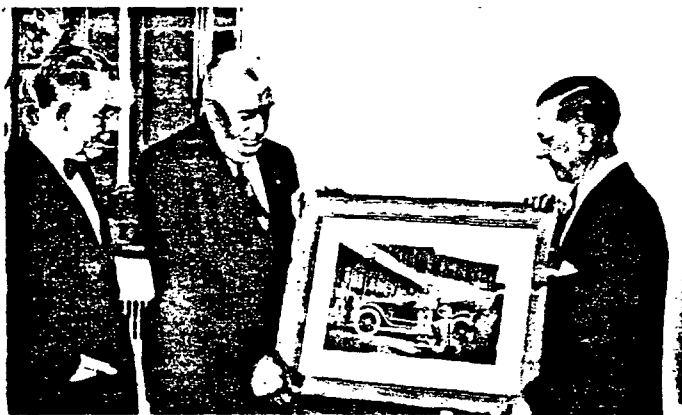
The painting, suitably framed and inscribed, was presented to the institution in a brief, informal ceremony at Cooperstown, scene of the first American baseball game 114 years ago. On the receiving end was Sid C. Keener, director of the Baseball Hall of Fame.

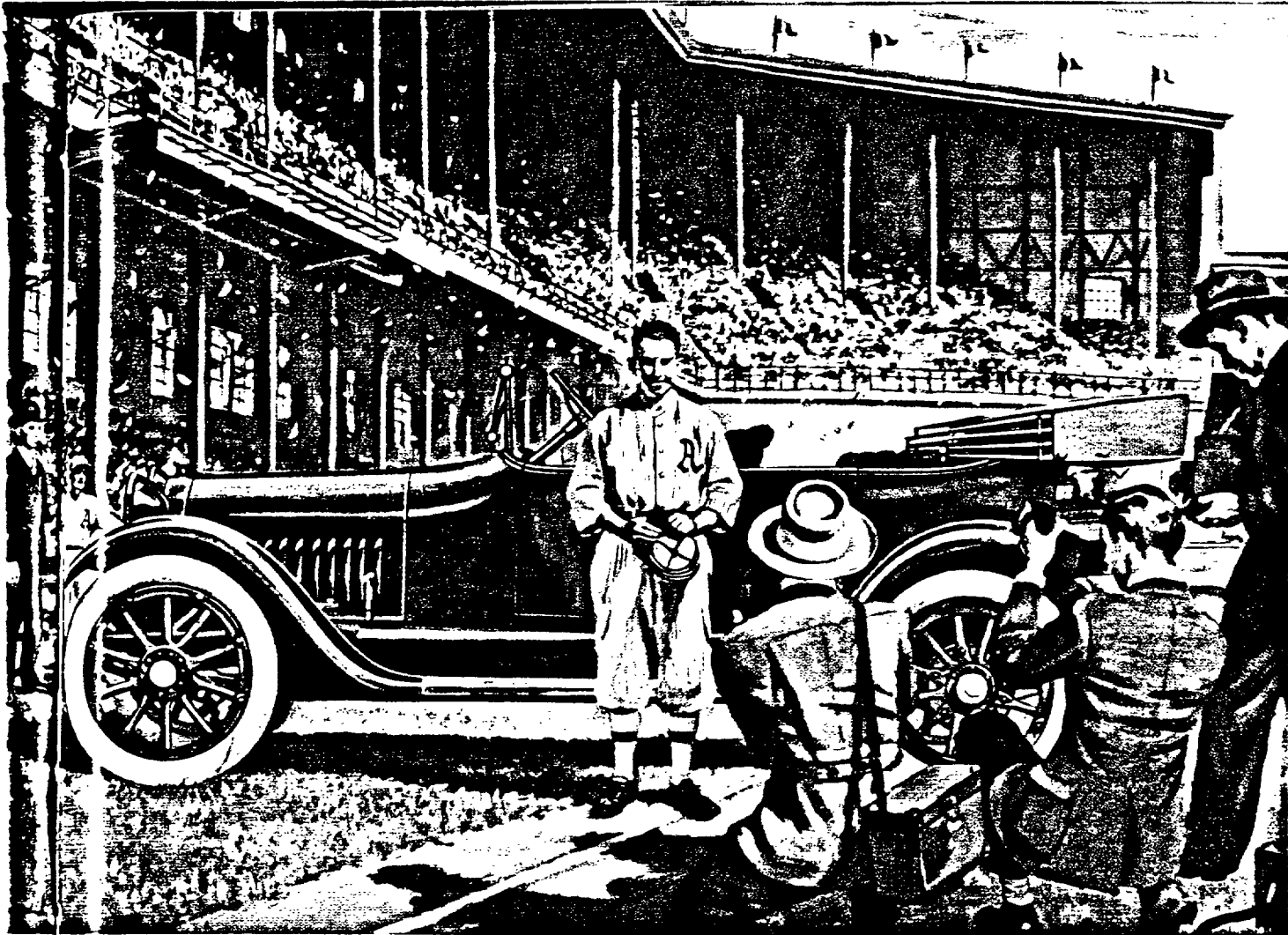
"We are deeply grateful to Ethyl Corporation for making this beautiful original painting available to us," Mr. Keener said. "Artist Raymond Prohaska has done a grand job in recapturing the spirit of the occasion."

The two Ethyl representatives who made the presentation were Harry A. Mack, manager of the Dayton (Ohio) district office, and Edwin J. Enoch, of the Advertising division in New York. Both men have a baseball background. During the 1930s, Mr. Mack was president and manager of the now-defunct Dayton Ducks, a Class C team. Mr. Enoch pitched against Eddie Collins in the old Delaware County (Pa.) League just before the latter advanced to the big time.

The advertisement in which the Eddie Collins painting was reproduced was the final one in the so-called

EDWIN ENOCH and Harry Mack, of Ethyl, present the painting to Sid Keener, Hall of Fame director.





Old Car campaign. These ads, featuring both old-time and modern automobiles, were built around the theme "Today as yesterday, cars run their best on the best gasoline." Designed as it was to help the oil industry in its marketing of premium gasoline, this campaign proved the most successful in Ethyl's magazine advertising history. It surpassed, in popularity and readership, even the well-remembered "Trade Marks of Nature" and "Powerful Difference" campaigns.

As with all Ethyl advertisements that depict actual events, this rendering was as authentic as fact research could make it. Scores of photographs of Connie Mack as he was in 1914 were studied to make sure his clothes and appearance were shown correctly. Shibe Park—now Connie Mack Stadium—had changed considerably since that time. To picture it properly, it was necessary to pore over plans and photos and talk with responsible people who remembered the field as it was 39 years ago. Special attention was paid to showing the players' uniforms and the press photographers' clothes exactly as they were in that pre-World War I era. Even the blue

stripes on the Athletics' baseball caps were counted to make certain the exact number was shown.

Ethyl naturally is proud that the Baseball Hall of Fame has selected the Eddie Collins painting—the first from an advertisement ever to hang in the institution—to go on permanent display for all Cooperstown visitors to see.

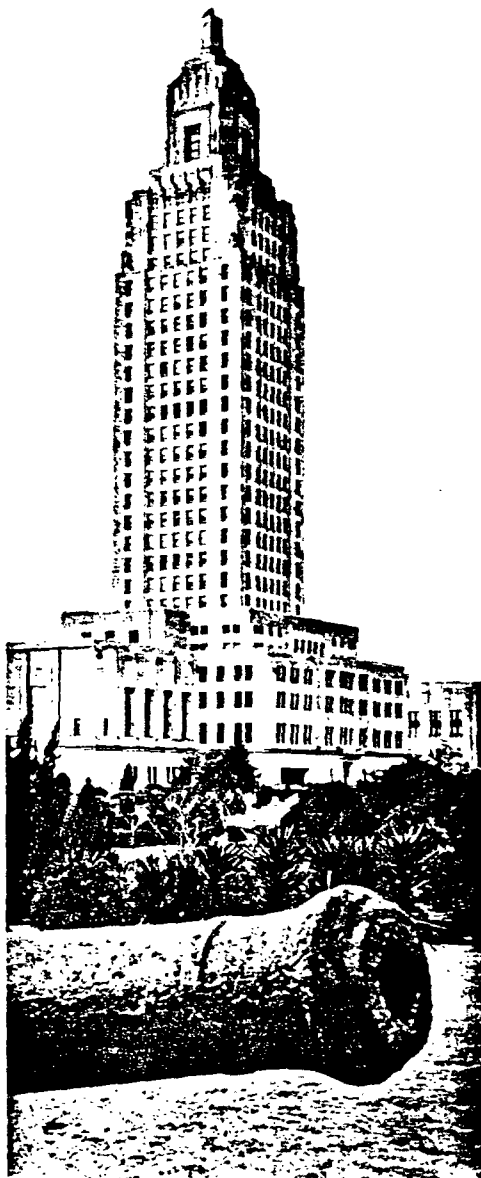
Just as sincerely (and without intending any partisanship), it regrets that the 1914 World Series, which began so auspiciously with the presentation of the most valuable player award to Collins, couldn't have had a happier ending for the Philadelphia rooters. The amazing Boston Braves, still riding the momentum that had carried them from the National League cellar to the pennant, took the Series in four straight games. Disappointed, Connie Mack broke up his Athletics, including the famous infield, and then had to wait until 1929 for his next pennant. Collins himself was involved in the player shift. He moved to the Chicago White Sox and starred with them from 1915 to 1926, when he rejoined the A's to finish out his playing career. #

CHIEF JUSTICE Marilyn Quinn swears in Ruth Knighton as governor of the Pelican Girls' State.



LOUISIANA's towering capitol is a symbol of state government for the teen-agers gathered in Baton Rouge.

Workshop



The Boys' and Girls' State program is instilling an interest in government in the youth of Louisiana

*By Edwin Price
Baton Rouge Morning Advocate*

IN LOUISIANA, where counties are called parishes and centuries of Old World tradition mingle with modern industrial progress, state government gets a unique twist every year.

Four different sets of officials hold office for a time each August. One, of course, is the duly-elected group who govern for the regulation four-year term. The other sets are pseudo-officials—young citizens of what are called Pelican Boys' State, Pelican Girls' State and Bayou Boys' State.

The patriotic Boys' and Girls' State program was created nationally by the American Legion nearly 20 years ago as a contribution to better government. It is designed to inculcate in youth the principles of democracy and to teach the workings of local and state governments. Because of its "learn by doing" approach,

ETC 24432



REAL-LIFE governor Robert Kennon addressing Staters.

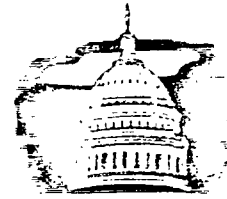


A CITIZEN of Pelican Boys' State ponders candidates in a voting machine booth.



BAYOU BOYS' STATE governor Archie Epps in his inaugural address.

for Democracy



that's exactly what it achieves. Sessions, lasting a week or more, usually are held in the capital cities of the various states of the Union. Boys and girls who take part are hand-picked on the basis of leadership and all-around ability. Those privileged to attend gain a greater understanding of American democracy at work than they could have in perhaps any other way.

Louisiana is not the originator of the State program—it started in Illinois in 1934. Now nearly every state in the country has such a program. But not many of them can match the political maneuverings of the teenagers from Louisiana, where politics is always right behind the weather as a popular topic of conversation.

Three Groups Unique

Louisiana is unique in having three groups. Louisiana State University at Baton Rouge is host to the Pelican Boys' and Girls' States. Southern University, also at Baton Rouge, is the scene of the Bayou Boys' State gathering.

Pelican Boys' State was the first of the groups organized—in 1940—and programs and activities of the other two closely follow it. The week-long schedule of each group includes speeches and lectures by prominent

officeholders and authorities in the fields of law and government. It also includes a complete pattern of government at work, re-enacted by the boys and girls themselves and climaxed by the election of teen-age officials who govern for a day.

Some 400 youths annually attend the three "states." Legion posts of Louisiana sponsor a majority of the participants, but many are privileged to attend because of financial support from business organizations. Ethyl Corporation is one of the industrial firms that make the program possible by sponsoring individual Boy and Girl Staters.

The campuses of Louisiana State and Southern Universities are transformed into mythical 49th states during the youths' stays. Staters are assigned to various "cities," and groups of cities comprise make-believe parishes. Pelican Boys' State names its cities for states of the Union, Pelican Girls' State for flowers and Bayou Boys' State for oil, sulphur, cotton and other Louisiana industries.

Upon arrival on campus, participants register to vote in one of two parties, the Federalists or Nationalists. In that respect, Staters have it all over their elders. They actually operate a two-party system—something,

it might be noted, that is just now having its beginnings in traditionally Democratic Louisiana. Not only have the young citizens mastered the two-party system before their parents, but also the voting machine. State-wide use of voting machines is being introduced in Louisiana only this year.

The teen-age politicians test their initial strength in city elections. Many a pack of gum is consumed at what in adult political circles would be called "smoke-filled rooms." Nominations are followed by intensive campaigning, with rallies, speeches and all the other usual pre-election activity.

Campaigning for state offices starts almost as soon as the young citizens arrive at the State site. Gubernatorial candidates organize their supporters early in their bids for the Federalist or Nationalist nominations. Party caucuses are held and platforms adopted.

Solid Platforms

Most of the platforms could bear serious study by the adult counterparts of the young candidates, for the ideas and principles formulated in the mock campaigns are not hastily written or expressed. They represent serious and constructive thinking on the part of the youngsters.

The greater number, and the planks on which the elections are usually decided, concern current state and local issues. Typical platforms in recent years have included stands on important questions like tidelands ownership, conservation of mineral resources, improvement of roads, taxation amendments, improvement of postal service and farm price supports.

How do the young people line up on issues generally? The trend has been almost unanimously right of center. Bills outlawing the Communist party have passed the Boys' and Girls' State legislatures.

The eve of the state election finds the Staters taxing their ample ingenuities to the fullest in staging demon-

strations for their candidates. As in real life, the divided factions of the primaries have closed ranks behind their ticket for the general election. Election Eve hoopla often outdoes the real thing. Brass bands, poster-toting paraders and oratory make the campus ring.

Adding a final touch of realism to the program, officials of the pseudo-state literally take over Louisiana's towering capitol building. The young governor occupies the executive chair and the House and Senate elected by the teen-agers convene in the capitol.

The rivalries of the campaign behind them, the Staters unite on city levels for the traditional march on the capitol building. Some type of uniform usually individualizes each city. Florida City's boys, for example, showed up in the parade this August wearing beach togs and sunglasses. The Susans of Girls' State poked their carefully made-up faces through the centers of enormous yellow cardboard flowers for a realistic portrayal of the flower for which their city was named.

Louisiana American Legion officials are responsible for actual operation of the States. But the title of "Mr. Boys' State" indisputably belongs to Dr. A. R. Choppin, dean of LSU's School of Chemistry and Physics. Dr. R. G. Higgins, head of the social science department at Southern University, is director of Bayou Boys' State.

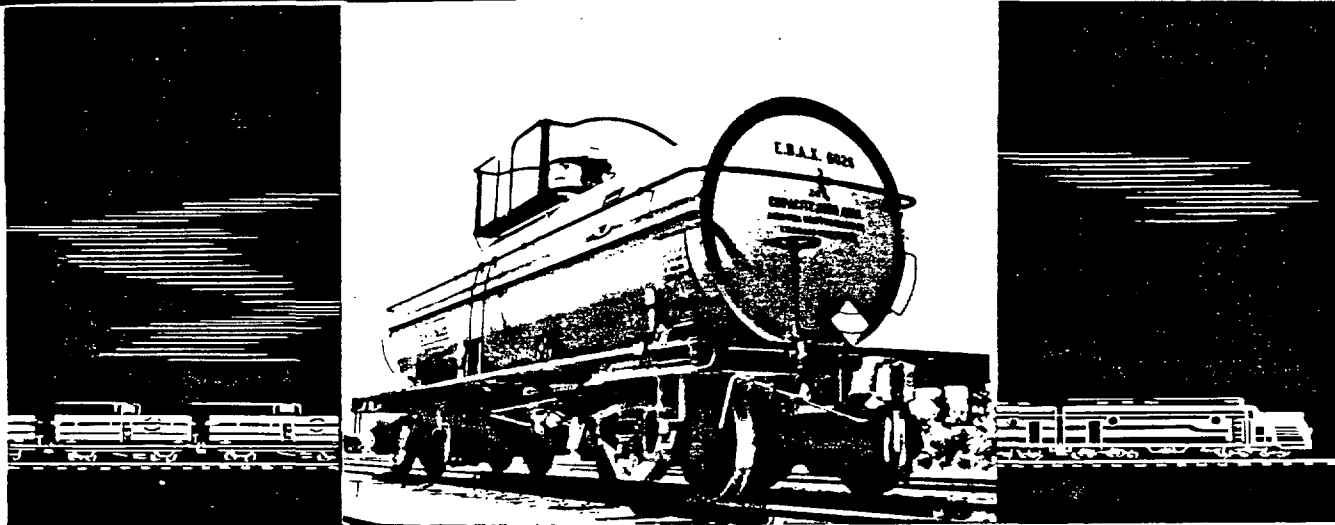
These men, together with hundreds of other Legionnaires at the state and local levels, are contributing their time and interest to Louisiana's three youth government projects in a highly-successful effort to educate citizens of tomorrow.

The youngsters who've been to Boys' and Girls' States may not pursue politics as a career, but Louisiana is richer by far because these young people understand their government, vote intelligently and think clearly on issues of the day.

It's a wonderful thing, all Louisiana is convinced, to have four governors. #



APPROPRIATELY clad in beach togs and sunglasses, the delegation from Florida City parades to the capitol.



Shipped via E.B.A.X.

Ethyl's tank car fleet speeds antiknock compounds to oil refiners

RIGHT THIS MOMENT, anyone probably could spot an E.B.A.X. on some stretch of trackage of each of the nation's major railroads. That's important to oil refiners and the gasoline-consuming public.

E.B.A.X. is the designation for the specially-constructed railroad tank cars that move the bulk of the huge quantities of "Ethyl" antiknock compounds required each year by the oil industry to produce modern octane-rich gasolines. The E in E.B.A.X. stands for "Ethyl," the B for Brand and the A for Antiknock. The X is a railroad symbol for cars that are privately owned, as all of Ethyl's are.

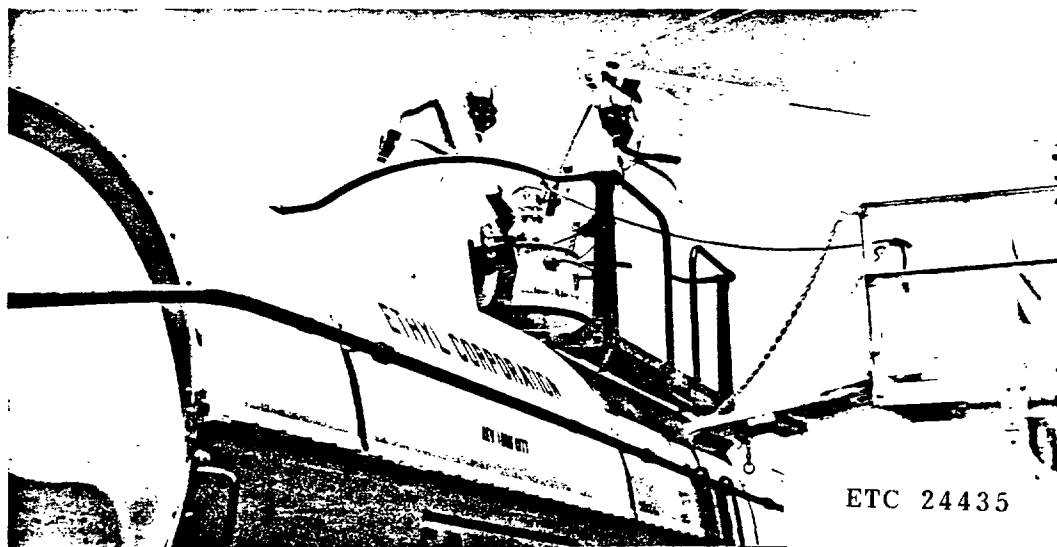
In step with the ever-increasing demand for the "Ethyl" fluid it transports, the E.B.A.X. fleet has

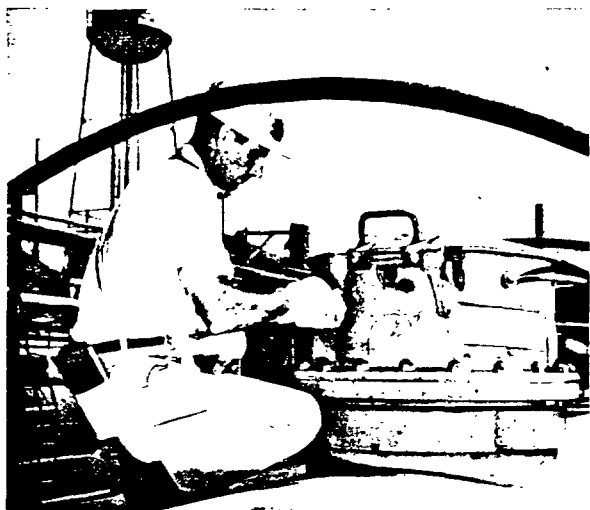
grown until it now is the largest of its kind by far. Every car in the fleet is owned and operated by Ethyl Corporation and is used exclusively for the shipment of "Ethyl" antiknock compounds.

Routing these carriers so they render the fastest, most satisfactory service to refiners, keeping track of their movement en route, and finally seeing to it that the cars are returned to an Ethyl Corporation shipping point after they have been emptied is more than just an everyday job for the Company's traffic specialists. It is a perfected art, backed by almost a quarter-century of experience in this field.

During that time, the Ethyl fleet has compiled an unsurpassable record of "on time" deliveries.

RAILROAD shipments originate at the Company's manufacturing plants at Baton Rouge and Houston, as well as at the field terminals on both seacoasts.





DOMES are carefully sealed after cars are loaded.

At all hours of the day and night, every day of the week, the silver-gray tank cars are bearing shipments of "Ethyl" antiknock compounds where they are needed—and when. Around the clock and the calendar, they travel the North American continent over, making deliveries in Canada and Mexico as well as in the United States. They range north to Moose Jaw, Calgary and Montreal, and south of the border to Tacuba and Tampico. They supply refiners up and down both U. S. coasts and across the 3,000 miles between. All in all, the fleet travels about 15 million miles yearly.

LOADED CARS are weighed on track scales that are tested daily to insure absolute accuracy.



Starting points for most tank car shipments are the Company's two manufacturing plants, at Baton Rouge and Houston. These locations are convenient to the great refineries of the mid-South, the Gulf Coast and the Southwest, and they also have ready and immediate access to the many far-reaching railroad systems of the nation.

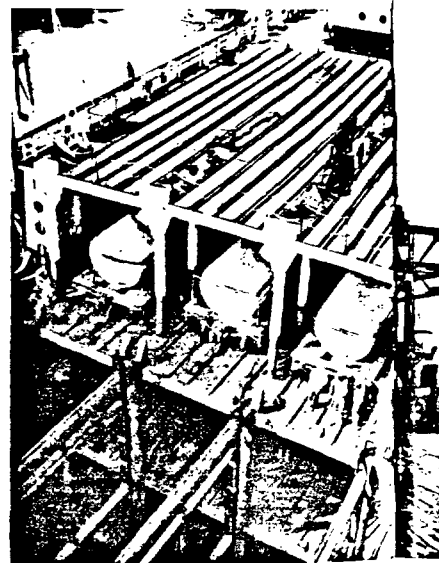
In addition to the plants, Ethyl's modern field storage terminals at Wilmington, California, and Edge Moor, Delaware, also serve as supply points for "Ethyl" fluid—making four locations in all from which refiners can be served quickly and effectively.

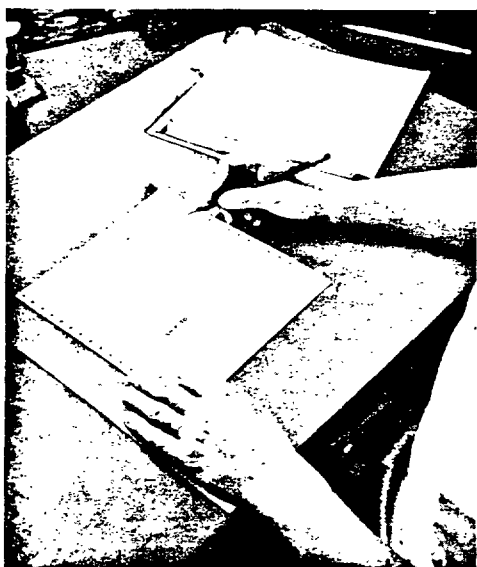
Leased Sidings

Still further, the Company maintains a number of leased sidings at strategic points throughout the country. Loaded cars stored on these sidings are ready to roll at a moment's notice and so serve as a handy reserve to meet any emergency situation.

Not only are the siding cars available for immediate dispatch, but Ethyl's traffic specialists can determine on short notice the exact whereabouts of any given car in transit. Thus, an urgent call from a refiner for a shipment of "Ethyl" fluid often can be honored also by intercepting cars en route. At the same time, because the Company has so many cars constantly on the move in all parts of the nation, and because of the reserve storage in cars on the leased sidings, the shipment to the original consignee goes through without delay.

SOME CARS destined for Eastern points go via seatrains.





A DETAILED record is kept of every shipment.

An interesting sidelight on the shipments is the manner in which tank cars sometimes are transported to the New York area from the Baton Rouge plant, in addition to regular railroad movement. This is a seatrain operation. In this, the carriers go part of the way by land and part by water. The journey from Baton Rouge to New Orleans is by rail, after which the tank cars are transferred to a vessel for transport to Edgewater, N. J. Once at this Eastern terminus, they complete their journey by rail.

Ethyl Corporation was the pioneer both in the design and use of tank cars for shipping antiknock com-

pounds. When it began transporting the product by rail in bulk, the tank cars of the day did not meet the Company's rigid specifications. So Ethyl designed a car that was up to these standards.

To assure the safe and complete delivery of all orders, every E.B.A.X. tank car is built to exacting specifications. The shell, or bottle, as the tank itself is called, is constructed of fusion-welded steel that is seven-eighths of an inch thick. Around this practically invulnerable casing is four inches of insulation, and around that is another layer of steel. A quarter-inch thick, this outer layer serves as a weather shield to protect the insulation. As a further safety measure, the tank has no bottom outlets. Loading and unloading is handled by vacuum through the dome. The tank is constructed to withstand up to 300 pounds of pressure. By comparison, most gasoline railroad tank cars, for instance, are tested for only 60 pounds of pressure.

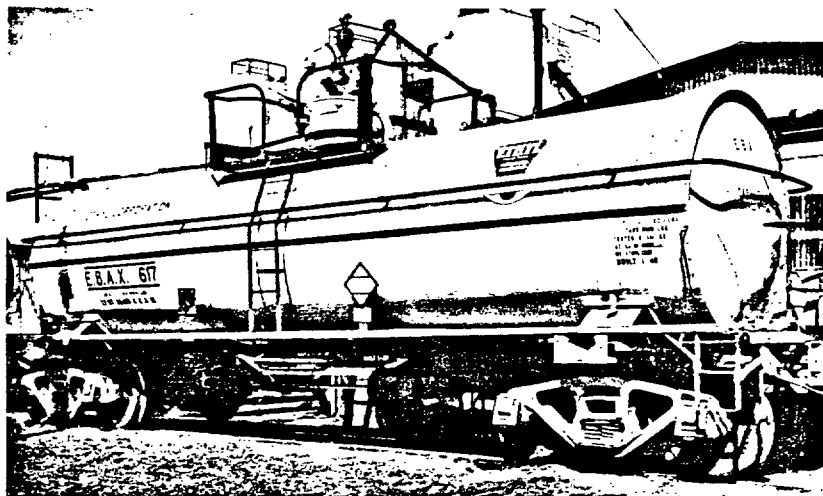
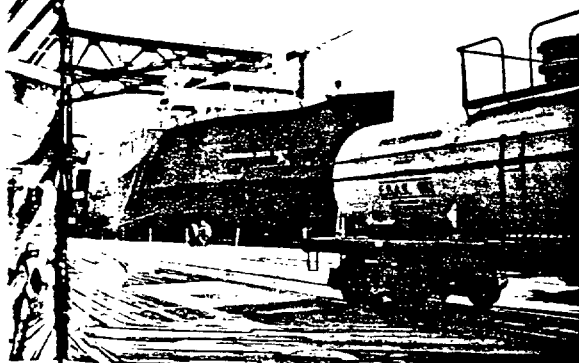
Other Special Cars

In addition to the fleet of "Ethyl" fluid tankers, the Company also owns and operates a fleet of other specially-designed tank cars. These transport to industrial users the sodium, ethyl chloride and chlorine which Ethyl also markets.

With the E.B.A.X. fleet as its backbone, Ethyl's equipment for distributing antiknock compounds and other chemical products assures refiners and other industrial consumers of deliveries that are fast, safe and dependable. #

REMOVED at Edgewater, New Jersey, the sea-going cars complete their journey by rail.

A TANK CAR is unloaded at its destination—in this case the Tide Water Associated Oil refinery at Bayonne.



Hot off t



TRIPLE-THREAT MAN

JUST AS SURE as it brings cool days, falling leaves and smoldering bonfires, autumn also ushers football onto the American scene.

That means many different things to many different people.

To coaches it means a period of face-burying in favorite crying towels.

To sportscasters it means the opportunity to remove from mothballs such specially-reserved words as *tertiary* and *oblate spheroid*.

To players it means training table fare and absolutely—but absolutely—no double malteds.

To housewives it means a futile Saturday-after-Saturday attempt to pry the men of the family away from television and radio sets to mow the lawn and/or put up the storm windows.

To our cartoonist—well, what can we say? You see the results here. #



ILLEGAL PASS



BOWL BID

f the Gridiron



FULLBACK



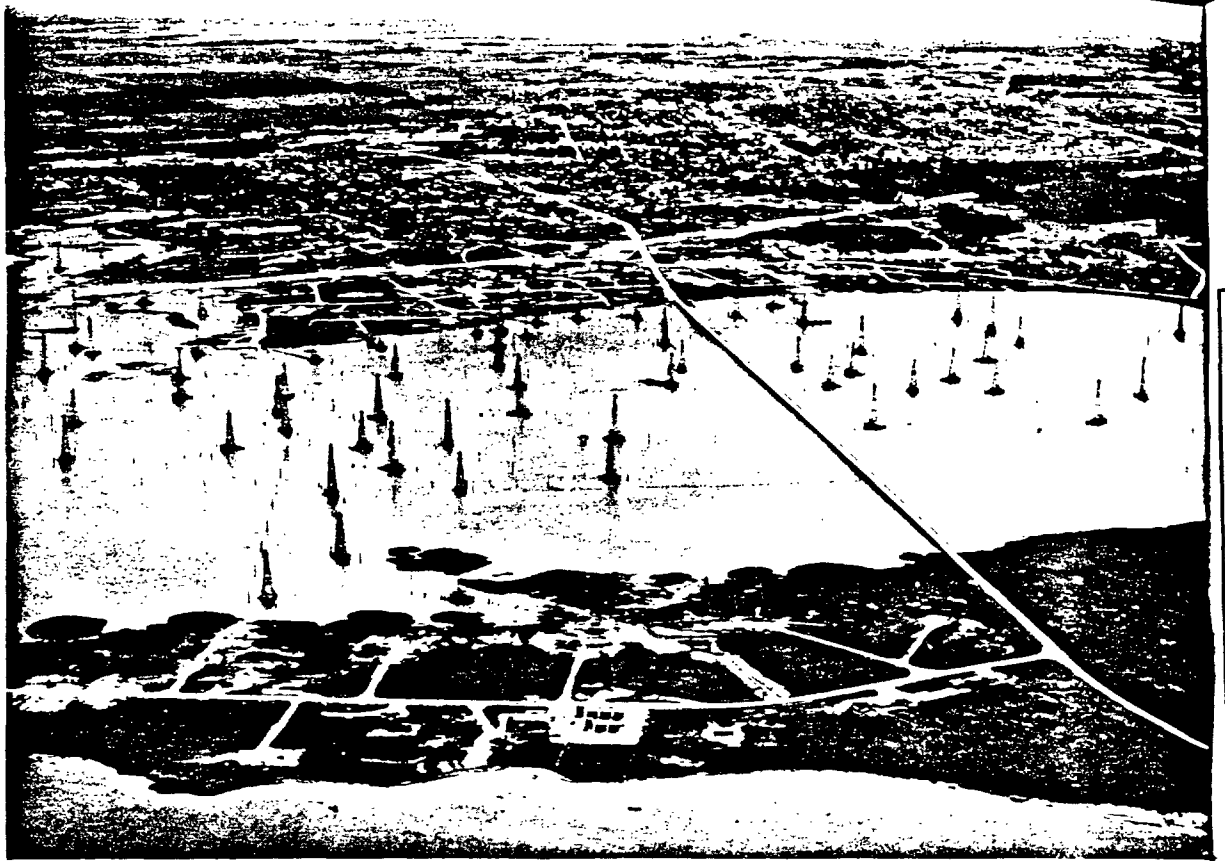
15 YARDS FOR CLIPPING



RECORD-BREAKING CROWD



HOMECOMING GAME



GOOSE CREEK, near Baytown, Texas, is one of the productive salt dome fields of the Gulf Coast.

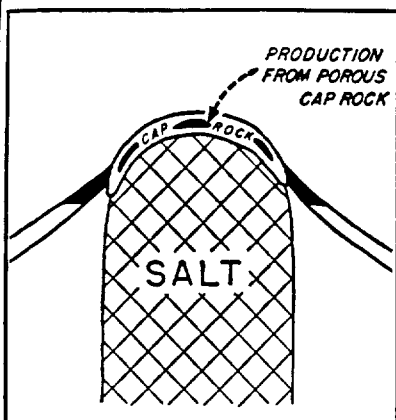
Domes of Destiny

By James A. Clark
Business Editor, The Houston Post

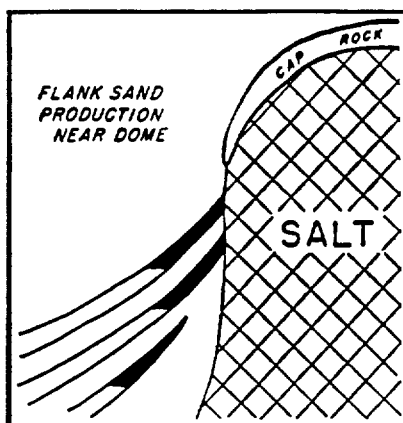
Underground rock salt
formations are a key to
future oil production

IF SOME GIANT bulldozer could scrape away the earth's surface along the Texas and Louisiana Gulf Coast from the Nueces River to the Mississippi, it would expose hundreds of huge grotesque formations of rock salt. Reaching upward like Gargantuan fingers from an immense subsurface bed estimated variously at from 1,500 feet to at least a mile thick, these great saline deposits truly are one of the most spectacular phenomena found in nature.

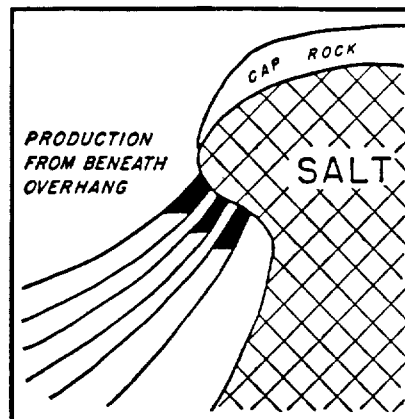
These are the famous Texas-Louisiana salt domes. No two of the domes are alike. Some are almost at the surface; others are deep-seated younger or stunted varieties. Some are round; some oblong; some have twin



1 The first stage of salt dome oil production was launched at Spindletop in 1901 when the Lucas drill tapped a shallow, porous cap rock.



2 In the second stage of dome production, oil was found in the prolific sands which were discovered on the immediate flanks of the domes.



3 The third stage is typified by oil-bearing sands which are reached by drilling through the cap rock and overhanging dome top.

tops. Some are a mile in diameter; others as much as five to ten miles.

Few of these great structures have ever been seen by man, but their existence is well known, particularly to the oil industry. They have yielded billions of barrels of oil and they are a key to oil reserves for the future.

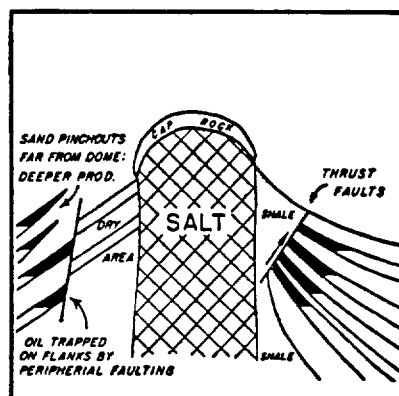
So important are they to coming generations that it has been predicted the salt domes still will be yielding when all other producing structures in the Gulf Coast have given up their last drop of oil.

Conclusive Evidence

Supporting evidence for this bright forecast is found in the domes' past performance. In more than 50 years of production, no salt dome field has ever been permanently abandoned.

The term "salt dome" may not have come into the oilman's vocabulary until long after Captain Lucas' gusher ushered in the liquid fuel age at Spindletop in 1901. But it was a salt dome that was responsible for that tremendous producer.

By following "Spindletop signs"—the slight elevations above the plains, the paraffin dirt, the gas seeps and the sulphur waters—the industry has found, over the years, such other productive fields as Jennings and Weeks Island in Louisiana, and Sour Lake, Batson, Pierce Junction and West Columbia in Texas.



4 The discovery of oil trapped in sand pinchouts farther from the dome than those previously tapped has started a fourth stage of production.

Before Spindletop, and for several years after, comparatively little was known about subsurface geological formations. Drillers had noticed slight showings of oil around the rock salt formations they had encountered in salt mining and sulphur explorations, but they knew nothing of salt domes themselves.

Now, through the use of modern geophysical instruments and calculations, much has been learned not only of the existence of salt domes but of their origin, size, shape and implications.

Geologists are generally agreed that the salt originated over 100 million years ago. In those times, they

think, the present Gulf Coast area was a hot arid country of shallow seas and parched earth. When water flowed in, it became supersaturated with salt and deposited this on the ocean floor. Eventually a thick salt bed was laid down before soil and rock moved in and covered it up.

Later various earth forces caused the salt bed to crack and buckle. It was at these weak spots that the domes started to form. In a plastic state, they moved slowly up through the overlying strata, most of them stopping within a few hundred feet of the earth's surface.

Geologically, there are three basic factors necessary for the occurrence of oil. First, there is the structure; then, good sand or reservoir conditions; and finally, evidence of oil accumulation or source beds of oil in the area. All three are important, but the most important is structure.

Traps for Oil

Salt domes form one of the most perfect traps for the oil that migrates through the sedimentary rocks or sands. Oil must have an impervious trap or an arched anticline against or into which it can accumulate. These traps are referred to as structures. Salt domes possess almost every type of structure known to petroleum geologists.

What the Lucas drill hit 1,020 feet in the earth at Spindletop was the honeycombed porous cap rock of a salt dome loaded with hundreds of thousands of barrels of oil. Since Spindletop, many other cap rocks have become big producers. Since then, too, other areas of salt dome formations have produced even greater quantities of oil.

For years drillers tried to find oil off the superdome structure, or cap rock. It was not until 1925, again at Spindletop, that the efforts were successful. There Miles Frank Yount found what others had long contended would be found—rich Miocene sands butting up against the dome structure and loaded with higher gravity oil than that found at the tops of domes.

This fruitful discovery touched off an entirely new stage of salt dome flank exploration that brought more oil than the original booms.

A third phase of salt dome production was uncovered at Barbers Hill, Texas, in 1930. An oil producing com-

pany drilled through the mushroom-like overhanging cap rock and salt of a dome and found highly-productive deposits beneath it.

As recently as last year, geologist Michel Halbouty drilled through a Jackson shale "wedge" at the Boling dome in Texas and found the younger Frio sands that normally were found above the older Jackson. This indicated that oil was trapped in sand pinchouts farther from the dome and deeper than those previously tapped. This discovery has started a fourth stage of production and one that may become as important as the first three.

Beyond their many past contributions to oil production and their promise for the future, salt domes are finding still another use in the industry. They are being hollowed out to serve as storage cavities for petroleum and its products.

The idea isn't entirely new. Liquid and gaseous petroleum products have been stored in salt strata in West Texas and Kansas for years, but recently domes have been found to be better for the purpose. Domes are nearer the surface and are thicker. They can be tapped anywhere up and down their height, and there is less danger of cave-ins.

Preventing Collapse

Storage cavities are fashioned by pumping fresh water into a hole drilled in the dome to dissolve the salt. The resulting salt water is pumped out and stored in pits above the ground when it is time to put the oil product in the underground storage tank. When needed, the product is removed by water flooding, pumping or jetting with gas. The hole then is refilled with water to support the walls and the roof of the cavity and thus prevent a cave-in.

Although this new use for salt domes is significant, their primary importance remains in the field of oil production. They are a major source of oil for the future. Eventually, it is anticipated, almost every dome will yield oil in commercial quantities, if properly tested. Many of those that already have produced can be expected to stage a comeback sometime in the future when the driller's bit strikes some of their hitherto untapped structures.

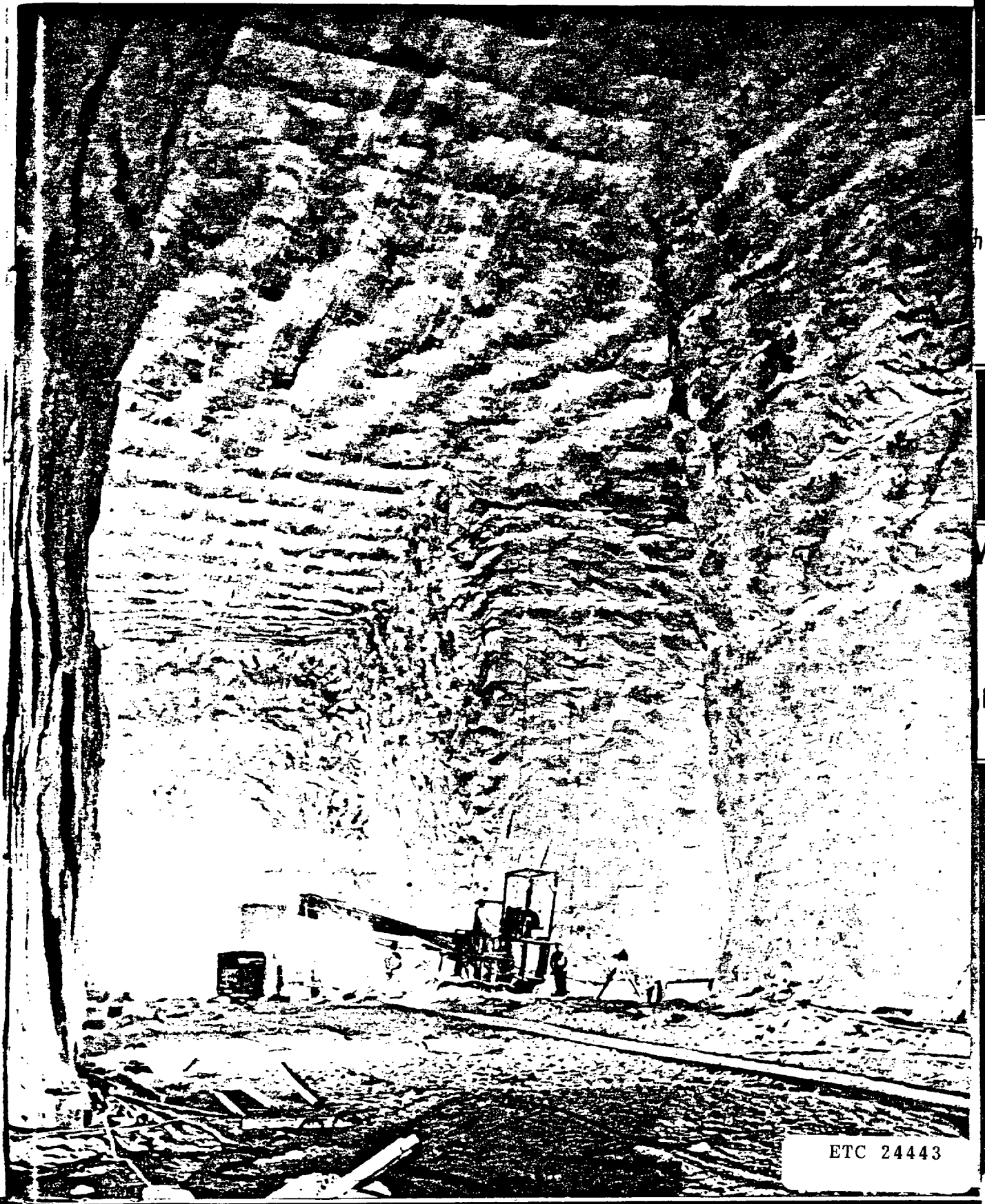
The unusual formations that are salt domes are endowed, it seems, with everlasting life. #

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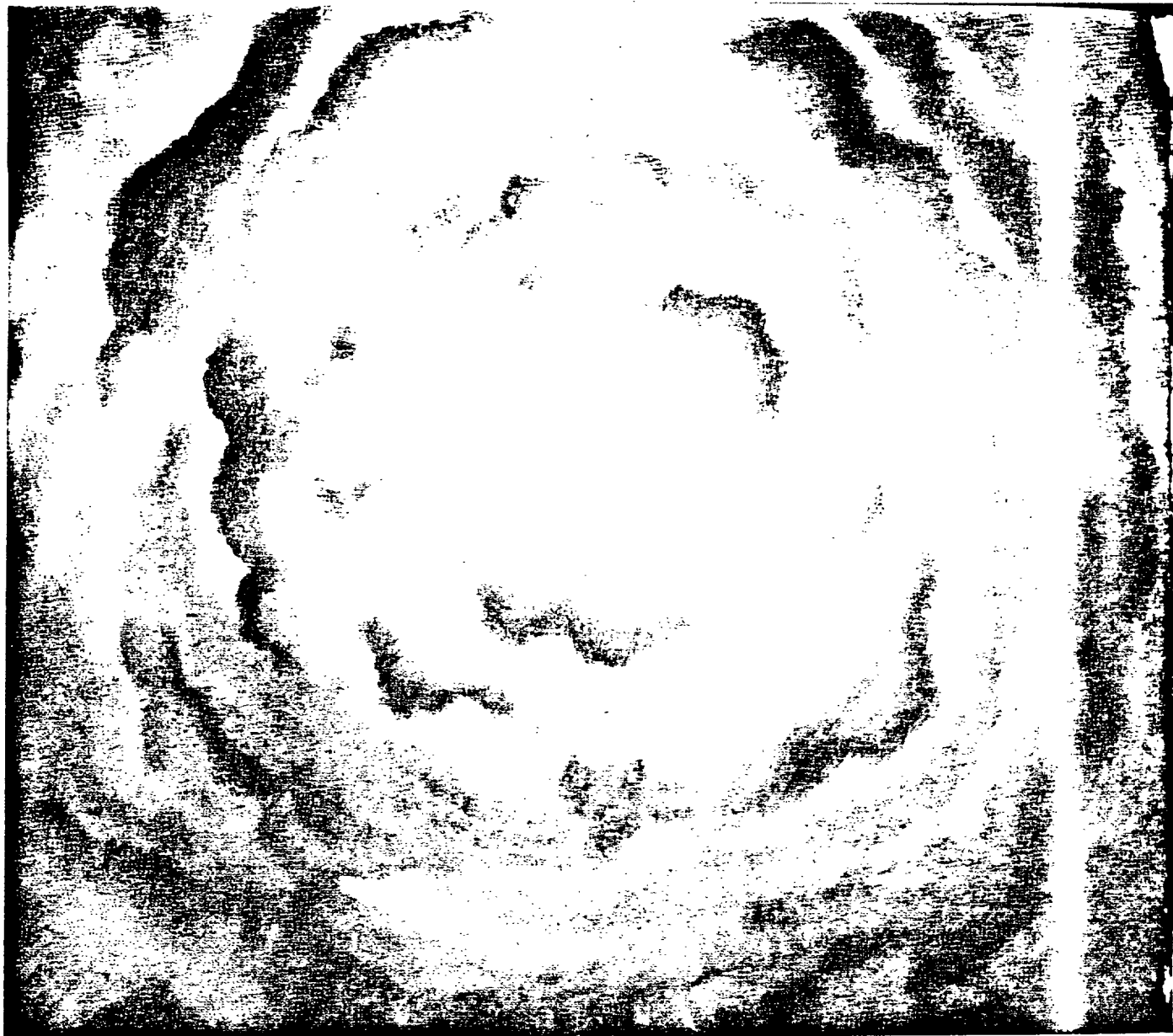
Company; page 10 (top), courtesy Timken Roller Bearing Company, and (bottom left), courtesy Socony-Vacuum Oil Company; page 13, Fenner Studio; page 14, Pete Hollis; page 21 (bottom right), courtesy Tide Water Associated Oil Company; pages 22 and 23, cartoons by King-Weiler; page 24, Jack F. Laws; page 25, sketches courtesy *The Houston Post*; inside back cover, courtesy Shell Oil Company.

Domes of Destiny

THIS VIEW of salt mining operations inside the mammoth Weeks Island dome, in the Louisiana marshes, gives some idea of the size of the huge formations.



ETC 24443



The burning question

What happens when a charge of gasoline vapor is ignited in an automobile engine? What chemical compounds are formed and broken down, what complicated reactions take place as atoms and molecules perform their dance of heat and pressure and power?

Today nobody truly knows. But until this "burning" question is answered, there is an inevitable ceiling on improvements in fuels and engine design. So research laboratories all over America are hard at work on the problems of combustion.

At Ethyl's Detroit laboratories a team of chemists and engineers have specialized on this basic research in combustion for a number of years. In their attacks on the problem, they have developed special instruments for measuring pressures and temperature—and for sampling

of the mixture in the cylinder. They have devised new types of laboratory tests, and already many new facts have been obtained—which we have passed along to the petroleum and automotive industries.

Also, because of Ethyl's unique association with the petroleum and automotive industries, we have been able to participate in cooperative programs with both of them. For here is a problem—or rather a collection of problems—that is a match for the combined efforts of a vast number of researchers.

Someday we will all know what goes on during combustion. It is a dream worth working for. But until that day comes, Ethyl laboratories will continue its intensive research on "the burning question," and supply you the answers as they are found.

ETHYL NEWS



ANNUAL
MEETING
ISSUE

NOVEMBER
DECEMBER 1953

ETC 24445

ETHYL NEWS

Thom Yates, Editor

Richard F. Cook, Associate Editor

AMERICAN PETROLEUM INSTITUTE ANNUAL MEETING ISSUE

NOVEMBER-DECEMBER 1953

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Edward L. Shea, President

Stanley T. Crossland, Vice President and Treasurer

Herbert A. Savage, Secretary

ROOM 1

2:00 P.M.

Personnel Training Committee
(Marketing)

PRIVATE DINING ROOM 6

9:00 A.M.

Subcommittee on Instruments

4:00 P.M.

Advisory Committee, Division of Refining

SOUTH BALLROOM

10:00 A.M.

Group Session—
Financial and Accounting

2:00 P.M.

Group Session
Financial and Accounting

CRYSTAL BALLROOM

12:30 P.M.—

LUNCHEON
SPEAKER
(TRANSFERRING)

NORTH ASSEMBLY ROOM

12:30 P.M.

Public Relations Committee of Board
(LUNCHEON)

ETC 24446

PRIVATE DINING ROOM 4

9:00 A.M.

Committee on First Aid

2:00 P.M.

Committee on Visual Aids

UPPER TOWER

9:00 A.M.

Service Station

Advis

NORTH BALLROOM

9:30 A.M.

Group Session-Fundamental Research

1:30 P.M.

Group Session-Refining

GRAND BALLROOM

9:30 A.M.

General Session

2:00 P.M.

Group Session-Production

RED LACQUER ROOM

9:00 a.m.: CENTRAL COMMITTEE ON
PIPE-LINE TRANSPORTATION

10:45 p.m.: GROUP SESSION -
PIPE-LINE SYMPOSIUM

2:00 p.m.: GROUP SESSION -

WEST BALLROOM

9:00 A.M.

Committee on Petroleum Products

2:00 P.M.

Automotive Research Committee

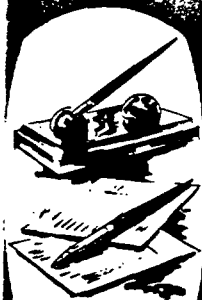
Illustration of Rotary Drilling Fil
ing Course

Although its attendance fell slightly short of the all-time record set last year, the 33rd annual meeting of the American Petroleum Institute, held in Chicago during the week of November 8, was on all counts one of the most successful in API history. Oilmen at the gathering heard a number of outstanding talks, reached many important decisions and accomplished a prodigious amount of work. Purpose of the annual meeting, by API definition, is "to advance the arts and sciences of the petroleum industry as a whole, and to promote petroleum technology for the benefit of petroleum and the people." Certainly the 1953 meeting accomplished this aim. ¶ The fruitful achievements of this year's annual meeting were attained, as always, in open sessions and committee meetings by representatives of companies in every segment of the industry. Men of every level shared in the common effort—from the API board of directors with its some 125 oil company presidents included to the smallest group with men new in the industry among its members. ¶ It has been the privilege and pleasure of ETHYL NEWS to report each annual gathering since 1946—not by the written word, but by hundreds of formal and candid photographs. We sincerely hope that all who attended the Chicago sessions, as well as all others interested in the petroleum industry, will find captured in this 1953 pictorial report some of the flavor and tone of another great annual meeting of the American Petroleum Institute.

THE EDITORS

ETC 24447

Signing In



Backed by a "Welcome Oilmen" sign, this miniature display in a Michigan Avenue showroom window is inspected by D. W. Turner and R. W. Stenzel, both of Petrolite.

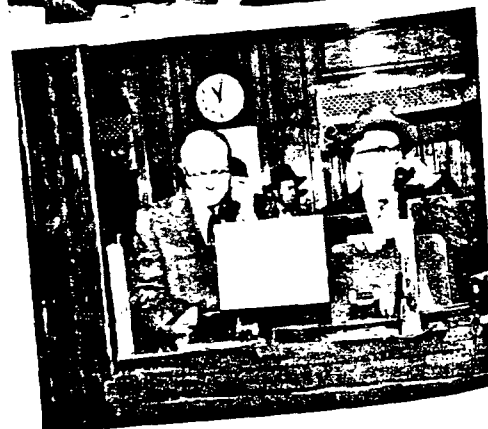
Early registrants included this trio—J. B. Rogerson and John H. Gray, both of Lion Oil, and George A. Duncan, of Waukesha Motor Co. First and second-day registration was heavy but no annual meeting attendance record was set.



Right, L. G. Murrell, of Wilcox Oil, and W. A. Rooney, of Continental Can. . . . At bottom right are P. R. Bush, of Taylor Forge, and M. C. Enright, of Gulf Oil.

OFFICIAL ATTENDANCE at this year's annual meeting of the American Petroleum Institute zoomed total registration of the 33 annual meetings held thus far to over the 93,000 mark, but was 45 short of equalling the all-time record set in 1952. The 1953 meeting attracted 6,348 registrants.

Headquarters for this, the 22nd annual meeting held in Chicago, was the Conrad Hilton Hotel, with the Institute's Transportation division again housed in the Palmer House. For the statistically-minded, the API figured out that the Hilton, world's largest hotel, if converted into a mammoth storage tank, would hold only enough oil to supply the nation for about 10 hours.





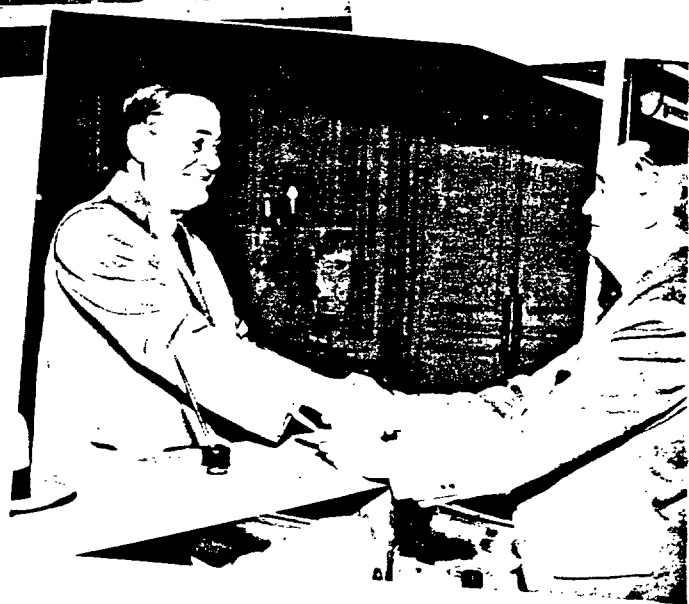
Left, W. C. Whaley, president of Sunray Oil, and Luther Williams, of the same company, approaching an entrance to the Conrad Hilton.

Signing In



Left, E. Q. Camp, of Humble Oil & Refining, was the first person to register at the thirty-third annual meeting.

John Woodruff, University of Texas petroleum instructor, fills in a card.



Comer Plummer, a Pure Oil director, is greeted at the registration desk by J. A. McNally, of the API staff. Mr. Plummer was the last official registrant at this year's annual meeting.



Above left, S. T. Pruitt, of Ethyl Corporation, greets George Woodruff, Globe Oil & Refining secretary-treasurer. . . . Left, Fred F. Murray, president of Oil Well Supply, watches while Doris Whiteside, secretary to Secretary of the Navy Robert B. Anderson, signs in.



Signing In



Enjoying the Sunday papers are C. A. Chipman, president of the Pennsylvania Grade Crude Oil Association, and T. L. Cantrell, of Gulf Oil.



Above, J. H. Hall, of Barber Oil Corp.; R. V. Whetsel, of Cities Service Co.; and H. W. Haight, executive vice president of Creole Petroleum.



J. F. Ryan, of Chicago, studies pictures of speakers to be heard at various meeting sessions.

Below, waiting for their luggage in the Conrad Hilton lobby are E. L. Clark, of the Walworth Co., and E. D. Propps, of Rockwell Manufacturing.



Left, pictured soon after they had deplaned at Chicago's Midway Airport after a flight from Los Angeles are L. L. Jones, of Cooper Bessemer, and L. W. Friedman, of Mohawk Petroleum.



Left, Jack Levering, vice president and general manager of Onyx Refining, scans the annual meeting program.

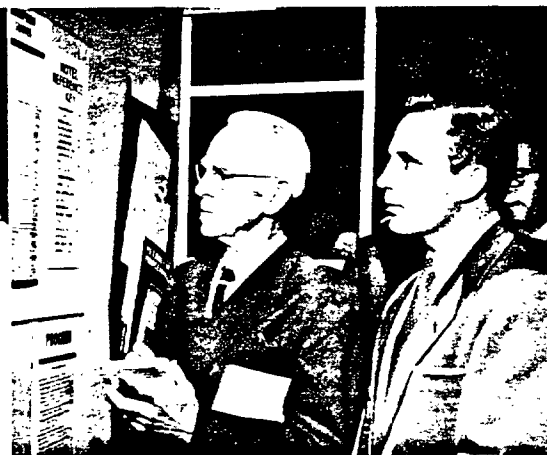
Signing In



Right, E. M. Morrison, Jr., Royal Petroleum vice president; F. J. Blume, Rheem Manufacturing; and R. L. Reeves, also of Royal, were among those from New York who flew out to the Windy City.



Robert G. Dunlop, president of Sun Oil, is greeted by George H. Hill, Jr., a vice president of Cities Service Company.



T. M. Murphy, of Daugherty Refining, and O. H. Berry, Jr., of Vickers, check the registration board.



Hall Stewart, vice president of Prairie States Oil and Grease; L. A. Stewart, president of the same company; and C. W. Ephgrave, vice president of Carson Petroleum, pick up attendance lists.

ETC 24451

Ist General Session



Part of the large audience that filled the Grand Ballroom for the Wednesday morning General Session. . . . Right, speakers included API President Frank M. Porter, who reported on the API's activities; John J. McCloy, board chairman of The Chase National Bank, of New York, who spoke on conditions in Europe; and Gov. Johnston Murray, of Oklahoma, who traced the history and success of the Interstate Oil Compact Commission.



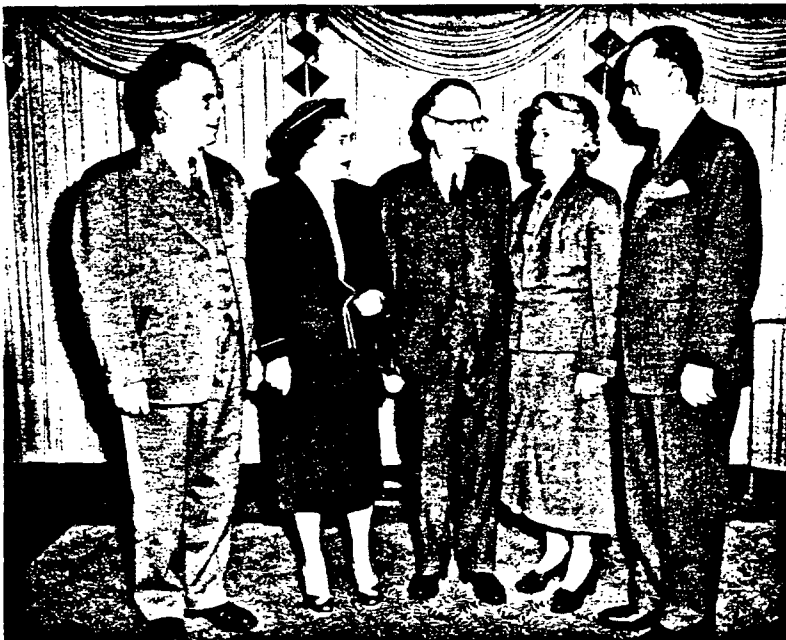
RETIRING API Board Chairman L. S. Wescoat, president of The Pure Oil Company, presided over the two general sessions held in the Conrad Hilton's Grand Ballroom. At the first, Mr. Wescoat presented the report of the Institute's board of councillors, whose slate of candidates for API officers and directors was approved. Frank Porter delivered the president's report.

In a review of his recent four-week trip through Europe, John J. McCloy, former U.S. High Commissioner for Germany, declared that the time has come in the political and economic life of this country for the formation of international and domestic policies which will bring the free peoples of the world closer together. Following Mr. McCloy's remarks, Gov. Johnston Murray, of Oklahoma, final speaker on the program, praised the Interstate Oil Compact Commission as an outstanding demonstration of intergovernmental cooperation among states that has done a tremendous job of conserving oil and gas.



1st General Session

Left, L. S. Wescoat presents the Gold Medal for Distinguished Achievement and accompanying scroll to O. D. Donnell, retired Ohio Oil Company executive. . . . Below, in this family group at the presentation ceremony are John R. Donnell, Ohio Oil treasurer and one of Mr. Donnell's sons; Mrs. John R. Donnell; O. D. Donnell; Mrs. O. D. Donnell; and J. C. Donnell II, president of The Ohio Oil Company, another son.



Below, in recognition of the part she has played in her husband's success over the years, Mrs. O. D. Donnell was presented with a bouquet of roses. Roxy Dowling, of the API, is shown handing the flowers to Mrs. Donnell.



PRESENTATION of the API Gold Medal for Distinguished Achievement to Otto D. Donnell, retired president of The Ohio Oil Company and one of the founders of the American Petroleum Institute, by L. S. Wescoat, chairman of the API board of directors, was a feature of the 1st General Session. The Gold Medal, one of the nation's top industrial awards, was given to Mr. Donnell in recognition of his outstanding career, spanning nearly a half-century, which has been dedicated unselfishly to the advancement of his industry, his government, and his fellow-Americans.

In his acceptance remarks, Mr. Donnell paid tribute to the early oil pioneers for building an industry which was both aggressive and volatile. He credited his own generation with two major accomplishments: introducing science and research, and fighting for and obtaining state conservation regulatory bodies rather than federal authority. Mr. Donnell called on the industry to look to the future in addition to recognizing the great accomplishments of the past.

1st General Session



Top right, John B. Noble, of Standard of Ohio, points out an Ethyl "dollar" advertisement to R. T. Schwartz, of Sohio Pipe Line. . . . Above, Oliver S. Ambrose, of Tide Water Associated, chats with Fred Van Covern, of the API.

Top left, at a breakfast before the First General Session, Gov. Johnston Murray, of Oklahoma, commissioned four oilmen honorary colonels on his staff. Flanking the Governor and holding their commissions are R. A. Douglass, of Ethyl; Adm. H. B. Miller, of the API; Frank Porter, API president; and Russell Karns, of Stanolind Oil and Gas. . . . Left center, E. S. Holt, president, and L. B. Taylor and F. R. Clark, vice presidents, all of Utah Oil Refining. . . . Left, D. W. Grant, Pennzoil vice president; R. J. Brown, of his own company; A. W. Clinger, another Pennzoil vice president; and F. P. Thomas, president of Petroleum Solvents.



Seated at the speakers' table at the 2nd General Session were Lacey Walker, secretary of the API; P. C. Spencer, new API board chairman; and L. S. Wescoat, retiring board chairman.



At the other side of the rostrum were Frank M. Porter, re-elected president of the API; Douglas McKay, Secretary of the Interior; and Lewis W. Douglas, chairman of The Mutual Life Insurance Co.

2nd General Session



EXCEPT for a few miscellaneous committee meetings that followed, the 2nd General Session on Thursday morning was the last official gathering of the 33rd annual meeting. Highlights of the session were addresses by P. C. Spencer, president of Sinclair Oil Corp.; Lewis W. Douglas, chairman of the board, The Mutual Life Insurance Co.; and Douglas McKay, Secretary of the Interior.

In his talk, Mr. Spencer called for changes in anti-trust laws so they will be geared to modern-day realities. He also urged a revision of the nation's foreign policy with respect to oil

activities of United States nationals abroad.

Lewis Douglas, former ambassador to Great Britain, spoke out in favor of steps toward convertible currencies in order to remove a "steel curtain" interfering with the normal flow of world commerce.

Interior Secretary McKay declared that he sees "no need, no excuse, for any government dictation" to the oil industry on the imports problem or any other problem. Mr. McKay pointed out that in strengthening the defense of friendly foreign nations, this country had to encourage the expansion of free-world foreign oil.

2nd General Session



Above, in the large audience at the General Session were Reynolds Girdler, of Sinclair Oil; F. A. Bush, vice president of Sinclair Oil & Gas; and Brown L. Meece, vice president of Sinclair Refining.

Many members of the military attended the meeting. Here, Brig. Gen. Alfred H. Johnson and Lt. Col. J. H. Baughn, both of the Office of the Secretary of Defense, scan a magazine before start of the General Session.



Above, among those at the General Session were Antonio J. Bermudez, director general of Petroleos Mexicanos (Pemex), and J. Howard Pew, Sun Oil board member.

Below, part of the gathering filing out of the Grand Ballroom after the General Session, last scheduled event for the API membership at large. . . . Bottom, H. J. Dunmire and B. L. Heath, vice presidents of Valvoline Oil, and Gelston Howell, of Ethyl Corporation.



ETC 24456

A scene familiar to all who attend the API annual meeting is the ever-crowded lobby at the main entrance to the Hilton hotel. . . . Below, in a corridor conversation are H. E. Butcher, of Cities Service Oil, and William R. Boyd, Jr., former president of the API. . . . Below right, a huddle of J. H. Yater, of Esso Standard Oil; W. W. Albright, of Standard of Indiana; and G. A. Olsen, president of Sunland Refining.

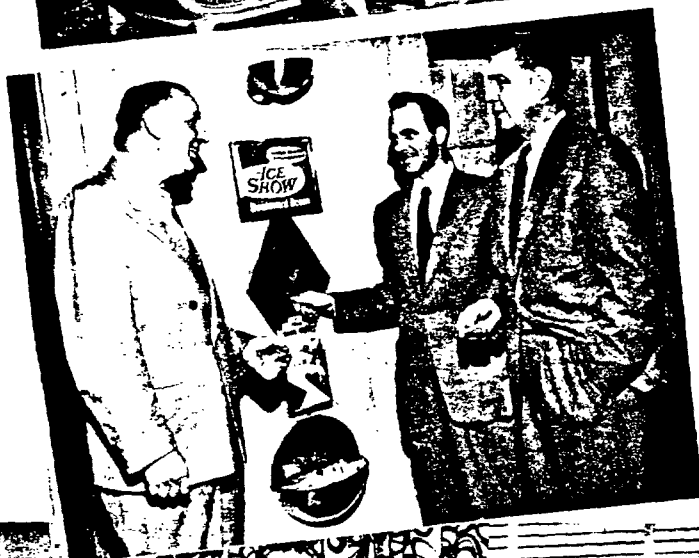


Right, S. P. Gildersleeve, vice president of Penola Oil; Joseph Joiner, Jr., executive vice president of Maritime Petroleum; and John J. Walsh, of Penola Oil.

Camera Candida

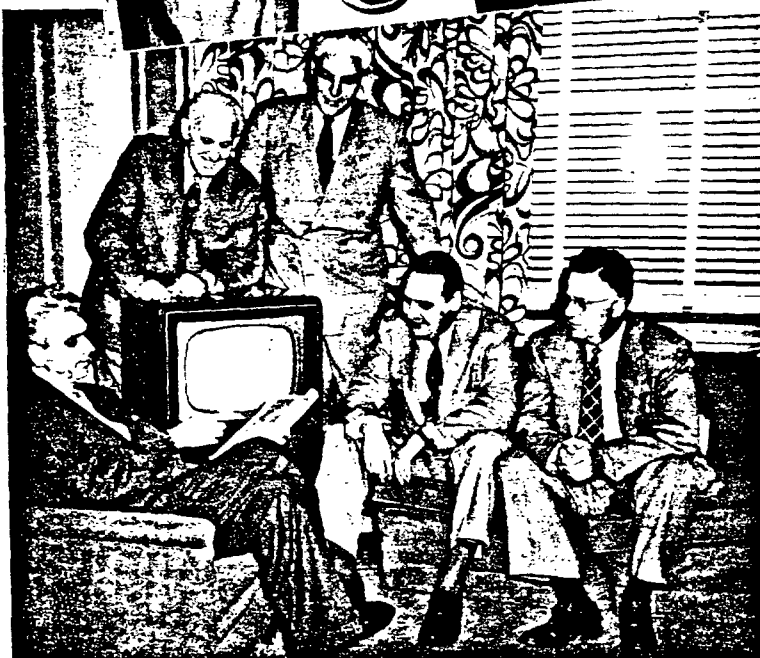


Above, photographed from overhead was this Phillips Petroleum threesome—Rayburn L. Foster, vice president; Paul Endacott, company president; and K. S. Adams, chairman of the board.



Above, relaxing in lobby chairs are A. C. Saul, of Shell Oil; J. W. Cason, of Interstate Oil Pipe Line; Chesley C. Herndon, Skelly Oil executive vice president; Palmer Hughes, of The M. W. Kellogg Co.; and H. W. Stratford, of Stratford Engineering.

Left, Fred H. Ramseur, Jr., of Arkansas Fuel Oil (center), buzzes for an elevator with Russell Schell, of Ethyl (left), and V. H. Luneborg, also of Arkansas Fuel Oil.



Left, H. L. Kennedy, L. B. McCammon, W. H. Everett and M. A. Newman, all of Ohio Oil, and S. A. Click, of The Illinois Pipe Line Company of Texas, in a company suite.

Below, David E. Day, vice president of Richfield Oil, obliges the photographer by smilingly dropping gasoline dollars into a vat.





Top, P. W. Judah, of Socony-Vacuum Oil. . . .
Above, George C. Eason, of Delhi Oil.

Below, this friendly group consists of E. F. McCabe, Tide Water Associated vice president; M. W. Boyer, Esso Standard Oil vice president; W. J. Sweeney, Standard Oil Development vice president; and Alan Tully and J. B. Macauley, both of Ethyl Corporation.



Right, time out for a refreshment break is taken by A. O. Olson, partner in Olson Oil, and L. B. Jackson, Jr., president of his own company.

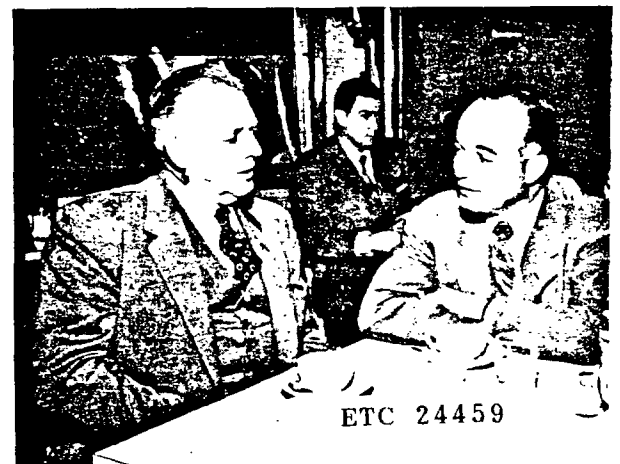
Camera Candids



Above, booking airline reservations are Walter Kitchens, of Filtrol Corporation, and William Keen and Fred M. Neall, of Atlantic Refining.



Above, a hotel cashier makes change for E. R. Smoley, vice president of The Lummus Company.



ETC 24459

Board of Directors



Above, a general view of members of the board of directors as they convened for one of their business sessions. . . . Right, L. S. Wescoat, retiring API board chairman, turns over the gavel, emblematic of the office, to P. C. Spencer, new chairman.



THE board of directors transacted many items of API business at its several sessions held during the 33rd annual meeting. P. C. Spencer was elected chairman of the board, succeeding L. S. Wescoat. Frank M. Porter, head of the Fain-Porter Drilling Co.; B. Brewster Jennings, president of Socony-Vacuum Oil Co.; and Lacey Walker, of the API, were re-elected API president, treasurer and secretary, respectively. Charles S. Jones, Richfield Oil president, was elected API vice president for Transportation, succeeding Mr. Spencer.

For the first time in history, the board elected honorary members, 11 prominent oilmen being so named. Those honored were H. D. Collier, of Standard of California; J. Frank Drake, of Gulf Oil; Wirt Franklin, of Oklahoma City; Alexander Fraser, of Shell Oil; H. T. Klein and W. S. S. Rodgers, of The Texas Company; J. Howard Pew, of Sun Oil; W. C. Teagle and John R. Suman, of Standard of Jersey; O. D. Donnell, of Ohio Oil; and Robert H. Colley, of Atlantic Refining.



Above, David V. Stroop, of the API, and Joseph H. Russell, Gulf Oil vice president, who officiated at the meeting of the board of councillors Tuesday morning. The councillors nominated candidates for election to membership on the board of directors.



At a directors' luncheon are Gen. B. H. Markham, retired; J. J. Cosgrove, chairman, and C. A. Perlitz, Jr., a vice president, both of Continental Oil; J. W. Newton, Magnolia Petroleum vice president; and M. J. Rathbone, a Standard of Jersey director.

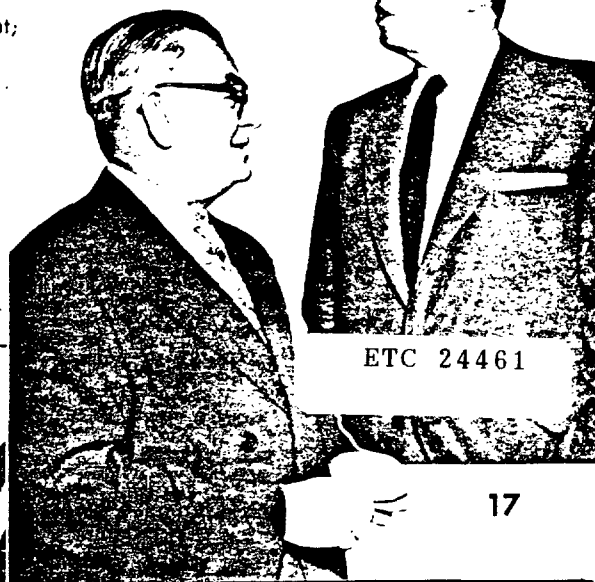


Board of Directors



Above, Henderson Supplee, Jr., Atlantic Refining president, and Eugene Holman, president of Standard of Jersey. . . . Top left, R. G. Follis, chairman of Standard of California, and J. N. Pew, Jr., Sun Oil chairman. . . . Above left, Rawleigh Warner, board chairman, and Robert L. Milligan, executive vice president, both of Pure Oil. . . . Left, Hines H. Baker, Humble Oil president, and H. W. Ferguson, a vice president of Humble.

Right, B. Brewster Jennings, Socony-Vacuum president. . . . Below right, M. H. Robineau, Frontier Refining president. . . . Below, W. K. Warren, chairman of Warren Petroleum.



ETC 24461

Fundamental Research



The session's head table (oval photo): Morris Muskat, of Gulf Oil; Alfred Chatenever, of University of Oklahoma; Norman Hackerman, of University of Texas; Robert E. Wilson, Standard of Indiana board chairman, speaking; T. W. Nelson, of Socony-Vacuum; C. L. Moody, of Ohio Oil; B. E. Sage, of California Tech; John E. Sherborne, of Union Oil; and L. Laskaris, of Atlantic Refining.

DEALING SPECIFICALLY with the occurrence and recovery of petroleum—a phase of study to which about 40 percent of the API's annual research budget of \$663,000 is devoted—the Fundamental Research group session heard about the work being conducted in this field.

Also heard at the session were Dr. Robert E. Wilson, chairman of the API board's research committee; T. W. Nelson, chairman of the advisory committee on fundamental research on occurrence and recovery of petroleum; and L. Laskaris. Dr. Wilson and Mr. Nelson delivered opening remarks. Mr. Laskaris told about the special research grants sponsored by the committee.

*Everyone
Welcomed*

Group Session
**Fundamental Research
on
Occurrence and Recovery
of Petroleum**

9:30 A.M. NORTH BALLROOM
MONDAY NOV 9 1953

Everyone was welcome to attend the Fundamental Research group session, the advertising posters announced. Hundreds of APIers accepted the invitation, as indicated by the audience photo above. The session, held on Monday morning in the North Ballroom, was the opening event of the 1953 annual meeting.



Reading literature at this API display are Mary Banker, of Atlantic Refining; J. G. Raymond, of Sinclair Oil; and J. C. Geniesse, of Atlantic Refining.

Fundamental Research

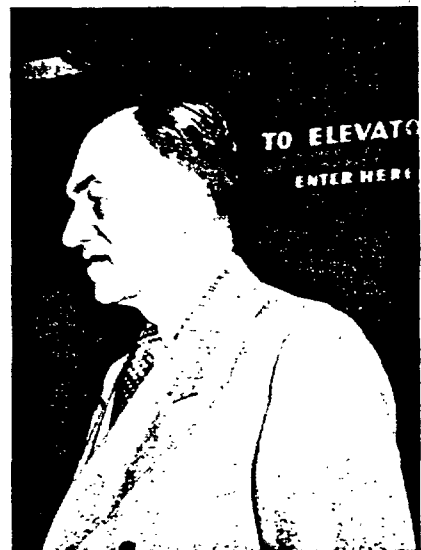
Joseph K. Roberts, Standard of Indiana research and development head, spoke on a broadcast honoring the API.

He is shown (right) with E. B. Smith, of Northern Trust (program sponsor), and E. L. Gordy, also of Standard.



Below, the API board of directors research committee at lunch.

Bottom, research group recipients of API Certificates of Appreciation were L. M. Henderson, of Pure Oil; Wayne E. Kuhn, of Texaco; Stuart E. Buckley, of Humble Oil; and Ben B. Cox, of Gulf Research.



Among those particularly interested in the research activities was (above) A. L. Lyman, executive vice president of California Research Corp.

Fundamental Research



Left, N. J. Gothard, of Sinclair Refining; and Victor R. Farlow and T. O. McDonald, both of American Cyanamid.



Time out between sessions is taken by T. L. Cantrell and Alex Lewis, Jr., both of Gulf Oil, and George Rosser, of Ethyl.

Below, Fundamental Research session goes included Charles C. Templeton and J. G. Roof, both Shell Development.



Left, Sunday afternoon's meeting of the Research Project 47 advisory committee. Alfred Chatenever, of the University of Oklahoma, is speaking.

The executive committee of the advisory committee on fundamental research on composition and properties of petroleum met at a Monday dinner. Presiding at the head of the table is Howard G. Vesper, California Research president.

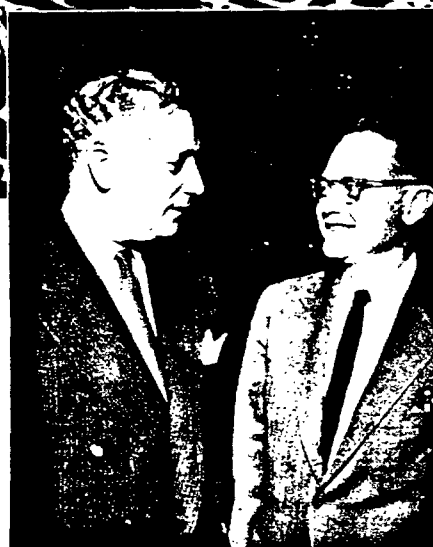


ETC 24464



ONE OF THE largest crowds to gather for any of the many meetings filled the Grand Ballroom on Monday morning for the Public Relations group session. The audience heard a stimulating talk entitled "The Myth of Monopoly" by H. S. M. Burns, president of Shell Oil Company and chairman of the public relations committee of the API board of directors. It also witnessed "It's Your Move," a motion picture portraying activities of the Great Lakes District of the OIIC.

Stanton K. Smith, outgoing OIIC chairman and president of Smith Oil & Refining Company, presented OIIC Certificates of Appreciation to seven oilmen for outstanding contributions in helping to tell the oil industry story to the public in their particular areas.



Top, the audience at the Public Relations group session. . . . Above, H. S. M. Burns, Shell Oil president and the featured speaker, and Stanton K. Smith, who presided.

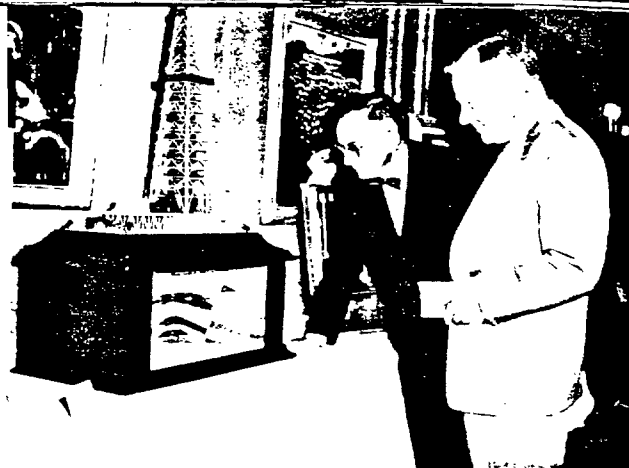


Left, recipients of OIIC Certificates of Appreciation were (front row) W. Chalmers Burns, Hartal Petroleum president; Emmett M. Howard, American Oil; A. T. Smith, Continental Oil; (rear row) William Finnegan, Jr., Humble Oil & Refining; Roy J. Diwoky, executive vice president of Pan-Am Southern; and Frank V. Martinek, Standard of Indiana. Another awardee, absent from the meeting, was W. J. Loufman, Fleet Wing Corporation president.

Public Relations



G. Stewart Brown, public relations manager of Standard of California, who succeeds Stanton K. Smith, president of Smith Oil & Refining, as national chairman of the OIIC.



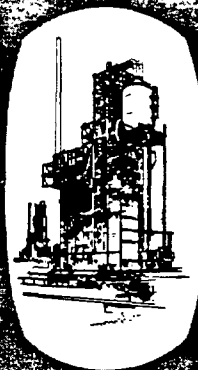
Top, examining an OIIC exhibit are Dr. K. G. Mackenzie, of The Texas Co., and W. L. Stewart, Jr., executive vice president of Union Oil. . . . Above, Conger Reynolds and George Bechtel, of Standard of Indiana, accept OIIC booklets from Carolyn Saylor, of The Pure Oil Co.



The public relations committee of the API board of directors at its luncheon meeting Monday noon.



Interested listeners at the group session were T. F. Hill, G. W. Chapman and G. E. Dunlap, Sun Oil; and F. H. Meeder, president of Richfield of New York.

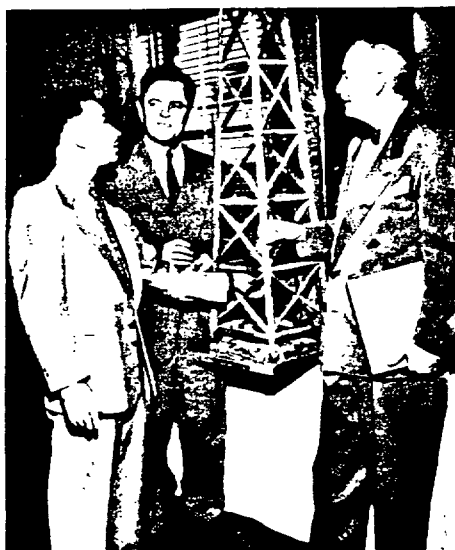


Top, John W. Newton, Magnolia Petroleum vice president and API vice president for Refining, presided of the session. . . . Above, the group session audience. . . . Right, A. Voorhies, Jr., Esso Standard Oil, and T. T. Whipple, The Lummus Co., presenting papers. . . . Bottom right, L. C. Burroughs, Shell Oil, giving the division nominating committee report.



TWO COKING PROCESSES were described in significant papers presented before the group session of the Division of Refining in the North Ballroom on Monday afternoon. In a paper authored by Valentine Mekler, A. H. Schutte and T. T. Whipple, all of The Lummus Company, and presented by Mr. Whipple, the Lummus continuous contact coking process, in which heavy residua are converted to yield gas, gasoline, gas oil and pelleted coke, was explained. A. Voorhies, Jr., of Esso Standard Oil, presented a paper co-authored with H. Z. Martin, of Standard Oil Development, describing "fluid coking," the latest application of the fluidized-solids technique originated and licensed by Standard Oil Development Company.

Refining



Above, among those at the meeting of the Division of Refining advisory committee were (facing camera) G. A. Davidson, Standard of California vice president; W. T. Gunn, of the API; and E. B. McConnell, Standard of Ohio vice president.



Above, W. T. J. Oliphant, Patent Chemicals; F. L. Martin, Suntime Refining president; J. C. Day, secretary-treasurer of WPRA; and Herman Gunter and T. C. Bodley, Suntime vice presidents.

Top left, T. W. Warren, of Ethyl, inspects a model drilling rig with J. M. Vyn, of Northwestern Refining, and C. A. Cromwell, of Farmers Union Central Exchange. . . . Left center, W. W. Harding, Wisconsin Farmco Service; W. N. Callahan, Ohio Farm Bureau; and H. F. Wagner, Farmers Union Central Exchange. . . . Left, W. F. Sims, Blaw-Knox, and F. W. McCurry, Derby Oil vice president. . . . Right, George Oberfell, Phillips Petroleum Company consultant.



Photographed in a session audience were R. W. Black, Edward C. Sommer and C. J. Luz, all of Esso Standard Oil.

Below are A. E. Wolf, vice president of Standard of Ohio; A. H. Bingham, of Ethyl; and Clyde T. Foster, president of Standard of Ohio.



Offstage



AMERICAN AIRLINES.
NORTHWEST Orient AIRLINES



Above, Allan D. Insley, of The Royal Bank of Canada, and W. R. Lund, of Warren Petroleum, arranging to fly home.

Enjoying a breather are Byron E. Milner and M. J. Fowle, of Atlantic Refining; Edwin F. Nelson, president of Lake Superior Refining; and R. H. McDade, of Canadian Bank of Commerce.



Left, E. T. McGovern, owner of McGovern Oil.

Offstage



Above, a trio of Leonard Refineries executives. Vice presidents L. R. Kamperman and John S. Pfarr flank Reid Brazell, president.



Left, James Ready, formerly of Deep Rock Oil; Benjamin W. Sager, president of his own company; J. A. Roach, vice president of Parmelee Oil; and C. W. Dyniewicz, of Deep Rock Oil.

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Left, in this pleasant group are L. L. Huxtable, of Ethyl; J. B. Smith, Sunray Oil vice president; C. A. Copple, of Malco Refineries; and H. O. Harder, vice president of Sunray Oil.

The 25-Year Club held its annual dinner meeting Tuesday evening. A. W. Peake, president of Standard Oil (Indiana), was named president of the club, succeeding Rawleigh Warner, Pure Oil board chairman.





Above, E. O. Bennett, Danaho Refining vice president; K. C. Schlater, Petroleum Engineer Publishing Co.; and F. L. Bever, of Catalytic Construction.

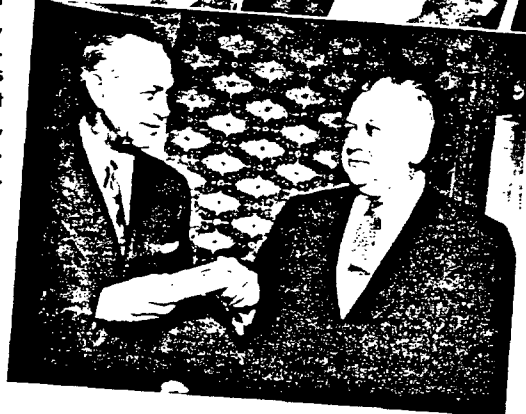


A. M. Bell, of Gulf Oil; F. M. Seibert, of Runnels Gas Products; and Allan B. Sloss, of Gulf Oil, form this lobby settee threesome.



Offstage

Right, Bruce K. Brown, Pan-Am Southern president, and George Gibson, formerly of the PAD. . . . Below right, at the drug store counter are C. W. Saacke, of Davison Chemical, and W. W. Scheumann, vice president of Cities Service Research.



Right, M. Lloyd Freese, vice president of Bell Oil & Gas, and E. F. Bullard, president of Stanolind Oil and Gas. . . . Below right, R. E. Decker, Plymouth Oil president, receives a gift from W. D. Cross, Jr., of Sinclair Refining, in the latter's company headquarters. . . . Below, pleasant conversation is enjoyed by Robert W. McIlvain, Jr., vice president of Pure Oil, and H. B. Genert, of Trigood Oil.

Marketing



TIMELY TALKS by a major oil company president, the publisher of an industry trade publication, and the president of one of the country's leading chemical manufacturers were features of the first of two group sessions held by the Division of Marketing.

Competition in the oil industry is "tougher" but "not something to be sad about," A. W. Peake, president of Standard Oil Company (Indiana), declared in his discussion of "Marketing Position or Profits, or Both."

H. A. Inness Brown, publisher of *The Gasoline Retailer*, analyzed "Some Marketing Problems at the Retail Level."

In his talk, entitled "The Danger of Default," Dr. Charles Allen Thomas, president of Monsanto Chemical Co., warned that unless private industry takes the initiative in developing peaceful uses of atomic energy, the leadership in this field may be lost to other countries.

The second session was an open business meeting of the division. Robert M. Bartlett, API vice president for Marketing, presided at both gatherings.

Below, speakers at the first Marketing group session included Dr. Charles Allen Thomas, Monsanto Chemical Co., president; A. W. Peake, Standard of Indiana president; H. A. Inness Brown, publisher of *The Gasoline Retailer*; and Robert M. Bartlett, Gulf Oil vice president, who presided. . . .

At right (from top), S. H. Elliott, Standard of Ohio vice president; John Harper, Harper Oil president; Logan L. Kennedy, Esso Standard Oil; and C. Z. Hardwick, executive vice president of Ohio Oil, presenting reports at the second session.



Marketing



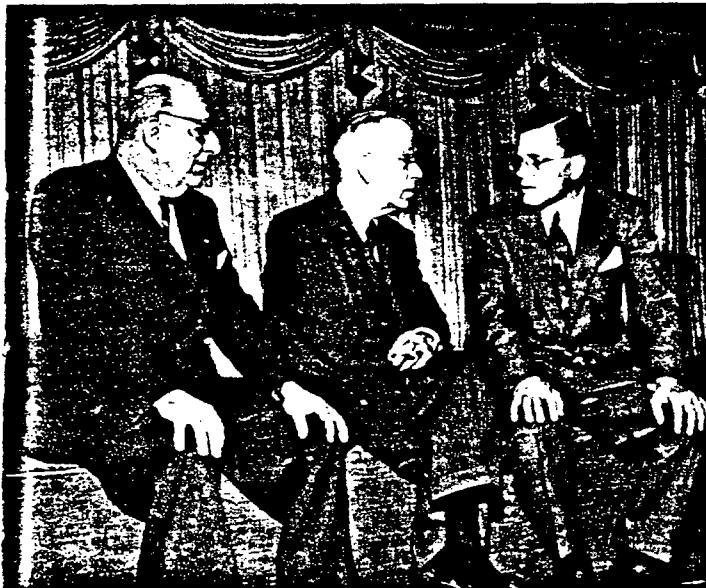
Left, J. G. Jordan, Shell Oil vice president, giving the division's program committee report.



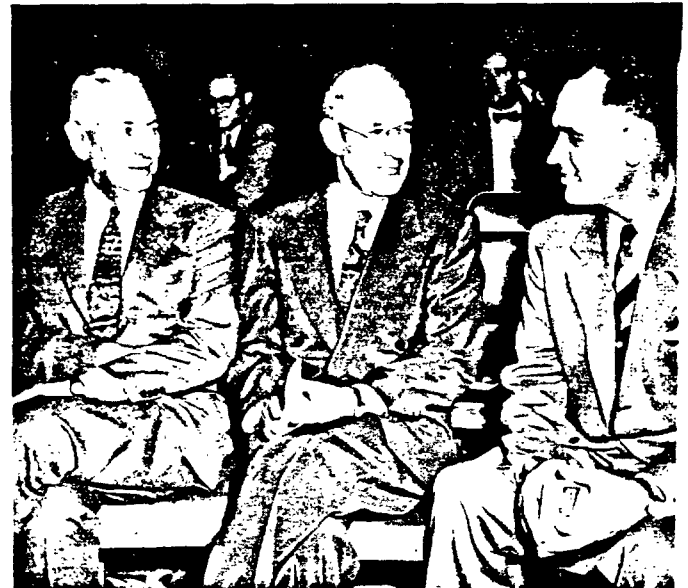
Left, Herbert Willetts, a Socony-Vacuum director, reporting for the district meeting study committee.



P. H. Logan, owner of Hoosier Petroleum, and Everett F. Wells, Ashland Oil executive vice president, stop to read a Marketing group session poster.



Nelson H. Seubert, Standard of Jersey; John W. Frey, director of the Division of Marketing; and Adam Rumoshosky, division associate director.



In the Marketing group session audience were W. C. Johnson, Standard of California; C. J. Coberly, Kobe, Inc.; and J. E. Gosline, Standard of California.

Marketing



Above, M. P. Murdock, Ethyl vice president, checks the news ticker with Frank R. Long, Mohawk Petroleum vice president.

Left, B. R. Emman and James J. Hannigan, Jr., both of Globe Oil & Refining.



Right, R.-J. Smith, of Skelly Oil, and J. D. Wilkie, of Ohio Oil, chat outside the Grand Ballroom.

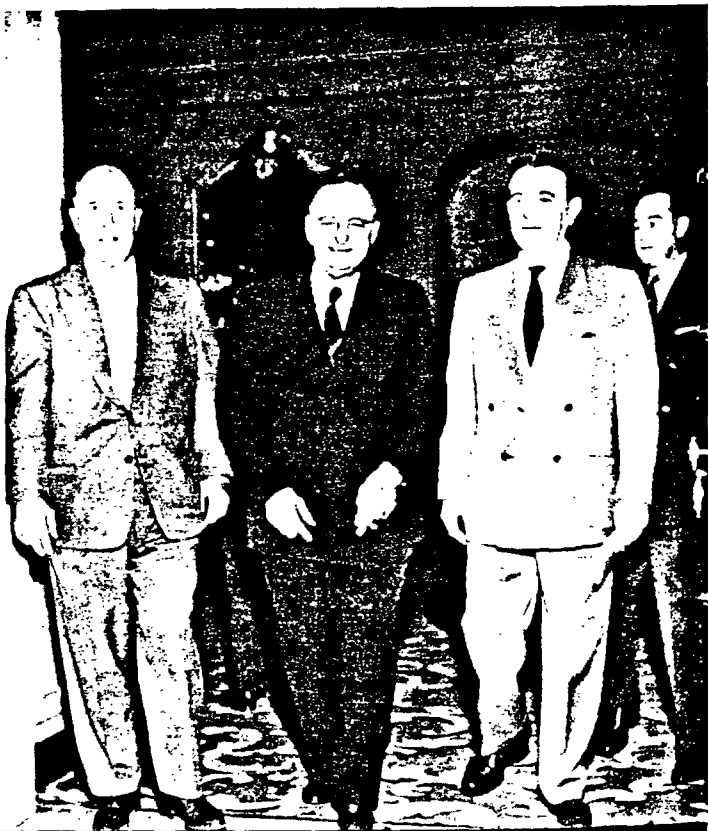


Above, R. L. Tollett, president of Cosden Petroleum, checking his coat and hat before a meeting.



Above, Harry E. Milton, president of Milton Oil, rings for an elevator.

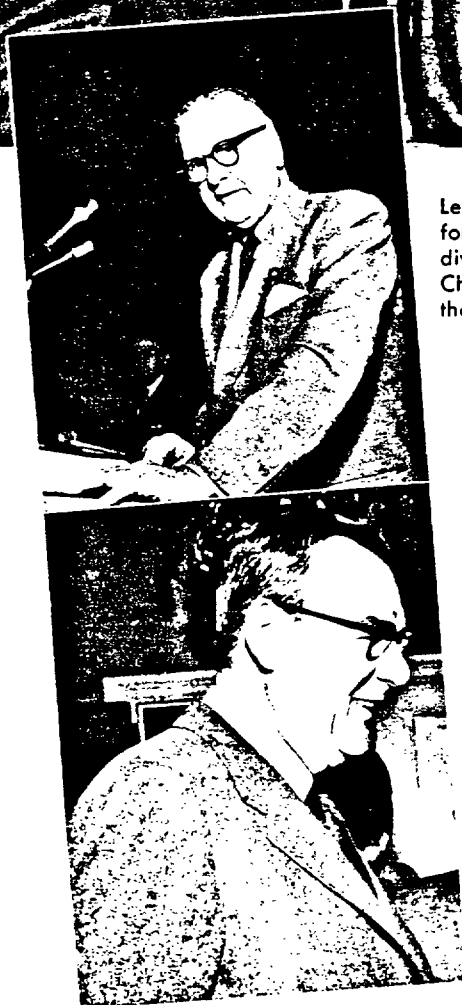
Below, leaving the Grand Ballroom after a Marketing session are W. D. Baskett, Jr., executive vice president of Frontier Oil Refining; H. G. Meador, Gulf Oil vice president; C. G. Maxwell, Frontier Oil Refining vice president; and John Lovejoy, president of Seaboard Oil.



Right, Transportation session speakers Dr. W. L. Davidson, of the Atomic Energy Commission, and A. A. Stambaugh, board chairman of Standard Oil Co. (Ohio). Mr. Davidson spoke on "Oil and the Atom: Partners or Competitors?" Title of Mr. Stambaugh's address before the Monday session was "Transportation Dynamics."



Left, C. L. Dearing, deputy Under Secretary of Commerce, and Robert Murray, Jr., the Under Secretary of Commerce for Transportation. Mr. Murray was a Monday afternoon speaker.



Left, P. C. Spencer, outgoing API vice president for Transportation, who presided at the division's opening session. Below him is Charles S. Jones, president of Richfield Oil, the new Transportation vice president.

A GROUP SESSION, an all-day pipeline symposium and countless committee meetings and special events spelled a busy annual meeting work schedule for those of the API's Transportation division, headquartered in the Palmer House.

The Monday afternoon group session, with P. C. Spencer presiding for the last time as API vice president for Transportation, featured addresses by an oil company executive and two government officials.

The pipeline symposium, broken into morning and afternoon meetings, dealt with technical matters. Papers delivered ranged in subject from new techniques and current problems in controlling underground corrosion to the future development of lease storage tanks.

Transportation



Transportation

Right, morning participants in the all-day pipeline symposium were Loren F. Kahle, of Standard of Jersey; R. B. McLaughlin, Texas Pipe Line board chairman; D. A. Roach, of Phillips Pipe Line; O. C. Mudd, of Shell Pipe Line; and Ernest A. Slade, of Service Pipe Line.



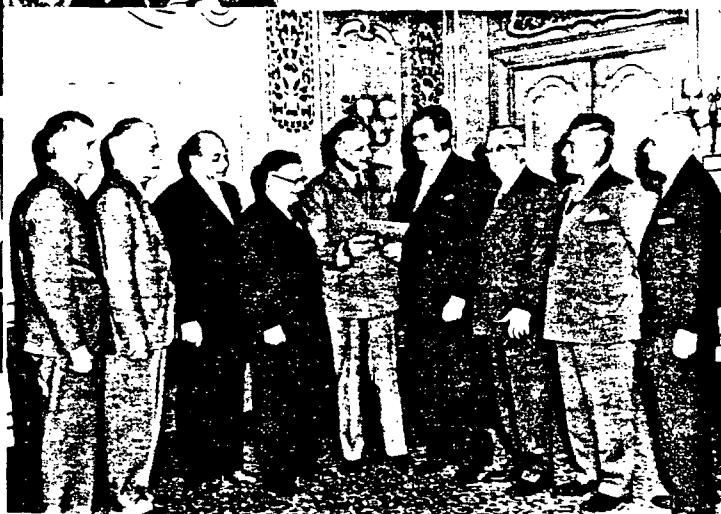
Below, R. K. Paine, of Standard of California, presided at the afternoon session.



Left, at the afternoon head table were H. H. Anderson, vice president of Trans Mountain Oil Pipe Line; G. F. Downs, Jr., of Phillips Petroleum; K. B. Henderson, of National Tank; and C. C. Bledsoe, of Midwestern Constructors.

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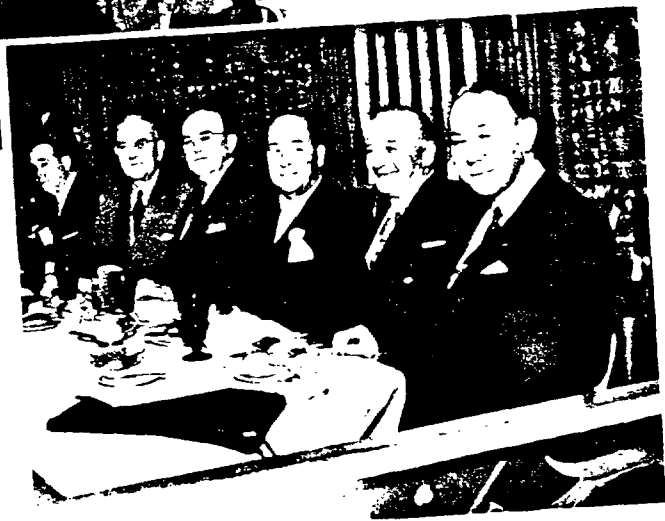
Part of the large audience present at the pipeline symposium is seen in the photo at the left. . . . Below, the eight Certificate of Appreciation winners with P. C. Spencer, who presented the awards. Left to right are H. A. Rhodes, of Transcontinental Gas Pipe Line; Gavin W. Laurie, of Atlantic Refining; A. G. Anderson, of Socony-Vacuum; James P. Patterson, vice president of Pan-American Petroleum and Transport; Mr. Spencer; B. B. Howard, a Standard of Jersey director; Charles Fitzgerald, vice president of Sinclair Pipe Line; T. E. Buchanan, of Texaco; and L. S. Wrightsman, of Humble Pipe Line.





Transportation

Above, new Transportation Club officers include Lee Cowles, of Standard of Indiana; Paul Kuhns, of Continental Oil; and R. R. Hooper, of Cities Service Oil. . . . Right, at the club's banquet head table were C. F. Dowd, of Tide Water Associated; J. P. Dennis, of The Texas Co.; E. J. Schiffer, of Gulf Oil; A. G. Anderson, of Socony-Vacuum; H. H. Theisen, of Shippers' Car Line; and L. C. Davidson, of Cities Service Oil.



Middle right, Loren F. Kahle, of Standard of Jersey; O. F. Moore, Ohio Oil vice president; J. L. Latimer, president of Magnolia Petroleum; and Oliver C. Klinger, president of Oildom Publishing. Mr. Moore is the retiring, and Mr. Latimer the new head of the Pipe Liners Club. . . . Bottom right, in this group are S. P. Kelly, of Cities Service Oil; R. P. Russell, Pennsylvania Railroad (retired); L. W. Witte, of Mid-Continent Petroleum; and J. W. Tipton, of the Frisco Railroad.



Above, the luncheon for Transportation speakers.



Left, snapped during a moment of relaxation were H. J. Amend and L. E. Cook, both of Sinclair Pipe Line.



Transportation

Fayette B. Dow presided at Tuesday's meeting of the central committee on railroad transportation. At his right is B. H. Lord, Jr., of the API.



Right, Ulric B. Bray, president of Bray Oil; K. E. Kingman, vice president of Union Oil; L. J. Grunder, of Richfield Oil; and William J. McLeod, of Standard of California.



Left, A. J. Morris, of Crown Central Petroleum, picks up a speech preprint. . . . Bottom left, J. L. Burke, president of Service Pipe Line, and W. C. Kinsolving, Sun Pipe Line president.



Above, F. L. Hoffmeister, S. A. Hellberg and R. D. Martin, all of Standard of Indiana. . . . Left, Ivan H. Loucks, of the FCC, and Harry L. Cornell, of Esso Shipping.





Above, a model barge and well-laden buffet tables formed the hub for bustling activity at the Youngstown-Emsco-Continental reception in the Grand Ballroom of the Hilton on Tuesday evening.



Receptions

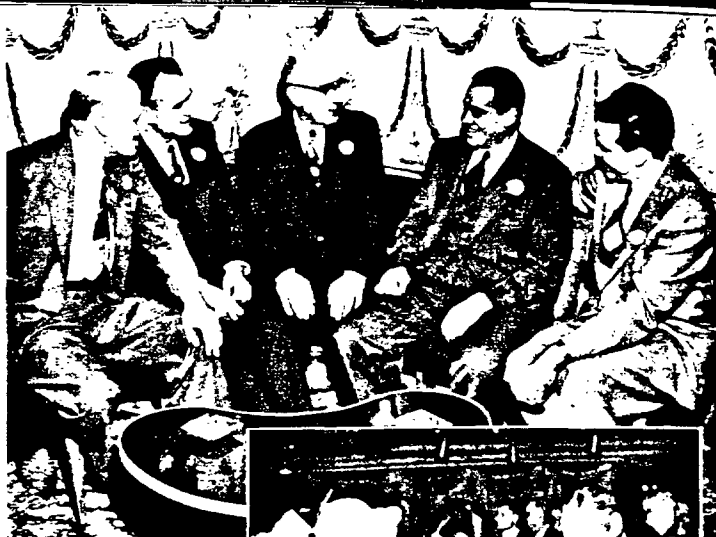


Pictured at the Gulf Oil reception: Left, Ole Berg, Jr., British American Oil president; S. M. Wagner, retired Ethyl vice president; and J. S. Worden, of Texaco. . . . Below left, S. A. Swensrud, Gulf Oil board chairman; W. F. Rockwell, Jr., president of Rockwell Manufacturing; R. D. McGranahan, Gulf Oil; and I. G. Davis, Mene Grande Oil vice president. . . . Below, S. H. Casey, Pan-Am Southern, and A. L. Quackenboss, Union Oil.



Receptions

Right, at their company's reception are G. J. Gregor, G. D. McDaniel, J. H. Meyers, and Q. W. Regestein, all of Socony-Vacuum, and William Rusher, of Ethyl Corporation.



Left, John E. Boudler, Roosevelt Oil president, and Max M. Fisher, executive vice president of Aurora Gasoline, at the Aurora reception.



Above, serving himself at the Youngstown-Emsco-Continental buffet is H. V. Stedman, of Berry Asphalt Company.



An overall view of some of the many tables that filled the Exhibition Hall of the Conrad Hilton for the Dresser Industries luncheon on Tuesday.



At one of the tables at the Dresser luncheon are C. A. Warner, vice president of Houston Oil; Joe Miller, Humble Oil & Refining; Paul S. Orlopp, Cactus Petroleum vice president; and J. O. Trotter, American Republics.



Above, G. W. Welsch, of Lybrand, Ross Bros. & Montgomery, an afternoon speaker. . . . Left, Reese H. Taylor addressing the morning session. Seated are Max Lorimore, of Union Oil, vice chairman of the financial and accounting committee; and Donald P. Jones, of Sun Oil, who presided and also spoke.



INCREASED BUSINESS knowledge can help prevent depressions of the depths reached in the 1930s, Reese H. Taylor, Union Oil Company of California president, told the first of two Financial and Accounting group sessions held on Tuesday. The other morning speaker was Donald P. Jones, Sun Oil comptroller and chairman of the API financial and accounting committee.

Afternoon session speakers were Richard B. Heflebower, Northwestern University economics professor, and G. W. Welsch, of the Lybrand, Ross Bros. & Montgomery firm, certified public accountants in Dallas.



Above left, Richard B. Heflebower, of Northwestern University, a speaker at the afternoon session. . . . Left, Louis E. Hanson, of Socony-Vacuum, who was awarded a Certificate of Appreciation. . . . Below, in the audience were C. C. Kenney, Ohio Oil; Robert L. Anthony, secretary and treasurer of Leonard Refineries; and Jack Cashell, Preston Oil vice president.



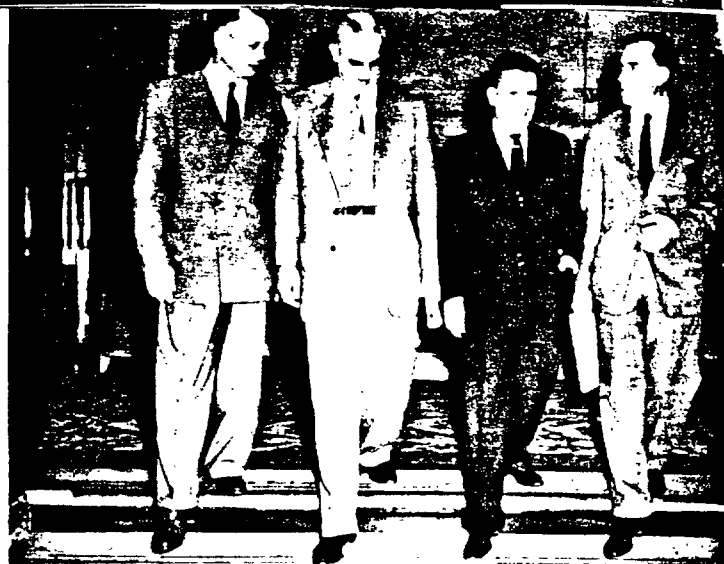
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Financial and Accounting

Right, E. H. Powers, vice president of Southern Production Co.; E. W. Atkinson, Lion Oil treasurer; A. K. Tyson, president of American Republics Corp.; and E. L. Kennedy, a Lehman Brothers partner, form this foursome.

Below right, G. S. Koch, Standard of Jersey; M. W. Boyer, Esso Standard Oil vice president; G. A. Wilson, chairman of Interstate Natural Gas; and O. V. Tracy, Enjay Co. president.

Below, ascending the stairs are Theodore N. Law, Falcon-Seaboard Drilling Co. president, and Stanley T. Crossland, Ethyl Corporation vice president and treasurer.



Right, W. V. Carver, of Socony-Vacuum, checks his watch by a hotel clock.



Left, three Continental Oil men at a Financial and Accounting session: M. H. Dubrow, J. P. Malott and C. B. Wentz.



Right, B. L. Parker, treasurer of Hydrocarbon Specialties.



Committees at Work



Shown here are three of the many committees that met during the annual meeting. Above is the Sunday session of the automotive research group, under the chairmanship of John T. McCoy, of Tide Water Associated. . . . Left, the jobber advisory committee in session Sunday. J. E. Dyer, Sinclair Refining vice president, is chairman. . . . Bottom, Charles Miller, of The Texas Company, presides over the first aid committee meeting.

WHILE the API membership at large was attending the annual meeting's 15 group and 2 general sessions, nearly 150 committees were convened in business sessions in various meeting places throughout the two "convention" hotels.

These sessions began four days before the formal opening of the annual meeting and continued after most of the over-6,300 registrants had left for home.

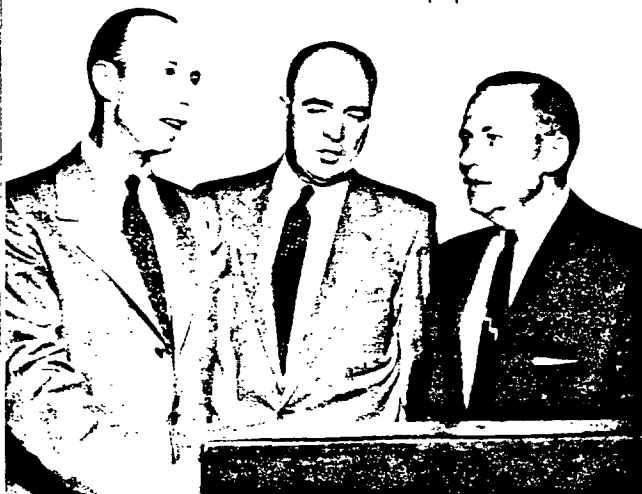
First to gather was Refining's subcommittee on corrosion. This group conducted an all-day session on Thursday, Nov. 5. Two central committees—on accident prevention and fire protection—held a joint meeting on Friday, Nov. 13, to write finis to the 1953 API annual conclave.



Committees at Work

Right, at the committee on tank cleaning meeting—Frank G. Wilson, of API; C. D. Norris, of Texaco; L. R. Fleck, of Ethyl (chairman); and M. J. Neterer, of Sinclair Refining.

Below, W. L. James, of Stanolind, and J. W. Owings, of Republic Steel, flank C. M. Taylor, of Cities Service Oil, head of the oil company buyers committee. Mr. James and Mr. Owings delivered papers at the session.



Above, L. T. White, of Cities Service Petroleum, and E. J. McClanahan, Standard of California vice president, at Sunday's meeting of the personnel training committee. Mr. McClanahan is chairman of the group.

Left, one of the largest committee meetings was that of the service station advisory group, held in the Upper Tower. Chairman of this committee is C. Z. Hardwick, executive vice president of The Ohio Oil Company.



Left, at the meeting of the aviation technical services committee are Earl Lothrop, of the API staff, and Robert V. Kerley, of Ethyl Corporation, committee chairman.



H. M. McClure, Jr., Old Dutch Refining president; F. C. Moriarty, vice president of Aurora Gasoline; and P. C. Weinert, of Universal Oil Products.



Checking with the bell captain are P. E. Fitzgerald, of Dowell, Inc., and J. R. Schwabrow, of U. S. Geological Survey.

Below, a camera study of J. B. Lawson, Great Lakes Pipe Line vice president.



Below, pictured in corridor conversation are W. T. Gunn, of the API; J. S. Cole, of Ethyl; and P. J. Mullin, of Rocky Mountain Oil and Gas Association. . . . Below right, O. J. Dorwin, Texaco vice president, watches G. B. Bogart, of his own company, make a picture postcard selection.



At Random



ETC 24485

At Random

Right, W. Alton Jones, Cities Service board chairman, as he was photographed between meeting sessions.

Below, C. G. Rush, and E. C. Campbell, Consumers Cooperative; O. B. Lewis, Ethyl Antiknock vice president; H. R. Girsberger, Saskatchewan Federated Cooperative; and A. L. Huether, Pacific Supply Cooperative.



Top, Willard M. Johnson, Magcobar president, with Alvin Dark, New York Giants shortstop and off-season Magcobar salesman. . . . Above, J. Ed Warren, former deputy administrator of the PAD, and Harold Vance, of the Second National Bank of Houston.



Bottom left, these window shoppers are W. V. Vietti, Texaco; G. L. Whipple, Standard of Texas; and V. E. Milch, Iso-Mull president. . . . Below, W. E. Randolph and Stanley Martin, of Roosevelt Oil.





Checking annual meeting registration lists are I. H. Carnes, owner of Carnes Oil, and Fred L. Whiteley, president of Whiteley Oil.

At Random

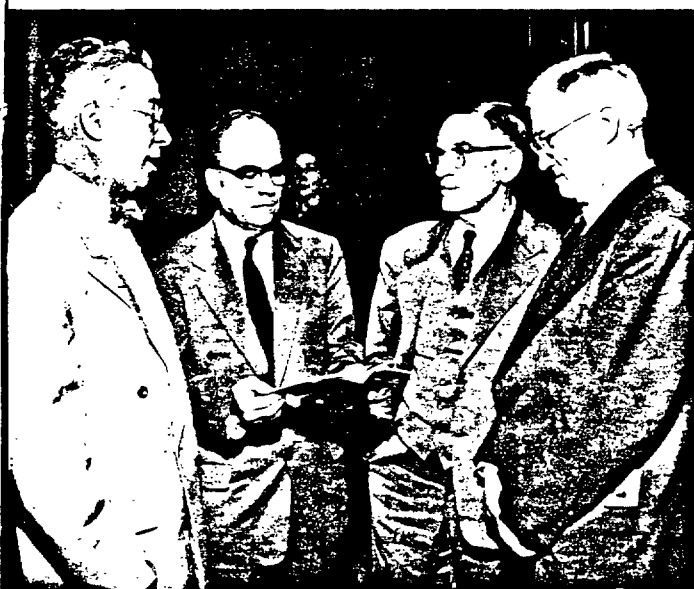
Below, this full-length silhouette is of R. G. Bandy, of Midland Cooperative.



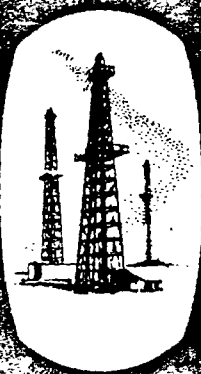
Left, among those attending the annual meeting was this Service Pipe Line threesome: B. W. Russell, T. R. Aude and C. W. Keith.

Below left, C. R. Smith, Oils, Inc., president; T. E. Clime, Canfield Oil; and A. L. Bailey, president, and J. R. Nelson, vice president, also of Canfield.

Below, W. R. Argyle, Sinclair Refining vice president; R. C. Murphy, of Ethyl; and T. B. Kimball, also of Sinclair Refining, enjoy a moment of relaxation.

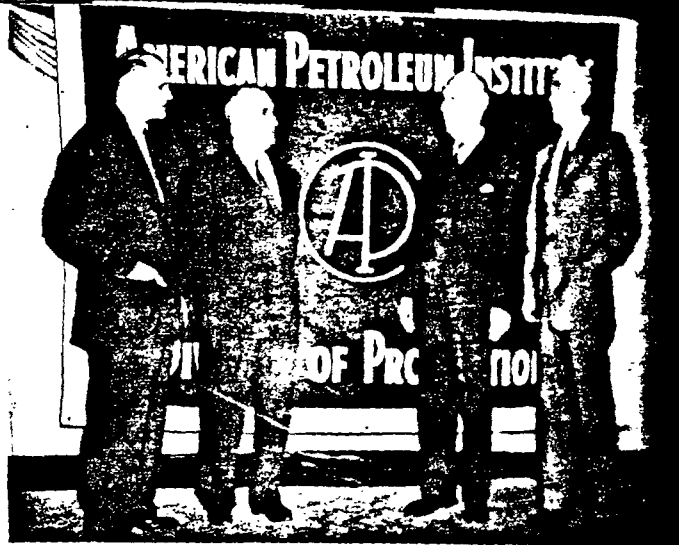


Production



FOLLOWING its annual meeting practice, the Division of Production sponsored group sessions on two successive afternoons, Tuesday and Wednesday.

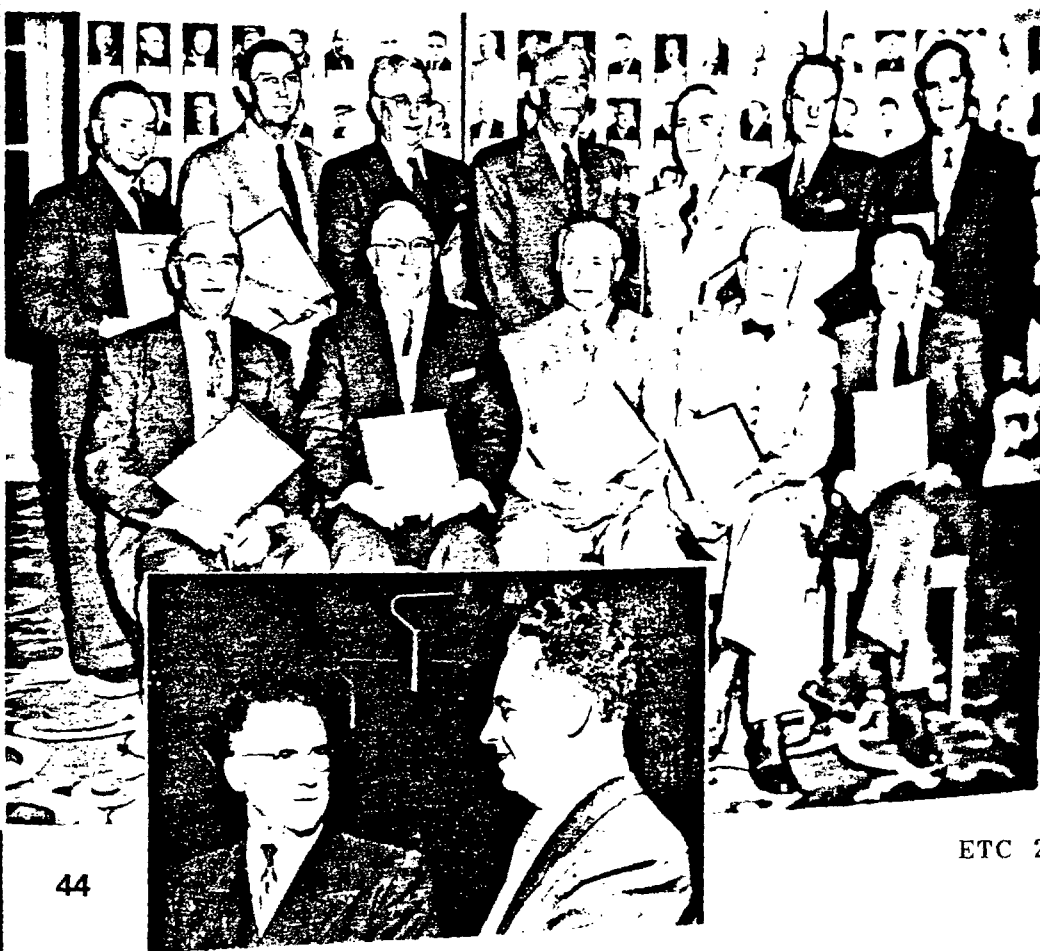
Seven papers were delivered at the two sessions, with their subjects ranging from a top-management view of supervisory and management development to rock failure in percussion. In addition to speakers from companies within the petroleum industry, those who addressed the Production sessions included the president of a leading university and the editor of a well-known trade publication.



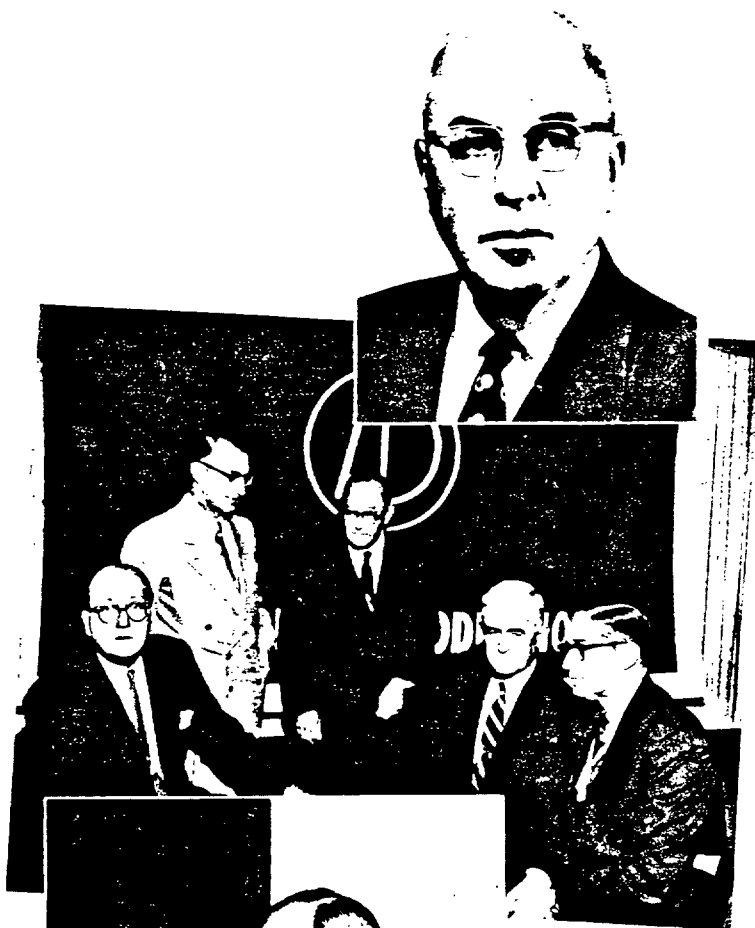
Above, those who took part in the Tuesday Production session were Lon J. Putnam, of Gulf Oil; C. L. Orr, of Ohio Oil; Dr. William V. Houston, president of The Rice Institute, all speakers; and John G. Pew, Sun Oil vice president and API vice president for Production.

Awarded API Certificates of Appreciation by Production were (seated) Chase E. Sutton, of Pure Oil; J. French Robinson, president of Consolidated Natural Gas; James G. Montgomery, Jr., executive vice president of United Natural Gas; F. E. Eckert, of Hanley & Bird; and J. H. Newlon, a consulting geologist. Standing are B. R. Carney, of Warren Petroleum; C. W. Alcorn, executive vice president of Falcon-Seaboard Drilling; R. F. Baker, executive

vice president of The Texas Company, John G. Pew, who presented the awards; George P. Bush, of Phillips Petroleum; J. C. Donnell, president of The Ohio Oil Company; and H. B. Hanes, president of Tide Water Associated, who accepted the award for the late L. R. Smith, one of Tide Water Associated. . . . Bottom photo: Harold Sutton, of Sun Oil, and Milan G. Arthur, of Union Oil, who presided at the first Production group session.



Production



Left, C. E. Beecher, of Cities Service Oil, who presented the nominating committee report at the second Production session Wednesday.

Left, W. L. McCloy, Jr., of Sohio Petroleum; O. A. Ohmann, of Standard of Ohio; George E. Cannon, of Humble Oil; Dr. J. V. Pennington, of Drilling Research; and Warren L. Baker, editor of World Oil. Mr. McCloy and Mr. Cannon presided at the Wednesday session. The others were speakers.

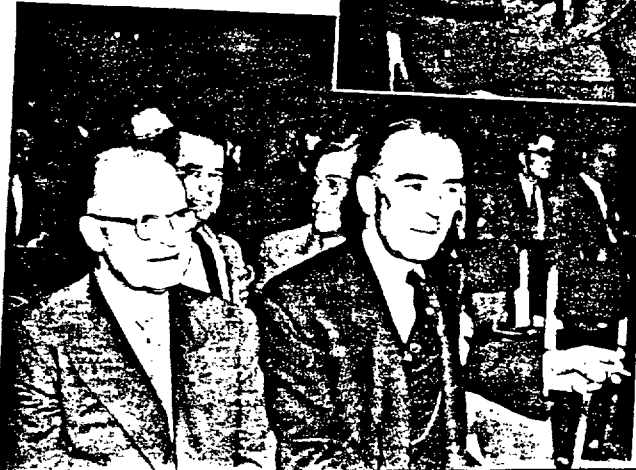
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Left, John R. Suman, vice president of Standard Oil Co. (N. J.), a speaker.

Below left, special tribute was paid to Carl A. Young, retired director of the Production division. He is shown (right) with W. K. Whiteford, president of Gulf Oil, who presented the award.

Below, E. H. Tollefson, Hope Natural Gas vice president, and P. H. Bohart, Gulf Oil vice president.



Production

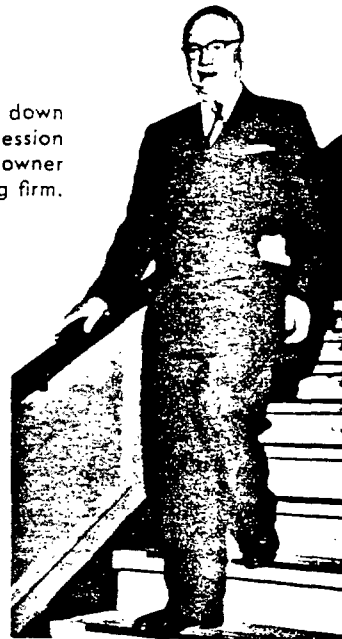
Reading the newspaper, below, is C. E. Stewart, a partner in the Miller & Stewart company.



Below, the Joint Meeting on Tanks, a Production group. C. V. Lynn, of Sinclair Refining, is committee chairman. . . . Bottom left, Douglas Whitaker, of Delta Drilling, and G. B. White, vice president of that company, flank Ted C. Stauffer, of Sun Oil. . . . Bottom right, J. D. Davis, of Union Producing, and A. H. Weil, of United Gas Pipe Line.



Photographed as he came down the stairs en route to a session was Frank E. Anderson, owner of a drilling firm.



ETC 24490



Burch Williams, vice president of Murphy Corporation, and Paul C. McDonald, also of that firm, take a sidewalk stroll.





THERE WAS standing room only in the North Ballroom on Tuesday afternoon as hundreds of APLers crowded in to hear outstanding speakers at the group session of the American Petroleum Industries Committee.

In his talk, "Wanted—A New Lubricant," Maj. Gen. Frank D. Merrill, public works and highways commissioner of New Hampshire, declared that any plan for highway financing should "stand squarely on its own feet as far as merit and economic factors are concerned." Dean Clarence E. Manion, who currently is serving as chairman of the President's Commission on Intergovernmental Relations, spoke on "How is Your Constitution?"

A Certificate of Appreciation was presented to Cyrus S. Gentry, Wolverine Pipe Line president.



Top, some of the audience that attended the session. . . . Left (from top), Maj. Gen. Frank D. Merrill and Clarence E. Manion, speakers; and Joseph P. Walsh, of Sinclair Oil, who presided as APIC chairman.

APIC



Left, Oscar J. Dorwin, Texaco vice president, presents a Certificate of Appreciation to Cyrus S. Gentry, Wolverine Pipe Line president.



Above left, outlined against APIC posters are J. H. Wilson, of his own organization, and T. E. Ward, president of Oilfield Equipment. . . . Above, these two conversationalists are B. E. Devere, Pathfinder Petroleum president, and Donald B. O'Neill, executive vice president of Independent Refiners' Association of California.



Left, W. J. Zimmerschied and A. P. Lien, of Standard of Indiana; J. A. Hopkins, of Ethyl; and Peter Fotis, Jr., also of Standard of Indiana.

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Corridor-chatting are D. B. Boese, of Socony-Vacuum; T. A. Pollard, of Magnolia Petroleum; and E. C. Cram, also Socony-Vacuum.



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The session was conducted as an open forum. Left, one-half of the panel—O. W. Johnson, F. R. McLean, J. E. Niland and S. D. Clithero. The latter, of General Petroleum, was moderator.



The rest of the group consisted of S. A. Carlson, F. Baird-Smith, Wiley Butler and S. S. Smith.



Above, B. G. Crane, of DuPont, who presided at the symposium. . . . Right, the API was honored as one of the nation's trade associations that had furthered safety in its industry. Here, Dr. Ned H. Dearborn (left), president of the National Safety Council, makes the award to Cecil L. Hightower, of United Gas Corporation, who accepted it for the API as chairman of the Institute's central committee on accident prevention. Speaker S. A. Carlson, seated, witnesses the presentation ceremony.

A NEW FEATURE of this year's annual meeting was the Wednesday afternoon Safety and Fire Protection group session. The session was conducted as a symposium and open forum on the loading of tank trucks at bulk stations.

Following the symposium, S. A. Carlson, of Standard Oil Company (Indiana), discussed his company's experience with the unusual procedure of loading tank trucks from the bottom, through special valves.

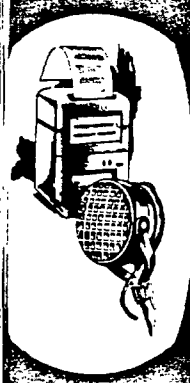
Also on the program was the showing of the API film entitled "Farm Petroleum Safety."



Safety and Fire Protection



Dateline: Chicago



Left, Ross Floyd, of Continental Oil, new chairman of the API agriculture committee; M. C. Enright, of Gulf Oil, outgoing chairman; and Ladd Haystead, API agricultural consultant, were heard in a special interview over Chicago radio station WLS. This photo, taken during the broadcast, shows Maynard Bertsch, of WLS; Mr. Floyd; Dix Harper, of WLS; Mr. Enright and Mr. Haystead.



J. Richard Shaner, in charge of the annual meeting's press room, gives some information to Edward Thompson, of Chemical Engineering.



Top, author of the new book entitled "The Great Wildcatter," Sam T. Mallison appeared as guest speaker on the "Earl Nightingale Show," heard and seen over WGN-TV during the late evening. Mr. Mallison, who is with Plymouth Oil, is shown (right) with Mr. Nightingale . . . Above, hard at work, typing their copy against deadlines, are Don Kliever, of World Oil, and George H. Weber, of The Oil and Gas Journal. Seated by Mr. Weber is Ted Armstrong, also of the OGJ.

SCORES OF REPORTERS and feature writers representing daily newspapers and trade and other publications kept the nation posted on the happenings at the API meeting.

News came not only from the more than 150 work sessions and committee meetings, but from press conferences with industry and government leaders as well. API President Frank Porter, Secretary of the Interior Douglas McKay and P. C. Spencer, the Institute's new board chairman, met with the press.

In addition to the written word, the API meeting was publicized by means of several special radio and television programs. Jess Knowles, Skelly Oil vice president, and J. Howard Myers, of Atlantic Refining, were among those seen or heard.

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J. C. Chatfield,
of World Petroleum,
and W. F. Lowe,
secretary-treasurer
of the Natural
Gasoline Association.

Dateline: Chicago



P. C. Spencer pours
himself a glass
of water during a
press conference.



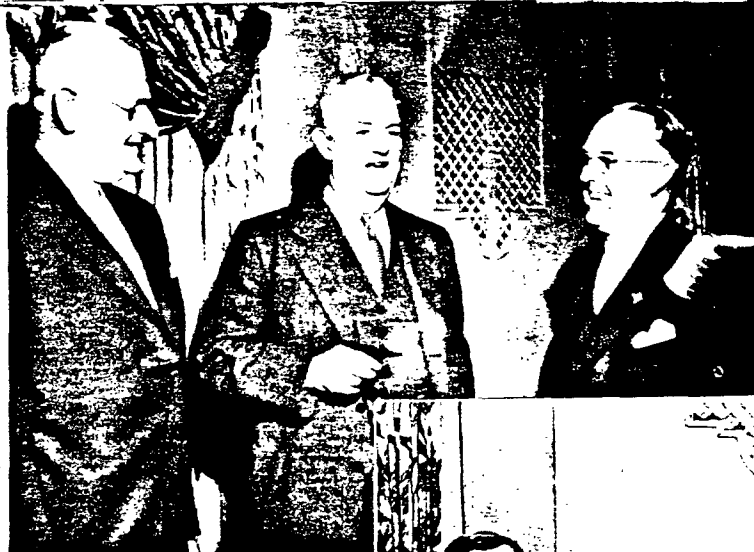
W. C. Slocum, Jr., oil editor of
the *Dallas Times-Herald*, and
Ernestine Adams, "Oil Woman
of the Year," chat with
L. L. Aubert, Bankline Oil
president, at a press reception.



Above, Joseph Palmer,
of the OIIC, who handled
the annual meeting's radio
and television arrangements.
... Left, the head table
at the Association of
Petroleum Writers dinner—
Robert E. Spann, of
World Oil; C. F. Mantoath,
of *Tulsa World*; Jay Hall, of
Dallas News; Milburn Petty,
of *Petty's Oil Letter*;
Henry Ralph, of *The Oil and
Gas Journal*; and Russell
Palmer, of *Petroleum World*.
Mr. Ralph is the new APW
president. ... Bottom left,
Interior Secretary McKay
as he met the press.



Lubrication



Left, the principal participants of the Lubrication group session in a pre-meeting huddle. They are C. A. Chayne, G. T. Dougherty and J. E. Dyer. Mr. Dougherty, of Standard of Indiana, presided. Mr. Chayne and Mr. Dyer were speakers.

Right, seated at the head table were David G. Proudfoot, of Pennzoil; Paul W. Zumbrook, of Sinclair Refining; and Rudolph Cubicciotti, vice president of L. Sonneborn Sons. Below right, T. J. Garin, of the Pennsylvania Grade Crude Oil Association, and Harry F. Bennetts, of the National Lubricating Grease Institute.



OIL COMPANY sales personnel now face their greatest challenge—and opportunity—since the start of World War II.

So said J. E. Dyer, marketing vice president of Sinclair Refining, in an address to the Lubrication group session.

"The days of order-taking are behind us," said Mr. Dyer. "All of us salesmen must go back to work with renewed energy and with a clear vision of the enormous opportunities and responsibilities to which we must face up."

The other session speaker was C. A. Chayne, General Motors vice president. He hailed the oil industry for producing fuels "in increasing volume with gradually increasing octane number and—in terms of dollar purchasing power—at decreasing price."

Right, snapped in conversation outside the Lubrication session were Harold B. Stone, of Atlantic Refining, and T. L. Apjohn, of Socony-Vacuum.



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Above, Myron R. Holmgren, president of River States Oil, makes a tie purchase before his departure. . . .

Above right, the meeting ended a day too early for R. A. Shogren, of The Buda Co., and W. B. Woody, vice president of Franks Manufacturing, to take in the fight.

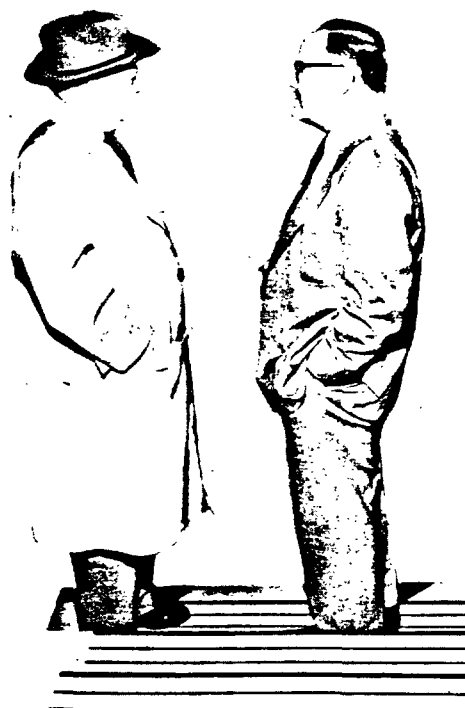


Below, E. T. Snyder and E. W. Shoupe, both of Ohio Oil, get some last-minute information from a floor clerk. . . . Bottom, checking rail reservations are Knox Mellon, Petrolite vice president, and H. G. Powell, Jr., of Socony-Vacuum.



THURSDAY, as usual, was getaway day at the annual meeting. By mid-afternoon of that day, virtually all of the 6,300-plus persons who attended the 1953 conclave were on their way home or to business appointments in other parts of the country.

But it will be back to Chicago for at least two of the next three of the Institute's annual gatherings. The Windy City again will be host next November and in 1956, with San Francisco as the scene of the 1955 session. Decision to return to Chicago after the West Coast meeting was made by the API board of directors at this year's annual meeting.



Bidding each other goodbye are W. R. Dand, head of his own company, and M. E. Montrose, new API director and vice president of Hughes Tool.

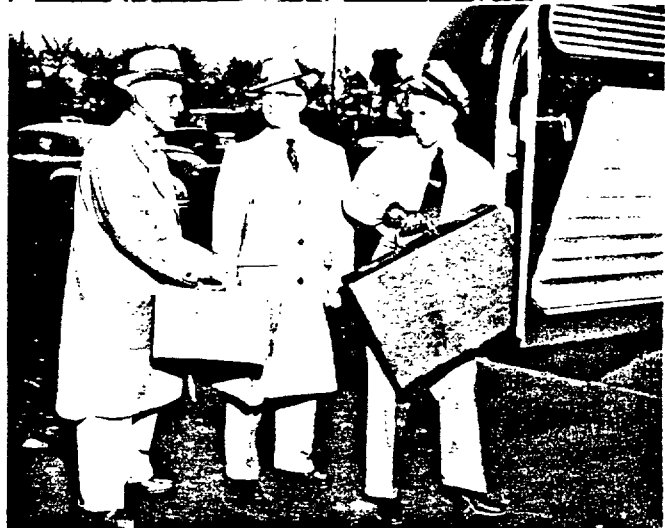
Until Next Year



Until Next Year



Ready for shipmen back to New York is some of the APIC material used during the meeting. H. B. Galloway, of APIC, checks the routing tags. . . . Below, Herschel Hyde, Tide Water Associated vice president, and H. M. Boteler, of Worthington Corp., have their luggage stowed in the airport bus.



Top, Herbert S. Lane, Crown Central Petroleum vice president, checks trains to Houston. . . . Above, John R. MacGregor and J. H. Easthagen, both of California Research, pay their hotel bills. . . . Right, all ready to depart, W. O. Kupper, of Ladish Company, hails a taxi outside the Conrad Hilton.



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Notable Quotes

*Excerpts from a few of the many outstanding
talks delivered at the API annual meeting.*

Petroleum has become so vital to our national welfare and security that our industry's ability to solve its own problems will contribute greatly to the establishment and preservation of a sound national economy.

—FRANK M. PORTER
American Petroleum Institute

To a considerable degree, atomic energy and petroleum will not compete, but will, rather, complement each other in the years ahead.

—W. L. DAVIDSON
Atomic Energy Commission

As it has done so often in the past, the petroleum industry has succeeded in meeting the enormous increase in consumer calls for its products.

—JOHN R. SUMAN
Standard Oil Co. (N.J.)

The petroleum industry was built and became great on a foundation of individual enterprise, not government coddling. It is the proud record of the industry that it has responded fully to every patriotic call . . . but has never asked for special favors. I'd like to see the record stand that way.

—DOUGLAS McKAY
Secretary of the Interior

... any talk of monopoly in the oil business stands out as the fairy tale which it is.

—H. S. M. BURNS
Shell Oil Co.

There is nothing in the world impossible to Americans provided there is a will to achieve success.

—MAJ. GEN. FRANK D. MERRILL
*New Hampshire Public Works
and Highways Commissioner*

ETC 24499



THE DOLLAR *that buys more today*

THIS IS A VERY UNUSUAL DOLLAR—for these days, anyhow. It's a dollar that is actually worth more than it was in 1925. You see, it's the dollar you use to buy gasoline for your car.

Here are the facts:

1. Gasoline prices (exclusive of taxes) are only slightly higher than in 1925.
2. Gasoline has increased tremendously in quality. In fact, two gallons of today's fuel will do the work of three gallons of 1925 gasoline.

There are good reasons why you get such wonderful value for your gasoline money. For one thing, U.S. oil companies have spent millions of dollars developing new and better refining processes to produce more and more high octane

gasoline. And, practically every oil company uses "Ethyl" antiknock compound to further step up octane ratings.

So, thanks to America's progressively managed petroleum industry, you get a bargain every time you drive into your service station and say, "Fill 'er up!"

OIL—at Your Service

Because Americans have enjoyed a bountiful supply of petroleum products at low cost for so many years, the average person is likely to take for granted the wonderful service performed by the 2,000,000 men and women in the U. S. petroleum industry. To give this splendid record the recognition it truly deserves, this message is published by

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manufacturers of "Ethyl" antiknock compound
used by refiners to improve gasoline

